

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

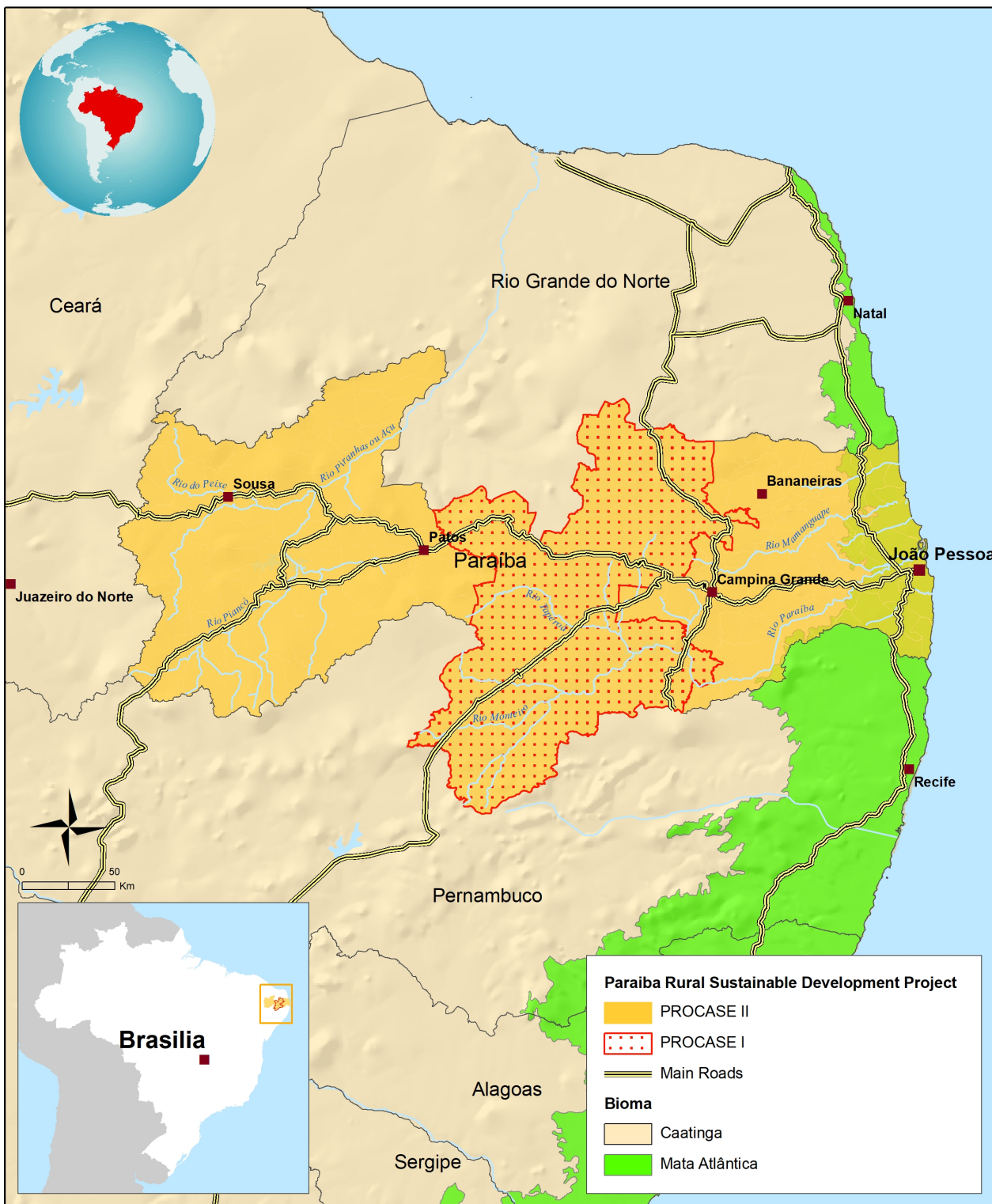
Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



# Map of the Project Area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 02-04-2024

## MEMO for Cofinancing “Type C” Projects

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**DATE:** 05/09/2024

**SUBJECT:** Paraiba Rural Sustainable Development Project

### In line with IFAD mainstreaming commitments, the project intends to qualify as:

Be gender transformative  Be youth sensitive  Be nutrition sensitive  Prioritize persons with disabilities  Prioritize indigenous peoples  Include climate finance  Build adaptive capacity

### Introduction

1. The Paraiba Rural Sustainable Development Project (PROCASE II) is a collaborative effort by IFAD and the Inter-American Development Bank (IDB), in response to a request by the Government of the State of Paraiba, Brazil, to scale up the successful Cariri and Seridó Sustainable Development Project (PROCASE), which was completed on 31/12/2020 and had an overall completion rating of 5 for the project completion report).
2. This type-C project was jointly designed and will be cofinanced by loans from IDB (US\$70 million) and IFAD (US\$10 million) under the Borrowed Resources Access Mechanism (BRAM), along with a counterpart contribution from the State of Paraiba (US\$25 million). The total investment will be US\$105 million, and the project will be implemented over six years.
3. The project's borrower will be the State of Paraiba, and the federal government will provide a sovereign guarantee. The executing agency will be the Secretariat of Family Agriculture and Semiarid Development (SEAFDS). The Rural Extension, Research and Land Regularization State Agency (EMPAER) will be the project's sub-executing agency. See specific annex 23 on the diagnosis of rural Paraiba.
4. **IFAD-IDB collaboration:** IFAD and IDB signed a memorandum of understanding on 31 May 2024 as a framework for cooperation. This will be the third type-C project cofinanced with IDB in Brazil, after the Piauí Inclusive and Sustainable Project (PSI) which entered into force in November 2023 and the Sustainable Development of the Atlantic Forest Project (Parceiros da Mata) approved by the Executive Board in June 2024. This demonstrates the strong collaboration that IFAD has built with IDB in Brazil, with a total volume of US\$402.5 million and leveraging external cofinancing from IDB of US\$270 million. All three projects are with state (subnational) governments. State governments asked IFAD for new project operations, building on previous successful projects and aiming to scale up activities with larger financial volumes. Due to limited financial resources allocated by IFAD to Brazil under BRAM and the high demand for IFAD operations in the northeast region, IFAD invited IDB to participate in the project design and cofinance the initiatives. Through these projects, IFAD has introduced IDB to rural development in northeast Brazil, as IDB had very limited operations in the country in this area.
5. In the IDB-IFAD collaboration in Brazil, IDB normally takes the lead in fiduciary aspects, water, sanitation, infrastructure and safeguards, while IFAD takes the lead in areas such as productive inclusion, mainstreaming themes and technical assistance. IDB recognizes IFAD's expertise and knowledge in rural development in northeast Brazil, which is clearly reflected in the project's design, highlighting significant IFAD influence. While the project design follows the IDB template, it fully integrates IFAD's priorities and mainstreaming themes, including core indicators and targeting methodologies. Specific gap analyses were prepared in areas related to procurement (annex 26), financial management (annex 27) and SECAP (annex 5).
6. **IFAD's programmatic approach in northeast Brazil:** IFAD is developing a large portfolio in northeast Brazil totalling US\$1 billion by leveraging considerable cofinancing from various partners. Therefore, the Fund has become a central actor in the region. These interventions range from (i) state-level (PSI in Piauí, PROCASE II in Paraiba, PPF II in Ceará, Parceiros da Mata in Bahia, and PAGES in Maranhão); (ii) regional, through PCR/P/Sertão Vivo, IFAD's first project with a national development bank, with cofinancing from the Brazilian Development Bank and the Green Climate Fund, and which will be scaled up through additional financing; (iii) federal (at the regional level) with PDHC III, mainly with technical assistance and policy dialogue; and (iv) local innovative initiatives on climate and biodiversity actions (PAGES and CompensACTION). A first non-sovereign operation is being prepared in Brazil targeting IFAD's first credit lending with a well-established cooperative bank. This programmatic approach positions IFAD as a key player in rural development in the country.

## 7. Project Description

8. The **overall objective** of the project is to reduce rural poverty levels, improving food and nutritional security and strengthening the rural population's climate change adaptation capacities.
9. The **specific objectives** are:
  - I. Increase the adoption of agricultural technologies that contribute to climate change adaptation and mitigation
  - II. Improve the productive and social inclusion of family farmers, prioritizing women, youth, traditional peoples and communities (TPCs) and persons with disabilities
  - III. Improve the environmental conditions of rural communities and their surroundings
10. These objectives will be achieved by implementing interconnected activities that aim to change the individual, organizational and inter-institutional capacities of the beneficiaries. The project will have two interrelated components:

**Component I: Resilient production systems to reduce rural poverty.** This component will make investments to improve income, food security and nutrition, adapt production systems to climate change and protect the natural resource base. Productive investments will be made in rural communities and processing units (cooperatives). All activities will especially target women, youth, persons with disabilities, LGBTQIAPN+ and families from traditional communities, with activities planned specifically for these groups. See additional annex 10 and annex 11 on component 1.

**Subcomponent 1.1: Implementation of resilient and biodiverse production systems.** Investments will be made through resilient investment plans (PIR), which will be the instrument for planning and implementing this subcomponent's resources. Resilient investment plans will promote the recovery and implementation of polyculture areas and agricultural agroforestry systems, seeking to intensify biomass production and agricultural production to reduce vulnerability to extreme climate events. At the same time, it will promote the implementation/strengthening of animal production units adapted to the context.

**Subcomponent 1.2: Strengthening and diversifying commercialization.** Business plans (PNs) will be the main instrument for implementing this subcomponent and will be drawn up with producer organizations, usually cooperatives. The business plans should make it possible to finance the structuring of investments and include producers who benefited from the resilient investment plans.

**Subcomponent 1.3: Incentives for innovation.** Equipment, machinery, inputs and products and/or implements developed or adapted to meet the demands and needs of family farmers.

**Component II: Organizational strengthening, capacity-building and knowledge management.**

11. This component will invest in strengthening family production units, ensuring that activities are carried out to assist families individually and collectively, and presenting the main public policies available in the country. Technical assistance and rural extension services will support the preparation and implementation of the resilient investment plans. Specialized technical assistance will especially target the business plans and strengthening the capacities of beneficiary organizations. This includes activities that seek to strengthen commercialization by creating participatory guarantee systems for agricultural products and establishing fairs and commercialization centers.
12. Farmers will have access to services related to land titling and environmental regularization (Rural Environmental Registry - CAR), which will improve the security of land and means of production.
13. The knowledge gained will be recorded and disseminated through knowledge management activities and publications, as well as through exchanges and South-South and triangular cooperation.
14. All the activities will particularly target women, youth, persons with disabilities, the LGBTQIAPN+ community and families of TPCs, such as Quilombolas and Indigenous Peoples, with activities planned specifically for these groups. Beneficiaries will receive information and investments to improve nutrition and food security. See additional annex 12 on component 2.

**Subcomponent 2.1: Strengthening family farmers' capacities.** This subcomponent will work to strengthen families' capacities, considering the weaknesses identified in areas such as production processes; the environmental sustainability of production and the broader landscape; the protection and recovery of threatened natural resources; organizational and governance issues; administrative and financial management issues; commercialization; and access to public policies. This subcomponent's main activities will be done by contracting agroecological technical assistance services, which will elaborate and implement the resilient investment plans under subcomponent 1.1.

**Subcomponent 2.2: Strengthening organizations' commercialization capacities.** This subcomponent will strengthen the capacities of beneficiary organizations such as cooperatives, prioritizing assistance for better business management, processes and commercialization. Its main activities will be done by contracting specialized technical assistance services, which will elaborate and implement the business plans of subcomponent 1.2.

**Subcomponent 2.3: Diversity, gender, youth, nutrition and food security.** The gender, diversity, nutrition and PCT Plans will finance activities to promote gender equality and women's empowerment, as well as the social inclusion and empowerment of Afro-descendants, TPCs, the LGBTQIAPN+ community and persons with disabilities. Activities included in each plan are summarized in the "IFAD's Mainstreaming Areas" section and detailed in annex 12 on component 2.

**Subcomponent 2.4: Land and environmental regularization.** This subcomponent will finance activities to promote the guarantee of ownership and the right to property of the land occupied by farming families and traditional communities located in the area covered by the Project, providing legal security and access to public policies, seeking to promote social inclusion, cultural preservation and environmental sustainability of the territories occupied by these populations<sup>[1]</sup>.

**Subcomponent 2.5: Knowledge management and South-South and triangular cooperation.** This sub-component will support the organization and systematization of knowledge materials, as well exchanges and knowledge-sharing through South-South and triangular cooperation in Brazil, Latin America and Africa. The aim is to visit successful experiences and share the methodology and results achieved during the project's implementation. See additional annex 25 on knowledge management, South-South and triangular cooperation and innovation.

15. The two project components are intrinsically interconnected (see also annex 9). Resilient investment plans and business plans are the main instruments that channel resources to improve production systems and adapt them to climate change, protect the natural resource base and diversify commercialization to benefit family farmers and their organizations. Component 2, in turn, will provide differentiated technical assistance services to support the preparation and correct implementation of these plans considering the specific needs and demands of the target groups. Additionally, component 2 will benefit family farmers and rural communities through capacity-building activities to better access and benefit from available public policies and services related to land titling and environmental regularization, enhancing the effectiveness of investments made in component 1.
16. **Project Management, Monitoring and Evaluation (M&E).** This component will finance project management, monitoring and evaluation, exit strategy and auditing activities. The PMU cost is included under this component and will largely rely on the capacities of the PROCASE I PMU team. The state government of Paraíba has continued to fund the PMU with its own resources since the end of PROCASE I in December 2020 which means the PROCASE PMU is fully operational. This experienced PMU team provided crucial support in the design. The state government has made a commitment to continue funding the PMU until the entry into force of PROCASE II and the team is expected to continue in PROCASE II, provided they go through a selection process based on agreed terms of reference (TdRs), for details see Annex 6 – PIM/ROP.
17. During the main design, the project design team decided to reverse the order of components 1 and 2 of the project concept note to improve the flow and clarity of activities.

## Rationale for IFAD's Engagement in Co-financing and IFAD's Value Added

18. The Project consolidates IFAD's evolving engagement with Brazil as an upper-middle-income Country, with a specific niche operation in the northeast region, maintaining IFAD's solid targeting and inclusion approaches while introducing innovative actions to differentiate IFAD as a partner. This means IFAD provides a small loan but attracts major cofinancing from external and domestic sources while directly influencing the project's overall design and scaling up its operation with a solid legacy on mainstreaming themes. IFAD also introduced a major player in rural development in northeast Brazil (IDB), which, before collaborating with IFAD, had no rural development operation in the region in rural development. As a result, IFAD has increased traction for more investments in rural development in the poorest region of Brazil. IFAD maintains its niche in northeast Brazil where it has built considerable knowledge and a network of partners while targeting the most vulnerable groups, such as women, youth, TPCs, the LGBTQIAPN+ communities and persons with disabilities. Finally, this type-C project reduces the burden on IFAD, as IDB leads support and supervision missions.
19. **Scaling IFAD operations in Paraíba:** The Project will scale up IFAD's sustainable agricultural development approach through partnerships with rural organizations in the State of Paraíba, expanding from the previous 56 municipalities in the semiarid in phase I to encompass the entire state, covering 223 municipalities in both the semiarid and Atlantic Rainforest (see additional annex 19 on lessons learned and linkages between PROCASE phases). The partnership will have the following implications for IFAD: (i) leveraging major additional resources to invest in rural people, applying its development priorities and experience to this cofinancing and consolidating its partnership with IDB; (ii) expanding IFAD's intervention and modus operandi while also benefitting from IDB in fiduciary aspects, safeguards and knowledge on water and sanitation issues; (iii) building on IFAD's experience in small-scale investments (social technologies), such as cisterns, biodigesters, fuel-efficient cookstoves and renewable energies; (iv) increasing outreach geographically and in terms of total beneficiaries; (v) increasing public investments in social inclusiveness and sustainability aligned to public programmes; (vi) reducing administrative costs for design and supervision; (vii) enhancing knowledge management and South-South and triangular cooperation; and (viii) cementing IFAD's partnership with the State of Paraíba.
20. IFAD is widely recognized as a strategic partner of the Paraíba state government. Its comparative advantage is based on (i) successful models of targeting rural communities in poverty and vulnerability, and differentiated approaches to priority groups such as youth, women and TPCs, such as Quilombolas and Indigenous Peoples; (ii) providing a wide range of proven and innovative solutions to improve the productive capacities and climate resilience of family farmers; (iii) continuous technical assistance involving public and private entities to foster resilient agroecological practices, including the adoption of digital technologies; (iv) investing in social technologies with proven effectiveness for access to water, sanitation and renewable energies suited to the conditions of vulnerable communities in the semiarid region; (v) innovative approaches with partners of the private sector and non-governmental organizations to bring commercialization innovations to cooperatives, including the use of digital technologies, and to add value to sustainable products from the semiarid region; and (vi) IFAD has been recognized in Brazil for its work and focus on mainstreaming themes, especially in the area of youth, nutrition, gender and climate finance. IFAD will apply this experience to PROCASE II to support the adoption of sustainable and resilient production practices that promote environmental conservation, food security and nutrition and income generation while reducing rural poverty. In addition, IFAD's Office in Salvador is widely recognized for its performance in project identification, design, supervision and partnerships, as demonstrated in the country portfolio.

## Lessons Learned

21. The lessons learned from IFAD's portfolio in Brazil are highly valued by the Government of Paraíba and the IDB (see additional annex 19 on lessons learned and linkage of PROCASE phases I and II):
1. **Flexibility:** During the implementation of PROCASE I, IFAD met unforeseen challenges with flexibility and proactiveness, thus allowing a timely response to the most severe drought of the last century in the project area, a profound economic recession, a reduction in public support programmes for family farming and the COVID-19 pandemic.
  2. **Implementation readiness:** An experienced team is crucial for rapid project start-up, especially for planning, procuring and preparing community plans. Enabling core PROCASE project management unit staff to continue while adding new staff with other areas of expertise will build a solid basis for the project's implementation.
  3. **Knowledge management:** The State of Paraíba highly appreciates IFAD's support for knowledge management, especially through its partnership with institutions such as the Brazilian Agricultural Research Agency (EMBRAPA) and the Semi-Arid National Institute (INSA).
  4. **South-South and triangular cooperation:** PROCASE I gathered positive experiences with exchanges with other countries, and this was incorporated in the project's design. For example, PROCASE I received technical visits from Mexico, Argentina, Bolivia and Colombia in Latin America, and from Botswana, Lesotho and Zambia in East Africa. See additional annex 25 on knowledge management, South-South and triangular cooperation and innovations.
  5. **Monitoring and evaluation:** Strong evidence-based data and information are key to shed light on the project's implementation, the identification of new operations and policy dialogue. It also serves to make the case for IFAD-type interventions and was critical for the preparation of phase II.
  6. **Policy dialogue:** IFAD's constant dialogue with state authorities and other partners such as non-governmental organizations has strengthened the relationship with policymakers and allowed many PROCASE I innovations to be applied in public support programmes, such as the agroecological logbooks. PROCASE II will also influence public policies directly through its innovations. It also facilitates the alignment of PROCASE with federal and state public programmes.
  7. **Supervision consistency:** the IFAD office in Salvador played a critical role in policy dialogue and maintaining close collaboration and supervision of projects. It was decisive in identifying PROCASE II and elaborating its design in collaboration with IDB. Maintaining a team of key consultants for project supervision and implementation support has built consistency, trust and contextualized knowledge. This ensures quality engagement and results in project implementation and responses to crises.
  8. **Locally based technical assistance:** Working with local civil society organizations with expertise and knowledge of the local reality has allowed PROCASE I to benefit from their experience and expertise, and to build local implementation capacities. This is particularly useful in agroecology, gender transformation and youth inclusion, along with the work in rural communities. It is even more important with a new project area like the Atlantic Rainforest.
  9. **Access to water resources and "social technologies":** The experience of PROCASE I and IFAD's portfolio in Brazil has shown the importance of meeting families' needs for clean water for human consumption, especially in the context of climate change. It has also proven the importance of social technologies for climate resilience, such as cisterns for rainwater catchment, biodigesters, fuel-efficient cookstoves and greywater reuse systems. PROCASE II will seek to apply these solutions and expand them with other innovative sanitation technologies that improve people's health and nutrition and reduce environmental degradation. See additional annex 11 on social technologies.
  10. **Market access:** Productive investments need to be complemented with commercialization as the project will work with products in consolidated value chains such as honey and cashews. The experience built in phase I with organic cotton, for example, and its partnership with the private sector will serve as a reference for expansion and replication.
  11. **Local development agents:** PROCASE I has employed youth from the communities as local development agents. As part of the project team, these agents supported local implementation by strengthening local organizations while ensuring community ownership, proximity and trust. This model will be enhanced and replicated through PROCASE II.
  12. **Agroecological approach:** The agroecological approach adopted by family farming in Paraíba, recognized through PROCASE I, will be further advanced by PROCASE II (see additional annex 24 agroecology in IFAD Brazil). Phase II will promote a holistic approach including practices such as agroforestry, diversification, ecosystem restoration and efficient recycling to reduce reliance on external inputs. Agroecology will help mitigate climate change's impacts and ensure a greater variety of nutritious food.
  13. **Automated Reporting System:** Implement before the start of the project a complementary automated reporting system which generates basic financial statements, required financial reporting as required by BID based on data from governmental system to reduce reliance on manual reporting in excel avoid human errors and delays in reporting.
  14. **Counterpart Funding:** Establish and document in the project implementation manual, a process for capturing beneficiaries' counterpart in conjunction with M&E data and clear criteria for recording and valuation of the same.

## Contribution to SDGs and alignment with country sector and IFAD objectives

22. PROCASE II will contribute directly to the United Nations Sustainable Development Goals (SDGs) by supporting agroecological, resilient and sustainable production systems of poor and extremely poor family farmers and promoting a consistent food security and nutrition strategy. In particular the SDGs: 1 (No poverty), 2 (Zero hunger), 4 (Quality education), 5 (Gender equality), 6 (Clean water and sanitation), 10 (Reduced inequalities), 12 (Responsible consumption and production), 13 (Climate action) and 15 (Life on land). By adopting an approach focused on climate adaptation, nutrition, gender and youth, as well as a focus on rural populations in situations of poverty and vulnerability, the project aligns with the priorities and commitments of IFAD13. The project is also aligned with the three goals of the IFAD Strategic Framework 2016-2025 and the cross-cutting priorities linked to gender, youth, indigenous peoples, persons with disabilities, nutrition and climate change.
23. The project is strongly aligned with the United Nations Decade for Family Farming 2019-2028 and the National Action Plan, recognizing the enormous contribution of family farming to the achievement of the 2030 Agenda for Sustainable Development and the role that family farming plays in improving nutrition and ensuring global food security, eradicating poverty, ending hunger, conserving biodiversity and environmental sustainability.
24. The project is also aligned with the United Nations Sustainable Development Cooperation Framework (UNSDCF) 2023-2027. The current UN cooperation framework for Brazil extends from January 2023 to December 2027. It relies on the Federal Pluriannual Plan (PPA) as a primary reference document, which enhances the alignment of the UN system's initiatives with the country's development priorities. While the framework is nationally owned and monitors the 2030 agenda at a national level, its guiding principles are reflected in PROCASE II, as well as the set of five strategic priority areas identified (i) Economic Transformation; ii) Social Inclusion; iii) Environment and Climate Change; iv) Governance and Institutional Capacity; and v) Conflict Prevention and the relation between Humanitarian actions, Development actions and Peacebuilding Efforts.
25. PROCASE II will contribute to the three strategic objectives established in IFAD's new country strategic opportunities programme (COSOP) in Brazil 2024-2029. PROCASE II was designed simultaneously with the new COSOP preparation, and it will contribute to the achievement of three strategic objectives (SOs): SO1 (Improve sustainable agricultural production, food security, nutrition and market access with a focus on environmental and climate sustainability), through component 1 and 2; SO2 (Enhance public policies and programmes through evidence-based revision and scaling of best practices), through component 2 and project management, monitoring and evaluation; and SO3 (Strengthen the capacities of government institutions and organizations of the rural poor to drive inclusive and sustainable rural development), through components 1 and 2. PROCASE II will contribute to the COSOP because it will strengthen and transform family farming systems in the northeast through approaches that are environmentally sustainable, resilient and guarantee food security and nutrition for families, especially by: (i) enhancing agricultural production, food security, nutrition and access to markets; (ii) improving rural development and rural poverty reduction public policies; and (iii) strengthening the capacities of farmers' organizations. The project took full advantage of the preparation of the new Brazil COSOP and its strategic directions, especially its preparatory thematic studies and stakeholder consultation process.
26. **Public programme linkages:** The project's proposed interventions will not be carried out in isolation. Rather, they are integrated with public programmes at the federal and state levels: The National Program for Technical Assistance and Rural Extension in Family Farming and Agrarian Reform (PRONATER), the National Program for Strengthening Family Farming (PRONAF), the Food Acquisition Program (PAA), the National School Feeding Program (PNAE), the Cistern Program, the National Policy for the Sustainable Development of Traditional Peoples and Communities, and the National Plan for the Promotion of Citizenship and Human Rights of LGBTQIA+ people. It also aligns with the National Plan for Agroecology and Organic Production (PLANAPO), which is currently being developed. IFAD has been invited by the General Secretariat of the Presidency of the Republic to participate as the only international organization.
27. In addition to the programmatic synergy, various PROCASE activities will positively influence the abovementioned programmes by, for example, developing capacity-building activities for public and private technical assistance providers on agroecology and climate change, implementing more structured and long-term technical assistance schemes for families (in a context of low coverage and sporadic actions), helping families and communities to effectively access programmes and policies, and enabling more flexible and agile investments in productive infrastructure and innovations that can be scaled up in the future.
28. Moreover, the project will use the legal frameworks of public policies (such as technical assistance and water access) and mobilize activities of other partner state secretariats.
29. The high rating for PROCASE II by the Commission for External Financing (COFIEX) is evidence of its strong alignment with federal policies. The project was approved as a number 1 priority by the federal government.
30. At the state level, the Project is fully aligned with the strategic guidelines of the Paraíba State Government and it is an integral part of the new **Pluriannual Plan (PPA)** under the Sustainable and Competitive Economy Program. The PPA 2020-2023 has defined strategic axes that guide its main lines of activity. Two axes directly relate to PROCASE II: Strategic Axis 2 - Paraíba Developed, Sustainable, and Integrated and Strategic Axis 3 - Paraíba Innovative, Creative, Intelligent, and Strategic. PPA Guidelines II and III indicate the government will support the creation of innovative regional environments in line with local vocations, assets, and productive arrangements and foster water-environment management with the improvement of essential public services. Regarding Gender, PROCASE II is aligned with the **Women's Entrepreneurship** state policy - a line of credit created by the Government of Paraíba in partnership with the State Secretariat for Women and Human Diversity to provide the dignity of women in situations of social vulnerability, promote their economic autonomy and foster women's leading role in entrepreneurship. Regarding youth, PROCASE is also aligned with the **Inclusive Paraíba Program**, coordinated by SEAFDS and run by EMPAER, whose main objective is to encourage the social and economic empowerment of family farming



households through access to rural development, aimed at implementing agricultural and/or non-agricultural rural projects, with special focus on activities carried out by young people.

31. PROCASE II will also act in a complementary and synergistic way with other IFAD investment projects in the State of Paraíba: PCR/Sertão Vivo with BNDES/GCF and PHDC III (federal) both have operations in Paraíba. It could also play a key role in policy dialogue, especially regarding its contribution to the Forum of State Secretaries of Northeast Brazil and the Consortium of Governors of Northeast.
32. The project will maintain a close relationship with IFAD's Centre for Knowledge and South-South and Triangular Cooperation (SSTC) in Brasilia, which will help to build networks and exchanges with other initiatives inside and outside the country.

## Definition of Target Groups and Targeting Strategy

33. **Geographical targeting.** In 2022, the population of Paraíba was 3.97 million inhabitants (2 per cent of Brazil's population), over 24.6 of which lived in rural areas. Moreover, 80 per cent of the population receives an income below the minimum wage, 47.4 per cent lives in poverty, 15.6 per cent lives in extreme poverty and 63.9 per cent is food insecure, with 10.6 per cent experiencing severe food insecurity. PROCASE II will cover the rural areas of all 223 municipalities of the State of Paraíba. Phase I encompassed 56 municipalities, and the expansion to the entire state is mainly to reach Indigenous communities, which are concentrated in the coastal zone and Atlantic Forest biome. The interventions will prioritize communities based on the following technical criteria: (i) incidence of rural poverty (Single Registry); (ii) presence of TPCs; (iii) incidence of food insecurity and malnutrition; (iv) concentration of rural women and youth; (v) limited access to water for human consumption and production; and (vi) the avoidance of overlap with other IFAD interventions, such as PROCASE I, Sertão Vivo and PDHC III.
34. **Social targeting.** PROCASE II will target family farming families in poverty and extreme poverty, especially in municipalities with a lower Human Development Index and more significant deprivation. The project will directly reach **60,000 families** (around 210,000 people), of which 50 per cent will be women, 20 per cent young people, 5 per cent PCTs and 2 per cent persons with disabilities. The project's main target groups are: (i) family farmers living in poverty and extreme poverty, (ii) rural women, (iii) rural youth, (iv) TPCs, (v) persons with disabilities and (v) LGBTQIABP+.<sup>[2]</sup> To close the income gap, 50 per cent of the PIR funds and 50 per cent of the business plan funds will go to women-led associations and cooperatives, and 20 per cent of the PIR funds will go to youth groups (see POD annex 1 and annex 10 on component 1).
35. **Targeting strategy.** The Single Registry (CadÚnico) will be used as the project's direct targeting mechanism. A total of 70 per cent of beneficiary families in participating rural organizations must have the Single Registry profile (poverty or extreme poverty). Direct targeting will be combined with other measures: self-targeting (e.g., working through priority groups to address their specific needs), focus on capacity-building and awareness raising to ensure the participation of the most vulnerable groups: women, youth, traditional communities (mainly Indigenous and Quilombolas) and LGBTQIAPN+, and operative measures (e.g., gender, youth and TPCs specialists in the project monitoring unit; promotion of gender parity and awareness raising within the project team and implementation partners on gender, age, race and identity issues). See annex 21 and 22 for gender and diversity diagnosis.
36. The expected impact of PROCASE II is significant. 18,000 families will benefit from resilient investment plans, 5,000 families who are members of cooperatives and other organizations will benefit from business plans, 5,000 families will benefit from land and environmental regularization and more than 32,000 will have greater capacity to access public programmes. More than 30,000 women, 12,000 young people and 1,300 TPCs will be strengthened. Women-headed families will constitute at least 50 per cent of the beneficiaries of resilient investment plans and business plans, demonstrating a clear commitment to gender equality and social inclusion.

## IFAD's Mainstreaming Areas

37. The project fulfils both IFAD's and IDB's social and environmental standards. IFAD conducted a gap analysis, which concluded that the institutions' standards are aligned and mutually reinforcing, and an identified gap was fulfilled with the preparation of a specific study on targeted adaptation assessment. Since it is a type-C project, IFAD will accept IDB's social and environmental standards. The project will adopt a youth-sensitive, nutrition-sensitive, gender-transformative and climate-centered approach, as well as prioritize Indigenous Peoples and persons with disabilities. Specific gender and diversity diagnosis reports have been prepared (see additional annexes 20 and 21).
38. **Gender-transformative:** Rural women in Paraíba are particularly vulnerable to poverty and food insecurity, reporting 31.3 per cent lower incomes than men and more limited access to food (22.7 per cent among women and 23.5 per cent among men). In this state, the Gender Disparity Index is 0.68 per cent, indicating that Paraíba women are 32 per cent less likely to have the same opportunities as men, with the most significant gaps being in political empowerment and economic opportunity. In rural areas, resistance to advances in women's autonomy and rights is even greater. Gender gaps are expressed in restrictions on control and access to natural, social and monetary resources. Women run 24 per cent of family farms but own only 15 per cent of the family farming area. Only 15 per cent of women family farmers receive technical assistance, compared to 17 per cent of men. Regarding the management of establishments, women run only 24 per cent of family farming establishments in the project area.
39. The project will use technical assistance and training methodologies, including agroecological logbooks. These are a valuable

tool for measuring, valuing and giving visibility to women's fundamental contributions to the family economy, as well as to community development, promoting women's self-esteem and confirming their important contribution to a healthy, diversified and safe family diet. The project also aims to reduce the difficulties of women's work through the introduction of social technologies, especially those related to access to water. Women's participation in project activities will be facilitated through the organization of childcare services, leadership training and the promotion of women's decision-making roles at the community or organizational levels.

40. **Youth-sensitive:** Among the main challenges faced by rural youth in the Project area are: (i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), (ii) lack of access to and control over resources, inputs, goods, and technologies, (iii) limited access to public policies and services and (iv) low participation and decision-making power in rural and community organizations. Among young people aged 15 to 29 in Paraíba, 35.1 per cent were neither studying nor working in 2021. A higher percentage of young Afro-descendant women neither study nor work. Household chores and caring for family members are among the main barriers young women face in continuing their studies or getting a paid job. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba. The incidence of food insecurity is particularly high among youth, with 37.5 per cent having faced difficulties in accessing food in the last year (87 per cent gap with the older population in Paraíba) and 37.5 per cent having faced difficulties in accessing food in the last year (87 per cent gap with the older population in Paraíba).
41. The project will take an integrated approach to tackling the root causes of youth exclusion, using successful approaches from other IFAD-supported projects in Brazil. Examples of these approaches are: (i) supporting the involvement of young people in the adoption of practices, approaches and techniques based on the principles of agroecology and coexistence with semiarid zones, which encourage the sustainable use and management of natural resources; (ii) creating new income-generating opportunities (agricultural and non-agricultural); (iii) promoting social skills and involvement in processes of social transformation in the territories; (iv) training young leaders to strengthen their decision-making power at community, territorial and organizational level; (v) young communicators' program; (vi) technical assistance services adapted to the different needs of young people and incorporating them into technical assistance teams; (vii) selecting young local development agents from the communities to support the implementation of resilient investment plans; and (ix) supporting rural youth networks.
42. **Nutrition-sensitive:** Approximately 63.9 per cent of households in rural Paraíba face some degree of food insecurity, 10.6 per cent of which face severe food insecurity. The State of Paraíba faces the double burden of malnutrition: 62.5 per cent of adults in Paraíba have overnutrition (35.5 per cent overweight and 27.0 per cent obese). Stunting affects 4.9 per cent of children under 5, wasting affects 4.2 per cent, overweight affects 8.4 per cent and obesity impacts 6.8 per cent. The main causes of malnutrition in the project area are the difficult access to water for human consumption and food production, the lack of productive diversification leading to limited access to more nutritious food, and the lack of knowledge on balanced diets (nutrition education).
43. The project's activities aim to respond to these challenges, focusing on: (i) agricultural production, in particular with support for productive agroecological backyards, which will aim to increase the availability of nutritious food for the most vulnerable families, (ii) raising awareness of good nutrition and health practices (reproductive health, maternal health and child health), (iii) raising awareness of food culture, the role of neglected and underutilized species in nutrition and training in the processing of healthy local products to increase their daily consumption.
44. **Climate finance and building adaptive capacity:** The northeast region is considered one of the country's most vulnerable to climate change. It is characterized by low adaptive capacity, with a predominance of rainfed agricultural production systems. Between 2011 and 2017, the most severe drought in the last 30 years occurred, generating crop losses for six million producers and increasing food insecurity. Future climate models, regardless of the scenario and time interval analyzed, predict reduced precipitation, increased temperature and a higher probability of extreme events, especially droughts and floods, with a negative effect on the productivity of predominant crops and an increased risk of losses. For example, productivity losses in corn are estimated to be between 29 per cent and 55 per cent by 2050. Combined with the deforestation and soil degradation trends, climate change could impact the productive potential agricultural systems of local family farmers.
45. The project aims to enhance the adaptive capacity of farmers to climate changes through: (i) agroecological practices; (ii) restoring water sources and waterways through conservation of existing forests, reforestation of degraded areas, and agroecological soil conservation practices; (iii) investing in technologies for capturing, storing and treating water, as well as increasing water use efficiency; and (iv) promoting diversified agroforestry systems.
46. **Persons with disabilities:** The northeast has the highest percentage of persons with disabilities, affecting 10.3 per cent of the population or about 5.8 million persons, with the highest percentages affecting women and Afro-descendants. In Paraíba, 88.7 per cent of persons with disabilities do not work, and 74.4 per cent earn less than the minimum wage, which demonstrates the greater difficulties these persons face in earning a decent income. In addition, access to food is an issue for this group: 25.7 per cent of persons with disabilities faced difficulty in obtaining food in the last 12 months, compared to 21.7 per cent among people without disabilities.
47. PROCASE II will directly target persons with disabilities, seeking their meaningful participation by hearing their priorities and engaging them in decision-making regarding the resilient investment plans and business plans. Processing units will be adapted to ensure accessibility, and the project will foster innovations that make agricultural activities disability-inclusive. PROCASE II will also report disability-disaggregated data in many results matrix indicators. The diversity plan of subcomponent 2.3 includes activities exclusively targeting persons with disabilities, such as demand-driven thematic meetings and training.
48. **Traditional peoples and communities:** Indigenous peoples and Afro-descendants represent 64.9 per cent of family farmers in Paraíba and are particularly vulnerable due to historical dynamics of exclusion, high dependence on natural resources and poor

access to basic services. There are also other traditional populations, such as Roma and artisanal fishers.

49. **Indigenous people:** Paraíba has 30,492 indigenous people, corresponding to 0.76 per cent of the state's total resident population. Of the total number of indigenous people in Paraíba, 50.8 per cent are women, and 25.6 per cent are young people between ages 15 and 29. However, only 6,842 indigenous people (18.7 per cent of the total) live in indigenous territories. In the Single Registry, there are 6,328 indigenous families registered, 73.1 per cent of which live in poverty or extreme poverty.
50. **Quilombolas:** According to the recently published data from the 2022 Demographic Census, there are 16,584 Quilombolas in Paraíba, but only 17.6 per cent (2,918 people) live in the state's 11 officially delimited Quilombola territories. There are 47 certified Quilombola communities in Paraíba, none with titled territory, and only 11 of them demarcated. A total of 68% of the Quilombolas in Paraíba live in poverty or extreme poverty.
51. The project will adopt free, prior and informed consent (FPIC) for activities involving TPCs, considering IFAD's previous experience. This will be approached considering the multidimensionality of the territories of the TPCs, oriented towards the governance and sustainable collective management of their territories, ethnodevelopment, the sustainability of their food systems and the conservation and use of biodiversity and agrobiodiversity based on traditional knowledge, as well as access to markets for the promotion of cultural identity. The technical assistance approach will consider these sociocultural aspects, traditional knowledge and ways of life, and all technical assistance technicians will receive training in race and ethnicity. The TPCs will also benefit from greater access to water and access to renewable energy and sanitation through adapted social technologies that improve their living conditions, and they will be prioritized when receiving productive investments. The project will also contribute to the valorization and dissemination of traditional knowledge related to production (traditional agricultural systems) and nutrition through participatory nutritional education activities.
52. PROCASE II innovates covering all IFAD mainstreaming priorities and establishing specific social inclusion strategies with dedicated budgets to promote the participation of each target group: women, youth, TPCs, persons with disability and the LGBTIQAPN+ community. It is also important to highlight that an ample public stakeholder public consultation was conducted regarding the project design as part of the safeguard process, as can be seen in additional annex 8.7.

## Results Framework

53. The IDB recognized IFAD's expertise in monitoring and evaluation and adopted IFAD's logical framework and core indicators methodology. The logical framework includes several indicators defined by IFAD, namely:
  - Awareness-raising disaggregated by gender, youth, persons with disabilities and traditional peoples and communities (CI 1);
  - Women reporting minimum dietary diversity (MDDW) (1.2.8);
  - Persons with new jobs/employment opportunities (2.2.1);
  - Individuals demonstrating an improvement in empowerment (IE.2.1);
  - Households reporting an increase in production (1.2.4);
  - Rural producers' organizations reporting an increase in sales (2.2.5);
  - Persons accessing technologies that sequester carbon or reduce greenhouse gas emissions (3.1.3);
  - Rural producers' organizations supported (2.1.3);
  - Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices (3.2.2);
  - Households satisfied with project-supported services (SF.2.1);
  - Households reporting they can influence decision-making of local authorities and project-supported service providers (SF.2.2);
  - Households provided with targeted support to improve their nutrition (1.1.8);
  - Number of beneficiaries gaining increased secure access to land (1.1.1); and
  - Tons of greenhouse gas emissions (tCO<sub>2e</sub>) avoided and/or sequestered (3.2.1).
54. The avoided/sequestered tCO<sub>2e</sub> data was evaluated using the FAO EX-ACT software. During project implementation, IFAD will facilitate collaboration with FAO to monitor indicators related to economic and financial analysis and carbon analysis. A dedicated monitoring and evaluation Plan (annex 14) was prepared, including the theory of change (annex 9). The ex-ante economic and financial (EFA) and ex-ante EX-ACT analysis were included as annexes 17 and 18.

## Project Cost and Financing, including IFAD contribution

55. The total project cost will be US\$105 million, of which US\$70 million (66.7 per cent) will be financed through an IDB loan, US\$10 million (9.5 per cent) through an IFAD loan (BRAM), and US\$ 25 million (23.8 per cent) as a state government counterpart contribution. Additionally, project beneficiaries would contribute around US\$10 million, which has not been included in the total costs per IDB's standard practice but will be accounted for by the PMU and monitored by IFAD. The federal government will provide its sovereign guarantee. The project will be financed proportionally by IFAD, IDB and the State of Paraíba across all components. This will ensure IFAD participation and engagement in the entire project, as well as visibility during implementation. The COSTAB was prepared as a separate annex.

**Table 1 - Project costs by component and financier(in US\$ million)**

Component	IDB	IFAD	State	Total	%
1 - Resilient production systems to reduce rural poverty	42.28	6.04	15.10	63.42	60.4
2 - Organizational strengthening, capacity building and knowledge management	20.87	2.98	7.45	31.30	29.8
Project management, monitoring and evaluation	6.85	0.98	2.45	10.28	9.80
<b>Total</b>	<b>70.0</b>	<b>10.0</b>	<b>25.0</b>	<b>105.0</b>	<b>100.0</b>

## Alignment of the Design Process

56. The project design was co-led by IFAD and IDB and jointly prepared with the Government of Paraíba, mainly through the support of the ongoing PROCASE project management unit. Although PROCASE closed in December 2020, the Government of Paraíba decided to finance the continuation of the project with its own resources so that the project is operational up until now with the project management unit and regional offices. The PROCASE team provided valuable inputs for the design and facilitated the field visits and documents review. The entire design was prepared in very close cooperation with the PROCASE team.
57. The project will be type-C and, therefore, follow the IDB template and documentation. IDB documents were prepared in Portuguese and Spanish, both recognized as official languages in IDB. IFAD translated the Portuguese documents to English. A draft coordination agreement between IFAD and IDB was prepared to ensure full alignment, and it is now being finalized.
58. SECAP - Safeguard gap analysis: IFAD has conducted a safeguard gap analysis of the social, environmental and climate policies, which identified that IDB policies and guidelines are generally aligned with IFAD's SECAP. An additional study on targeted adaptation assessment, which was required to comply with IFAD's SECAP, was prepared and is included as a separate annex (8.5). The entire safeguard documentation is included under annexes 5 and 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 and 8.8.
59. Financial management and procurement gap analysis: The financial management and procurement arrangements of the two institutions revealed almost full coverage of the IFAD requirements by IDB policies. IDB's financial reporting formats will be accepted by IFAD as equivalent to Interim Financial Reports (IFRS). The identified gaps have been filled by introducing some of IFAD's financial management and procurement requirements in the draft coordination agreement to be signed between IFAD and IDB. It will follow the model of the agreement signed in 2024 for Parceiros da Mata in Bahia. See additional annex 27 on financial management gap analysis and annex 26 on procurement gap analysis.
60. The project has a six-year implementation period. It is expected to be submitted for approval to IFAD's Executive Board through the lapse-of-time procedure in October 2024. The IDB Board is expected to approve the project in February 2025, as it is included in their pipeline for next year.

## Supervision Arrangements

61. The IFAD financing agreement would provide that IDB shall be the cooperating institution for the project, for which a coordination agreement was drafted and is under finalization. Under the draft coordination agreement, IDB will coordinate with IFAD to advance the planning and terms of reference for supervision and other missions so that IFAD may contribute to the terms of reference and directly participate in the missions. IFAD's participation in supervision missions will cover topics according to the project's needs and in coordination with IDB, and may focus on targeting, IFAD's mainstreaming themes (gender, youth, nutrition and climate change), procurement, monitoring and evaluation and knowledge management. IDB and the State of Paraíba recognize the high quality of supervision and implementation support provided by IFAD, and IDB will work closely to plan and prepare the missions to ensure the incorporation of IFAD supervision knowledge and experience. IFAD's office in Salvador will continue to play a vital role in supervision by virtue of its excellent working relationship with the State of Paraíba and northeastern states in general, and its strong linkage with the IDB team and other partners, such as civil society organizations. It will also ensure coordination with other IFAD interventions in Paraíba including PCR (GCF/BNDES) and PDHC III (MDA).

### **Estimated Cost Sharing by IFAD for Design and Implementation**

62. IDB and IFAD will share the total cost of the design based on each institution's expertise and knowledge. During the design, IFAD took the leadership in preparing components 1 and 2, while IDB took the lead in safeguards, procurement and financial management. IFAD also led the targeting and mainstreaming section while IDB led the operational aspects, such as the project implementation manual (PIM or ROP in IDB language). IDB has fully adopted IFAD's core outcome indicators, valuing IFAD's monitoring and evaluation expertise, particularly regarding mainstreaming themes.
63. The Coordination Agreement will include fees, and considering this is the third type-C in Brazil with IDB, the country team is negotiating a reduction in the annual service fee (including a preparation fee and an annual fee). The agreed supervision fee is US\$66,216 over six years (US\$11,036 annually), which is highly competitive relative to other similar cooperating institutions' costs for type-C projects within IFAD. IFAD will have a dedicated supervision and implementation support budget for the project to cover its participation in missions, which was a requirement from the government of Paraíba in order to go ahead with the project.

### **Risk**

64. **Fiscal risk (debt capacity).** Sovereign guarantees from the Federal Government of Brazil will cover the loans. A pre-condition for this will be a solid credit rating of the state by the federal government. The National Treasury monitors the states' debt capacity annually and currently rates Paraíba with its highest rating of "A" (June 2024). Only two states in northeast Brazil have such a rating: Bahia and Paraíba. The rating considers three main indicators: (a) debt by net current revenues, (b) saving and (c) liquidity. Maintaining a rating of "A" or at least "B" will be critical until the financing and guarantee agreements are signed (expected by the end of 2025) to avoid delays or even the risk of cancelling the project. Finally, IFAD RMO's is expected to prepare a dedicated risk analysis of the subnational loan to Paraíba (with a Sovereign Guarantee), as it has done for Piauí (PSI), Bahia (Parceiros da Mata) and Ceará (PPF II).
65. **Electoral and institutional risks,** mainly at municipal levels, are relevant due to the possible changes in the political scenario that may arise from the October 2024 municipal elections, which may also delay the Senate's approval of the Project and its entry into force. General elections at the federal and state levels will take place in October 2026 and could lead to changes in federal priorities. These risks would be mitigated through the involvement of several other partners in project implementation, including public state agencies, civil society, and private sector, and by continuing the excellent dialogue that IFAD maintains with state and federal counterparts as well as policy dialogue platforms such as the Forum of State Secretaries of Family Farming and the Northeast Consortium of Governors, which are strong IFAD partners. The co-financing with IDB, which has a substantive active portfolio of US\$9 billion in Brazil, will also help mitigate risks. The proactive joint IDB-IFAD supervision and implementation support arrangements will be key for reducing risks. IFAD has acquired important experience in dealing with political changes and risk situations in Brazil over the last years as can be seen by the portfolio.
66. **Federal government alignment.** The Project aligns with subnational financing arrangements in the country's federative structure, and the State of Paraíba will be responsible for implementation and loan repayment. PROCASE II fits the Federal Government's priorities according to the criteria established for external financing, as evidenced by the Commission for External Financing (COFIEX), which is comprised of the Ministry of Finance, Ministry of Planning and Ministry of Foreign Affairs. At COFIEX, the Project proposal ranked as number 1 among more than 30 proposals, highlighting its high priority and alignment with the federal government.
67. **Capacity of service providers.** For some tasks, such as technical assistance and the provision of specialized technical assistance, there is a risk of a lack of qualified personnel in the area. To mitigate this risk, the institutional strengthening of component 2 will offer training and capacity building. Grant projects, such as IFAD's DAKI-Semiárido Vivo, will also provide training to teams mainly on climate adaptation practices.
68. **Start-up delays:** PROCASE I suffered from start-up delays in its initial three years of implementation. This risk will be mitigated because PROCASE I is still ongoing and financed entirely with State of Paraíba resources and maintains the project management unit and regional offices. The staff has experience in project implementation and will be key in ensuring a rapid start-up. IFAD and IDB's previous knowledge and experience will also be instrumental in avoiding delays.
69. **Delays in reporting on use of funds investment and business plans.** Establish in the project implementation manual clear mechanisms for the approval, disbursements and reporting on the use of funds transferred in the form of investment and business plans and ensure the technical assistance provided to producer organization includes support on administrative matters and reporting on use of funds
70. **Reliance on excel for financial reporting.** Before the start of the Project and as a condition for disbursement, implementation of a complementary automated reporting system similar to the SIGMA system used within the World Bank financed COOPERAR project.
71. **Counterpart funds:** Mobilizing counterpart funds in the magnitude required by the project will be a challenge but also shows the government's high level of commitment. In addition, the counterpart funds will come from various sources, mainly from other state programmes and policies, thus diversifying the sources and reducing the risk. Nevertheless, supervision missions will need to follow the counterpart funds closely.
72. **IFAD visibility.** Being a type-C project with limited IFAD financing, PROCASE II could present visibility issues for IFAD. This risk will be mitigated mainly by: (i) the proportional financing across project components by each financier, which will ensure IFAD's participation in the financing of all project activities; (ii) IFAD's continued excellent policy dialogue with the state and other actors in the region; (iii) active participation and collaboration in supervision and other missions, as evidenced by the design mission; (iv) close dialogue with the IDB team; and (v) knowledge management, policy dialogue and South-South and triangular cooperation, which will be integrated into project implementation, supported by IFAD's South-South and Triangular Cooperation and Knowledge Centre in Brasilia.

## Footnotes

[1] Land titling is a highlighted dimension of the project as it contributes to the sustainability of investments and enables families to continue making other investments and accessing other public policies, especially those related to credit. In addition to the individual titling of properties for smallholder family farmers, the project will also support the collective titling of historic Quilombola communities, only in areas free from conflict or legal disputes.

[2] In addition to the context of high invisibility and vulnerability, there is still no census or sample data that allows, even in an exploratory way, to estimate this population, especially in rural areas. The sole data available on LGBTQIAPN+ is included in the National Health Survey (2019), in which there is an underreporting of self-declared LGBTQIAPN+ due to fear of prejudice. Thus, it was decided not to establish specific outreach targets.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex 1: CI PDR**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





**BRASIL**

**PROYECTO DE DESARROLLO RURAL SOSTENIBLE  
DEL ESTADO DE PARAIBA (PROCASE II)**

**(BR-L1623)**

**PROPUESTA DE DESARROLLO DE LA OPERACIÓN**

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## ÍNDICE

<b>RESUMEN DEL PROYECTO.....</b>	<b>1</b>
<b>I. DESCRIPCIÓN DEL PROYECTO Y MONITOREO DE RESULTADOS.....</b>	<b>3</b>
A. Antecedentes, problemática y justificación.....	3
B. Objetivos, componentes y costo .....	13
C. Indicadores clave de resultados.....	15
<b>II. ESTRUCTURA DE FINANCIAMIENTO Y PRINCIPALES RIESGOS .....</b>	<b>16</b>
A. Instrumentos de financiamiento .....	16
B. Riesgos ambientales y sociales .....	17
C. Riesgos fiduciarios.....	19
D. Otros riesgos y temas clave.....	19
<b>III. PLAN DE IMPLEMENTACIÓN Y GESTIÓN.....</b>	<b>20</b>
A. Resumen de los arreglos de implementación .....	20
B. Resumen de los arreglos para el monitoreo de resultados .....	23
<b>IV. CRITERIOS DE ELEGIBILIDAD .....</b>	<b>23</b>

<b>ANEXOS</b>	
Anexo I	Matriz de Efectividad en el Desarrollo (DEM) - Resumen
Anexo II	Matriz de Resultados
Anexo III	Acuerdos y Requisitos Fiduciarios
Anexo IV	Filtro de Política de Salvaguardias (SPF) y Formulario de Evaluación de Salvaguardia (SSF)

<b>ENLACES ELECTRÓNICOS REQUERIDOS (EER)</b>	
EER#1	<a href="#">Plan de Ejecución Plurianual (PEP) / Plan Operativo Anual (POA)</a>
EER#2	<a href="#">Plan de Monitoreo y Evaluación</a>
EER#3	<a href="#">Resumen de la Revisión Ambiental y social (ESRS)</a>
EER#4	<a href="#">Plan de Adquisiciones</a>

<b>ENLACES ELECTRÓNICOS OPCIONALES (EEO)</b>	
EEO#1	<a href="#">Análisis Económico del Proyecto</a>
EEO#2	<a href="#">Informe de Componentes</a>
EEO#2	<a href="#">Informe de Género y Diversidad</a>
EEO#3	<a href="#">Informe de Sostenibilidad y Cambio Climático</a>
EEO#4	<a href="#">Matriz de Resultados - Extendida</a>
EEO#5	<a href="#">Diagnóstico PROCASE</a>
EEO#6	<a href="#">Reglamento Operativo del Proyecto (ROP)</a>
EEO#7	<a href="#">Citas Bibliográficas</a>

<b>APÉNDICES REQUERIDOS</b>	
Apéndice I	<a href="#">Matriz de Riesgos</a>
Apéndice II	<a href="#">Matriz de Efectividad en el Desarrollo (DEM)</a>

<b>ABREVIATURAS</b>	
AF	Agricultura Familiar
AP	Acuerdo de País
BID	Banco Interamericano de Desarrollo
BNDES	Banco Nacional de Desarrollo Económico y Social
CAPAG	Clasificación de Capacidad de Pago
CAR	Catastro Ambiental Rural
CC	Cambio Climático
CCLIP	Línea de Crédito Condicional para Proyectos de Inversión
CODETER	Colegiados de Desarrollo Territorial Sostenible
EASE	Evaluación Ambiental y Social Estratégica
EMPAER	Empresa Paraibana de Investigación, Extensión Rural y Regularización de Tierras
ESS	Estrategia Ambiental y Social
GCF	Fondo Verde del Clima
IGAS	Informe de Gestión Ambiental y Social
IICA	Instituto Interamericano de Cooperación para la Agricultura
LAC	América Latina y el Caribe
M&E	Monitoreo y Evaluación
MDA	Ministerio de Desarrollo Agrario y Agricultura Familiar
MPAS	Marco de Política Ambiental y Social
NDAS	Normas de Desempeño Ambiental y Social
OB	Organizaciones Beneficiarias
PcD	Personas con Discapacidad
PAC	Plan de Aceleración del Crecimiento
PDHC	Proyecto Dom Helder Cámara
PCT	Comunidades Tradicionales
PEP	Plan de Ejecución Plurianual
PGAS	Planes de Gestión Ambiental y Social
PIB	Producto Interno Bruto
PIR	Planes de Inversión Resiliente
PN	Planes de Negocio
POA	Plan Operativo Anual
POD	Propuesta de Desarrollo de la Operación
PPPI	Planes de Comunicación e Involucramiento de las Partes Interesadas
PROCASE	Proyecto de Desarrollo Rural Sostenible del Estado de Paraíba
ROP	Reglamento Operativo del Programa
SEAFDS	Secretaria de Agricultura Familiar y Desarrollo del Semiárido
SGAS	Sistema de Gestión Ambiental y Social
SPF	Filtro de Política de Salvaguardias
SSF	Formulario de Evaluación de Salvaguardia
UGP	Unidad de Gestión del Proyecto

**RESUMEN DEL PROYECTO**

**BRASIL**

**PROYECTO DE DESARROLLO RURAL SOSTENIBLE DEL ESTADO DE PARAÍBA (PROCASE II)  
(BR-L1623)**

**CUARTA OPERACIÓN INDIVIDUAL BAJO LA LÍNEA DE CRÉDITO CONDICIONAL PARA PROYECTOS DE INVERSIÓN  
(CCLIP) PARA EL “PROGRAMA DE AGRICULTURA Y DESARROLLO SOSTENIBLE”  
(BR-O0008)**

<b>Términos y Condiciones Financieras</b>				
<b>Prestatario:</b>			<b>Facilidad de Financiamiento Flexible <sup>(b)</sup></b>	
Estado de Paraíba			<b>Plazo de amortización:</b>	23,5 años
<b>Garante:</b>			<b>Período de desembolso:</b>	6 años
República Federativa del Brasil			<b>Período de gracia:</b>	7 años <sup>(c)</sup>
Estado de Paraíba, por medio de la Secretaría de Estado de la Agricultura Familiar y Desarrollo del Semiárido			<b>Tasa de interés:</b>	Basada en SOFR
La Empresa Paraibana de Investigación, Extensión Rural y Regularización de Tierras (EMPAER) actuará como sub-ejecutora de las actividades de regularización de tierras del Componente II.			<b>Comisión de crédito:</b>	<sup>(d)</sup>
			<b>Comisión de inspección y vigilancia:</b>	<sup>(d)</sup>
<b>Fuente</b>	<b>Monto (US\$)</b>	<b>%</b>	<b>Vida Promedio Ponderada (VPP):</b>	15,25 años
<b>BID (Capital Ordinario):</b>	70.000.000	66,7	<b>Moneda de aprobación:</b>	
<b>Cofinanciamiento conjunto FIDA<sup>(a)</sup>:</b>	10.000.000	9,5		
<b>Local:</b>	25.000.000	23,8		
<b>Total:</b>	105.000.000	100,0		
<b>Esquema del Proyecto</b>				
<p><b>Objetivo/descripción del proyecto:</b> El objetivo general del proyecto es reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional y la adaptación de la población rural al cambio climático. Los objetivos específicos son los siguientes: (i) aumentar la adopción de tecnologías agrícolas, incluidas las de adaptación y mitigación al cambio climático; (ii) mejorar la inclusión productiva y social de los agricultores familiares, priorizando mujeres, jóvenes, pueblos y comunidades tradicionales (PCT) y personas con discapacidad (PcD); y (iii) mejorar las condiciones ambientales de las comunidades rurales y su entorno. Esta es la cuarta operación individual de préstamo bajo la CCLIP “Programa de Agricultura y Desarrollo Sostenible” (BR O0008) aprobada por el Directorio Ejecutivo mediante Resolución DE-127/21. Contribuye al logro de los objetivos multisectoriales de la CCLIP, promoviendo la mejoría de productividad e ingresos mediante la adopción de tecnologías agropecuarias y la integración de los productores en las cadenas de valor.</p>				

**Condiciones contractuales especiales previas al primer desembolso del financiamiento:** (i) la aprobación y entrada en vigor del Reglamento Operativo del Programa (ROP), en los términos previamente acordados con el Banco; y (ii) la designación y contratación de los miembros del equipo básico de la Unidad de Gestión del Proyecto (UGP) (¶3.11).

**Condición contractual especial de ejecución:** la firma y entrada en vigor del instrumento jurídico entre el Prestatario y la EMPAER previamente al inicio de la ejecución de las actividades de regularización de tenencia de tierras en el marco del Componente II (¶3.12).

**Condiciones contractuales ambientales y sociales:** Estas condiciones están descritas en el Anexo B del Resumen de la Revisión Ambiental y Social.

**Excepciones a las políticas del Banco:** Ninguna.

**Alineación Estratégica**

Objetivos <sup>(e)</sup> :	O1 <input checked="" type="checkbox"/>		O2 <input checked="" type="checkbox"/>			O3 <input checked="" type="checkbox"/>	
Áreas de Enfoque Operativo <sup>(f)</sup> :	EO1 <input type="checkbox"/>	EO2-G <input checked="" type="checkbox"/> EO2-D <input checked="" type="checkbox"/>	EO3 <input type="checkbox"/>	EO4 <input checked="" type="checkbox"/>	EO5 <input checked="" type="checkbox"/>	EO6 <input type="checkbox"/>	EO7 <input type="checkbox"/>

- a) El préstamo del FIDA será otorgado directamente al Estado de Paraíba, con acuerdo de coordinación firmado entre BID y FIDA. Aprobación de la Junta Ejecutiva del FIDA prevista en diciembre de 2024.
- b) Bajo los términos de la Facilidad de Financiamiento Flexible (documento FN-655-1) el Prestatario tiene la opción de solicitar modificaciones en el cronograma de amortización, así como conversiones de moneda, de tasa de interés, de productos básicos y de protección contra catástrofes. En la consideración de dichas solicitudes, el Banco tomará en cuenta aspectos operacionales y de manejo de riesgos.
- c) Bajo las opciones de reembolso flexible de la Facilidad de Financiamiento Flexible (FFF), cambios en el periodo de gracia son posibles siempre que la Vida Promedio Ponderada (VPP) Original del préstamo y la última fecha de pago, documentadas en el contrato de préstamo, no sean excedidas.
- d) La comisión de crédito y la comisión de inspección y vigilancia serán establecidas periódicamente por el Directorio Ejecutivo como parte de su revisión de los cargos financieros del Banco, de conformidad con las políticas correspondientes.
- e) O1 (Reducir la pobreza y desigualdad); O2 (Abordar el cambio climático); y O3 (Impulsar un crecimiento regional sostenible).
- f) EO1 (Biodiversidad, capital natural y acción por el clima); EO2-G (Igualdad de género); EO2-D (Inclusión de grupos diversos de la población); EO3 (Capacidad institucional, estado de derecho y seguridad ciudadana); EO4 (Protección social y desarrollo del capital humano); EO5 (Desarrollo productivo e innovación por medio del sector privado); EO6 (Infraestructura sostenible, resiliente e inclusiva); EO7 (Integración regional).

## I. DESCRIPCIÓN DEL PROYECTO Y MONITOREO DE RESULTADOS

### A. Antecedentes, problemática y justificación

#### 1. Antecedentes

- 1.1 **La CCLIP “Programa de Agricultura y Desarrollo Sostenible”.** Este proyecto es la cuarta operación individual de préstamo de la Línea de Crédito Condicional para Proyectos de Inversión (CCLIP) “Programa de Agricultura y Desarrollo Sostenible” ([BR-O0008](#)) aprobada por el Directorio Ejecutivo el 8 de diciembre de 2021<sup>1</sup>. Los objetivos de la CCLIP, de tipo Multisectorial II (MM-II), son mejorar la productividad del sector agropecuario, los ingresos, y el acceso a servicios básicos en el área rural brasileña a través de: (i) mejora de la calidad y acceso de los productores a servicios de apoyo al sector agropecuario; (ii) desarrollo de infraestructura resiliente; y (iii) mejora de la gestión de los recursos naturales.
- 1.2 La CCLIP, de hasta US\$1.200 millones a ser asignados en un período de hasta diez años, cuenta con tres vías de asignación. Una de ellas es a través de estados o municipios<sup>2</sup> con capacidad de endeudamiento, que soliciten préstamos para programas que contribuyan al logro de los objetivos multisectoriales en uno o más de los sectores de la CCLIP. Los sectores son: (i) servicios agropecuarios; (ii) infraestructura básica y productiva; y (iii) medio ambiente y recursos naturales. La presente es la tercera operación individual bajo el sector de servicios agropecuarios y segunda bajo el sector infraestructura básica y productiva, siendo la segunda a ser ejecutada por una entidad subnacional (estado).
- 1.3 **Contexto nacional.** Tras aumentar un 2,9% en 2023, el crecimiento del Producto Interno Bruto (PIB) de Brasil en el primer trimestre de 2024 fue de 1,9%, y se prevé que alcance a 2,4% en el año [1]. La inflación en 2023 alcanzó a 4,62% y la expectativa es del 3,8% en 2024. El gobierno ha llevado a cabo importantes reformas, aprobando un nuevo marco fiscal y está en proceso de aprobar una reforma fiscal que simplifica el sistema tributario. Además, se puso en marcha un Plan de Aceleración del Crecimiento (PAC).
- 1.4 **Contexto sobre el estado de Paraíba.** En 2022, la población de Paraíba era de 3,97 millones de habitantes (2% de la población de Brasil), siendo rural el 24,6% [2]. El estado contribuyó con 0,9% del PIB y con 0,34% del PIB agropecuario del país en 2023. El PIB per cápita de Paraíba representa el 45% del PIB de Brasil, ocupando el penúltimo lugar en el ranking nacional. El 80% de la población recibe un ingreso inferior al salario mínimo; 47,4% está en situación de pobreza y 15,6%

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<sup>1</sup> Resolución DE-127/21. Las otras tres operaciones son el Proyecto Piauí Sostenible e Inclusivo ([BR-L1542 / 5611/OC-BR](#)), el Programa para el Desarrollo Agropecuario en el Nordeste - Agronordeste ([BR-L1562 / 5440/OC-BR](#)) y el Proyecto para el Desarrollo Sostenible del Bosque Atlántico de Bahía ([BR-L1617 / 5891/OC-BR](#)). El primero de ellos se encuentra en ejecución, mientras que los otros se encuentran en trámite de aprobación del contrato de préstamo.

<sup>2</sup> Los otros canales son: (i) la República Federativa de Brasil, para programas que tengan como organismos ejecutores a entidades del Gobierno Federal; y (ii) bancos de desarrollo de carácter nacional o regional que realicen subpréstamos para inversiones específicas.



de extrema pobreza, y 63,9% experimenta inseguridad alimentaria, siendo severa para el 10,6% [3].

- 1.5 La mayor parte del estado (92%) pertenece al bioma Caatinga, que se caracteriza por el clima semiárido y alberga 62% de la población total y 85% de la rural. El Bosque Atlántico, localizado en el extremo este, ocupa 8% de la superficie. El estado se caracteriza por el alto grado de variabilidad de la estación de lluvias ([EEO#5 Diagnóstico PROCASE](#)).
- 1.6 **Agricultura familiar.** En 2017, existían en Paraíba 163.218 establecimientos agropecuarios, de los cuales 76,9% pertenecían a la Agricultura Familiar (AF). La AF ocupa 42% de la superficie agropecuaria del estado y aporta 47,8% del PBI sectorial. Los establecimientos de la AF se concentran en áreas de hasta 10 hectáreas (70,8%) [2], siendo los principales rubros maíz, frijol, mandioca, aves, ganadería lechera, ovinos y caprinos [4,5]. Los principales productos industrializados son los lácteos, con más del 60% del total [2].

## 2. Problemática y Justificación

- 1.7 **Bajos ingresos, baja productividad e inseguridad alimentaria de la AF.** La AF en Paraíba se caracteriza por bajos ingresos y productividad y alta incidencia de pobreza e inseguridad alimentaria. El 49,8% de los agricultores familiares fueron beneficiarios del programa Bolsa Familia<sup>3</sup> en 2021 [6]. Existen brechas importantes de productividad para los principales productos agrícolas: la AF alcanzó rendimientos de 4,5 ton/ha en yuca y 1.813 kg/ha en maíz, comparado con promedios nacionales de 8,18 ton/ha (brecha de 45%) y 1.813 kg/ha (brecha de 69%) [4]. Los bajos ingresos y productividad contribuyen a una alta incidencia de inseguridad alimentaria. Sólo 44% de los productores familiares tuvieron una diversidad alimentaria mínima [7,8]. Según una encuesta realizada en 2020<sup>4</sup>, el 21,8% experimentó en los últimos 12 meses dificultades en obtener alimentos o no pudo alimentarse [7].
- 1.8 A continuación, se analizan los principales factores que contribuyen a la problemática que enfrenta la AF de Paraíba:
  - a. **Cambio climático.** La región Nordeste es una de las más vulnerables de Brasil por incluir una de las zonas semiáridas más pobladas del mundo (22 millones de habitantes), siendo Paraíba uno de los estados más vulnerables [9,10]. Se caracteriza por la baja capacidad de adaptación, predominando los sistemas de producción agrícola de secano [10-12]. Entre 2011 y 2017, ocurrió la sequía más grave en los últimos 30 años, generando pérdida de cosechas en 6 millones de productores y aumento de la inseguridad alimentaria [10]. Los modelos predicen reducción de precipitaciones, aumento de temperatura y mayor probabilidad de eventos extremos, especialmente sequías e inundaciones [10], con efecto negativo en la productividad de los

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<sup>3</sup> Bolsa Familia es un programa federal de asistencia social que provee transferencias condicionadas a familias de bajo ingreso.

<sup>4</sup> Las estadísticas reportadas hacen referencia a la muestra de 372 productores entrevistados que constituyeron el grupo control para la evaluación de impacto, en el momento de la línea final.

cultivos predominantes y aumento del riesgo de pérdidas. Por ejemplo, se estiman pérdidas de productividad en maíz entre 29% y 55% hasta 2050<sup>5</sup> [13]. Un estudio reciente del BID resalta el impacto de la vulnerabilidad al cambio climático sobre la inseguridad alimentaria en América Latina y el Caribe (LAC) [14].

- b. **Degradación ambiental.** La Caatinga y el Bosque Atlántico en Paraíba experimentan una degradación a largo plazo. Entre 1985 y 2022, el uso de sistemas tradicionales de producción contribuyó a convertir 281.000 hectáreas de área forestada al uso agropecuario [15]. Actualmente, se conserva el 54% de la vegetación original de la Caatinga ([EEO#5 Diagnóstico PROCASE II](#)), habiendo sido los bosques sustituidos principalmente por producción agropecuaria. Entre 1985 y 2020, 45 de los 223 municipios de Paraíba pasaron a clasificarse como Área Susceptible a la Desertificación en estado grave o muy grave [16], con predominio de pasturas degradadas por sobrepastoreo [17]. Además, el uso excesivo de herbicidas, fungicidas e insecticidas contamina aguas y suelos y afecta la biodiversidad [4]. En 2017, un 33,2% de los AF utilizaron agroquímicos sintéticos [4].
- c. **Limitado acceso a conocimiento y recursos financieros.** Entre las principales barreras que enfrenta la AF del estado se encuentran: (i) limitado acceso a conocimientos y asistencia técnica para aplicar nuevas técnicas de producción (sólo 16,8% de los productores recibieron asistencia técnica en 2017) [4], y un 38,7% no utilizaba ninguna práctica de producción sostenible<sup>6</sup> [7]; (ii) escaso acceso a agua para producción (11,5% poseía sistema de riego con sólo 1,4% del área irrigada [18]); (iii) dificultades de acceso a financiamiento para realizar inversiones (16,9% recibió financiamiento productivo en 2017 [18]).
- d. **Limitada integración en cadenas de valor.** El 59,7% de la AF produce exclusivamente para autoconsumo familiar [7]. La escasa participación en cooperativas y organizaciones similares para la comercialización y procesamiento de la producción contribuye a la baja integración en cadenas de valor. Solo 7,2% de los productores en Paraíba son miembros de cooperativas o asociaciones, comparado con 17,1% a nivel nacional [18]. Entre tales miembros, sólo 2,9% y 1,8% procesó o vendió su producción por medio de la organización, respectivamente [7]. En las regiones Sur, Sudeste y Centro-Oeste de Brasil, las cadenas de valor agropecuarias se caracterizan por la integración de los productores a cooperativas agropecuarias y uso de contratos con empresas agroindustriales y comerciales, que cumplen un rol fundamental en proveer tecnología y servicios (asistencia técnica, financiamiento, comercialización)<sup>7</sup>. En contraste, cooperativas bien estructuradas son escasas en Paraíba y cuentan con limitado acceso a

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<sup>5</sup> Con referencia a los escenarios (adoptados por IPCC) RCP4,5 y 8,5, respectivamente.

<sup>6</sup> En esta estadística se consideran las siguientes prácticas: uso de abono orgánico, estiércol, rastrojos, agroquímicos naturales.

<sup>7</sup> Según Forbes Brasil, el ranking de las 100 mayores empresas del agronegocio brasileño en 2020 incluyó a 22 cooperativas, ubicadas todas en las regiones Sur, Sudeste y Centro-Oeste.

recursos para proveer servicios a los productores y mejorar infraestructura y equipamientos que permitan, por ejemplo, cumplir con normas fitosanitarias [18], lo que afecta negativamente la seguridad alimentaria.

- e. **Limitadas capacidades técnicas y organizativas.** El 83,2% de los agricultores familiares en Paraíba no tienen asistencia técnica, lo que deriva en dificultades de acceso a conocimientos sobre nuevas tecnologías y mal uso de insumos. Por ejemplo, el 33,2% utilizan plaguicidas, frecuentemente en exceso. La mayoría de las organizaciones de productores tiene debilidades de gestión empresarial [18]. La encuesta realizada en el contexto del PROCASE I reveló que solo 15% de las asociaciones productivas realizaba eventos de capacitación y conocimiento, mientras que 29% facilitaba acceso a crédito para inversiones productivas [7].
  - f. **Inseguridad en la tenencia de la tierra.** La inseguridad en la tenencia de la tierra limita el acceso a crédito, la adopción de tecnologías, el aumento de la productividad y la conservación de los recursos naturales a largo plazo en la AF. El 77,7% de los agricultores familiares en Paraíba posee un título de tenencia [4]. Además, una alta proporción de productores no cumple con las normas ambientales del Catastro Ambiental Rural (CAR), registro público electrónico nacional obligatorio para todo inmueble rural para demostrar el cumplimiento de obligaciones ambientales y control de la deforestación, lo que limita su acceso a crédito y programas públicos<sup>8</sup>.
- 1.9 **Brechas de género.** Las mujeres rurales en Paraíba son particularmente vulnerables a la pobreza e inseguridad alimentaria, reportando ingresos 31,3% menores que los hombres y más limitado acceso a alimento (22,7% entre mujeres y 23,5 entre hombres) [7,18]. Estas vulnerabilidades se deben a restricciones en el control y acceso a recursos naturales, sociales y financieros (ver Cuadro 1).

**Cuadro 1. Brechas de acceso a recursos y servicios entre mujeres y hombres de la AF en Paraíba [4,7]**

Indicador	Mujeres	Hombres	Brecha
Acceso a tierra (% de superficie agrícola)	15%	85%	- 70 p.p.
Acceso a tierra (tamaño medio en hectáreas)	7,1 ha	12,9 ha	- 5,8 ha
Acceso a asistencia técnica	15%	17%	- 2 p.p.
Acceso a riego	6,7%	13%	- 6,3 p.p.
Asociación a organizaciones productivas	15,8%	13,6%	2.2 p.p.
Asociación a cooperativas	1.2%	2.0%	- 0,8 p.p.

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<sup>8</sup> Creado por la Ley 12.651/2012 y reglamentado por la Instrucción Normativa MMA No. 2 del 6 de mayo de 2014,

- 1.10 **Barreras para jóvenes rurales.** Los jóvenes rurales (entre 15 y 29 años) en Paraíba enfrentan desafíos importantes. La incidencia de inseguridad alimentaria es particularmente alta, habiendo el 37,5% enfrentado dificultades de acceso a alimento en el último año (brecha de 87% con la población de mayor edad en Paraíba [7]). El Cuadro 2 presenta las principales brechas que enfrenta la juventud rural, relativo al promedio nacional.

**Cuadro 2. Brechas de acceso a recursos y servicios entre jóvenes rurales en Paraíba y el país [4]**

Indicador	Paraíba	Brasil	Brecha
Dificultad de conseguir alimento durante el último año [7]	37,5%	20,1%	17,4 p.p.
Acceso a tierra (% de superficie agrícola)	6,5%	7,4%	- 0,9 p.p.
Acceso a tierra (tamaño medio en hectáreas)	7,6 ha	14,4 ha	- 6,8 ha
Acceso a asistencia técnica	18,5%	9,8%	8,7 p.p.
Acceso a riego	11,3%	12,0%	- 0,7 p.p.

- 1.11 **Barreras para pueblos y comunidades tradicionales (PCT).** Los indígenas y afrodescendientes representan el 64,9% de la AF en Paraíba, y son particularmente vulnerables debido a dinámicas históricas de exclusión, alta dependencia de los recursos naturales y escaso acceso a los servicios básicos. Existen 47 comunidades quilombolas certificadas en Paraíba, ninguna de ellas con territorio titulado, y solo 11 de ellos demarcadas ([EEO#2 Diagnostico Genero y Diversidad](#)). El 68% de los quilombolas y un 73% de los pueblos indígenas viven en situación de pobreza o extrema pobreza ([EEO#2 Diagnostico Genero y Diversidad](#)). También hay otras poblaciones tradicionales como gitanos y pescadores artesanales. El Cuadro 3 presenta las principales brechas en comparación a la población no perteneciente a PCT.

**Cuadro 3. Brechas de acceso a recursos y servicios entre PCT y personas no pertenecientes a PCT<sup>9</sup> en Paraíba [4,7]**

Indicador	PCT	No PCT	Brecha
Acceso a tierra (tamaño medio en hectáreas)	10,0 ha	14,6 ha	-4.6 ha
Acceso a asistencia técnica	16,3%	17,7%	-1.4 p.p.

- 1.12 **Barreras para personas con discapacidad (PcD).** El Nordeste tiene el mayor porcentaje de personas con discapacidad (PcD), con el 10,3% de la población o

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<sup>9</sup> Las estadísticas presentadas refieren a la población indígena y afrodescendiente según identificado en el Censo Agropecuario 2017 [4].

cerca de 5,8 millones de personas [20], siendo los mayores porcentajes mujeres y afrodescendientes. En Paraíba, el 88,7% de las PcD no trabaja y el 74,4% gana menos del salario mínimo, por lo que enfrentan mayores dificultades de acceso a alimento. El 25,7% de PcD enfrentó dificultad de conseguir alimento en los últimos 12 meses, en comparación con 21,7% entre personas sin discapacidad [7].

- 1.13 **Barreras para personas LGBTQIAPN+.** La información disponible sobre población LGBTQIAPN+ en Paraíba es limitada (lo que en parte refleja su marginalización); sin embargo, los datos existentes indican emigración a centros urbanos, dificultad para permanecer en el ambiente escolar debido a prejuicios, ingresos y oportunidades de empleo limitados en áreas rurales. La región Nordeste tiene el mayor número de muertes violentas de personas LGBTQIAPN+. En el Nordeste, el 1,5% de la población declaró ser homo- o bisexual, siendo la menor proporción en el país ([EEO#2 Diagnóstico Genero y Diversidad](#)).
- 1.14 **Evidencia empírica.** Diversos estudios respaldan las problemáticas abordadas en el proyecto, fundamentando la necesidad de recursos no reembolsables para inversiones y asistencia técnica a productores familiares que corrijan fallas de mercado vinculadas a restricciones de liquidez de productores de bajos ingresos, asimetría de información sobre tecnologías de frontera e internalización del costo de impactos ambientales en los sistemas de producción<sup>10</sup>. Además, una evaluación de impacto del PROCASE I, financiado por el FIDA, resalta los efectos positivos del proyecto sobre mayor acceso a asistencia técnica, agua para usos productivos y participación en asociaciones productivas [7]. Estos efectos contribuyeron a aumentar los ingresos (22,6%), reducir la pobreza (13,2%) y mejorar la seguridad alimentaria (14,2%) entre 2015 y 2019 [7]. También aumentó la percepción de empoderamiento entre mujeres y jóvenes.
- 1.15 **Experiencia del Banco y lecciones aprendidas.** El BID tiene una larga historia de promover el desarrollo rural sostenible a través del financiamiento de bienes públicos rurales<sup>11</sup>. La evidencia internacional muestra consistentemente que la provisión de bienes públicos rurales proporciona condiciones esenciales para el desarrollo de mercados y producción agrícola de agricultores familiares y tiende a ser más efectiva y rentable que el financiamiento de bienes privados, impulsando la productividad agrícola [21], reduciendo la pobreza rural y disminuyendo los efectos adversos en el manejo de los recursos naturales [22-24]. Evaluaciones de impacto del BID de proyectos en [Argentina](#), [Bolivia](#), [Ecuador](#), [Haití](#), [Nicaragua](#), [Paraguay](#), [Perú](#) y [República Dominicana](#) demuestran que las políticas de desarrollo rural sostenible pueden tener impacto significativo en la productividad agrícola, seguridad alimentaria, y sostenibilidad ambiental.
- 1.16 El Cuadro 4 resume las principales lecciones aprendidas por la experiencia de proyectos en el Nordeste financiados por el Banco ([1633/OC-BR](#), [5440/OC-BR](#), [4723/OC-BR](#), [4732/OC-BR](#), [ATN/LC-17432-BR](#)), así como con proyectos

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<sup>10</sup> La evidencia empírica para esta operación se resume en la sección 1.B del Plan de Monitoreo y Evaluación ([EER#2](#)).

<sup>11</sup> Son bienes o servicios cuyos beneficios están disponibles sin costo para todos los usuarios posibles. Incluye, entre otros, infraestructura rural (caminos, electrificación); investigación, desarrollo e innovación; sanidad animal y vegetal e inocuidad de alimentos; e información y estadísticas.

financiados por el FIDA en el Nordeste y en Paraíba, tomando en cuenta que el FIDA financió la fase I del PROCASE.

**Cuadro 4. Lecciones aprendidas**

Lecciones aprendidas	Reflejo en el diseño del proyecto
<p><b>1. Planes de desarrollo</b> integradores, con objetivos de productividad, fortalecimiento sociocultural y negocios, permiten canalizar inversiones en comunidades para cooperativas y organizaciones rurales, mejorando procesamiento y comercialización, a la vez que contribuyen a mejorar su productividad y seguridad alimentaria.</p>	<p>Las inversiones del proyecto en comunidades rurales financiadas por el componente I serán realizadas a través de Planes de Inversión Resiliente (PIR). La comercialización será apoyada por Planes de Negocios (PN) con cooperativas y organizaciones similares.</p>
<p><b>2. Gestión de recursos por las organizaciones de los beneficiarios.</b> Transferir fondos a organizaciones comunitarias y cooperativas para contrataciones en planes productivos reduce costos, empodera e involucra a los beneficiarios, mejorando resultados de los planes. Sin embargo, es crucial proporcionarles apoyo para garantizar adquisiciones y rendiciones de cuentas oportunas y efectivas.</p>	<p>Las organizaciones beneficiarias (OB) serán responsables por gestionar los recursos del proyecto para PIR y PN financiados por el Componente I, y realizarán las adquisiciones y contrataciones previstas. La SEAFDS transferirá recursos a las OB y les proporcionará asistencia técnica para apoyarlas en adquisiciones y rendiciones de cuenta. La Secretaría de Agricultura Familiar y Desarrollo del Semiárido (SEAFDS) y las OB firmarán instrumentos jurídicos estableciendo obligaciones mutuas (¶3.7).</p>
<p><b>3. Capacidades locales y asistencia técnica.</b> Entidades locales de asistencia técnica han demostrado buen desempeño debido a su conocimiento y experiencia con las comunidades rurales, probando ser un vehículo adecuado para brindar AT a los agricultores familiares.</p>	<p>El Componente II contempla la contratación de entidades locales de asistencia técnica para apoyar el diseño y la ejecución de los PIR en las comunidades.</p>
<p><b>4. Género e inclusión.</b> Se identificó la importancia de establecer estrategias de género e inclusión con presupuesto específico, a fin de promover la participación de mujeres, jóvenes, PCT y miembros de la comunidad LGBTQIAPN+.</p>	<p>El proyecto focalizará sus acciones en PCT. Además, los PIR financiados por el componente I proporcionarán recursos para iniciativas de grupos de interés en las comunidades, priorizando mujeres, jóvenes y personas de la comunidad LGBTQIAPN+. El Componente II financiará capacitaciones en metodologías inclusivas para las entidades de asistencia técnica que apoyarán el diseño y ejecución de PIR. El ROP prevé porcentajes mínimos de recursos en los PIR que deben destinarse a</p>

Lecciones aprendidas	Reflejo en el diseño del proyecto
	grupos con mayoría de mujeres y jóvenes.
<p><b>5. Gestión del conocimiento, cooperación sur-sur y triangular y comunicación.</b> La experiencia del FIDA ha identificado la importancia de generar, intercambiar y comunicar conocimientos sobre resultados y metodologías aplicadas por los proyectos, incluyendo intercambios con otros proyectos en países de la región. También se identificó la importancia de acciones específicas de comunicación a nivel del proyecto y las comunidades, con potencial de actuación de los jóvenes.</p>	<p>El Componente II financiará estudios, evaluaciones e intercambios, así como acciones de comunicación.</p>
<p><b>6. Plazo de ejecución y desembolsos.</b> La experiencia de proyectos similares, con acciones multisectoriales y procesos complejos con familias rurales para la adopción de tecnologías, fortalecimiento organizativo y sociocultural, muestran la necesidad de mayores tiempos para lograr los resultados previstos.</p>	<p>Fue definido un período de desembolsos de los préstamos de seis años.</p>

- 1.17 **Valor agregado y aspectos innovadores de la operación.** El Banco, junto con el FIDA, aportarán un valor agregado no limitado al aporte de recursos del financiamiento, destacándose: (i) acciones multisectoriales para atacar la pobreza e inseguridad alimentaria, incluyendo mejoras en producción y productividad agropecuaria, comercialización y acceso a mercados, regularización de tenencia de tierras, fortalecimiento de capacidades de los beneficiarios y sus organizaciones; (ii) foco en tecnologías de adaptación y mitigación del cambio climático; (iii) focalización en poblaciones vulnerables (mujeres, jóvenes, PCT, comunidad LGBTQIAPN+ y PcD); (iv) políticas ambientales y sociales y su contribución al fortalecimiento del sistema de gestión ambiental y social en Paraíba; y (v) monitoreo de resultados e impactos. Como aspectos innovadores, se destacan las propuestas de apoyo a la inserción de la comunidad LGBTQIAPN+ y las acciones de gestión del conocimiento, cooperación sur-sur y triangular. En estos temas, se aprovechará a colaborar con otros proyectos e iniciativas que trabajan estos temas, tanto del Banco (por ej., [GRT/FM-14550-BR](#)) como del FIDA.
- 1.18 **Experiencia de cofinanciamiento con el FIDA.** Esta será la tercera operación cofinanciada con el FIDA en Brasil, siendo la primera el Proyecto Integrado de Seguridad Hídrica, Sostenibilidad Ambiental y Desarrollo Socio Productivo de la Cuenca de los Ríos Piauí y Canindé, Estado de Piauí - Piauí Sostenible e Inclusivo ([5611/OC-BR](#)), aprobado en octubre de 2022, y la segunda el Proyecto de Desarrollo Sostenible del Bosque Atlántico de Bahía ([5891/OC-BR](#)), aprobado en junio de 2024. El cofinanciamiento permitirá promover sinergias y complementariedades en el diseño de las operaciones, que surgen de su

experiencia en Paraíba y otros estados del Nordeste y la región. Además, se acordaron mecanismos de coordinación entre ambas instituciones que incluyen la aplicación de políticas fiduciarias y ambientales y sociales del Banco para los recursos de financiamiento del FIDA, reduciendo complejidades y duplicaciones para la SEAFDS.

- 1.19 **Complementariedad con otras operaciones del Grupo BID.** En particular, se prevén complementariedades con el Programa de Apoyo al Desarrollo Agropecuario del Nordeste ([5440/OC-BR](#)), primera operación aprobada en el marco de la CCLIP Programa de Agricultura y Desarrollo Sostenible (BR-O0008), ejecutada por el Ministerio de Agricultura y Pecuaria, que podrá apoyar acciones en zonas del bioma semiárido no atendidas por el proyecto; con el Programa de Modernización y Fortalecimiento de los Servicios de Sanidad Agropecuaria e Inocuidad de Alimentos ([4723/OC-BR](#) y [4732/OC-BR](#)), que financia programas de sanidad animal y vegetal, y con el Proyecto Piauí Sostenible e Inclusivo ([5611/OC-BR](#); [5612/OC-BR](#)) y el Proyecto de Desarrollo Sostenible del Bosque Atlántico de Bahía ([5891/OC-BR](#)), cofinanciados por el BID y el FIDA. Además, se aprovecharán lecciones de operaciones implementadas en el Bosque Atlántico ([GRT/FM-14550-BR](#)) en la región Nordeste ([ATN/LC-17432-BR](#)), y en otros países de la región, así como de proyectos en Bahía financiados por el FIDA y por el Banco Mundial.
- 1.20 **Coordinación con el FIDA y otros donantes.** La operación será cofinanciada por el FIDA, representando su segunda operación consecutiva en Paraíba, ya que la fase I del PROCASE fue financiada por el FIDA. Se coordinará acciones con otros proyectos del FIDA en el país: el Proyecto Dom Helder Câmara (PDHC) Fases II y III (actualmente en aprobación), ejecutado por el Ministerio de Desarrollo Agrario y Agricultura Familiar (MDA), que podrá apoyar en el acceso a políticas públicas, innovaciones tecnológicas y sistemas de producción biodiversos y resistentes al clima; el proyecto Sembrando Resiliencia Climática en Comunidades Rurales del Nordeste de Brasil (PCRCP – Sertão Vivo), implementado por el Banco Nacional de Desarrollo Económico y Social (BNDES) y cofinanciado por el Fondo Verde del Clima (GCF), que podrá apoyar acciones complementarias de resiliencia climática; y el Proyecto Cooperar, financiado por el Banco Mundial, que podrá apoyar agroindustrias y mejoramiento de caminos rurales.
- 1.21 **Alineación estratégica.** El Programa es consistente con la Estrategia Institucional del Grupo BID: Transformación para una Mayor Escala e Impacto (CA-631) y se alinea con los objetivos de: (i) reducir la pobreza y la desigualdad; (ii) abordar el cambio climático; e (iii) impulsar un crecimiento regional sostenible, dado que contribuye a aumentar los ingresos y la productividad agropecuaria en comunidades rurales pobres (productores familiares, mujeres, PCT, y PcD) y a apoyar a organizaciones económicas de los productores para mejorar la comercialización en mercados nacionales e internacionales. El Programa también se alinea con las siguientes áreas de enfoque operativo: (i) biodiversidad, capital natural y acción por el clima, al financiar tecnologías de conservación de los recursos naturales y adaptación y mitigación de los efectos del cambio climático (CC); (ii) igualdad de género e inclusión de grupos diversos de la población, por contribuir a la seguridad alimentaria, empoderamiento y liderazgo de las productoras femeninas, los PCT y las PcD, así como la mayor inclusión de



personas LGBTQIAPN+; (iii) protección social y desarrollo del capital humano, al proveer capacitaciones productivas e inclusivas a la población objetivo del proyecto con el objetivo de generar nuevos empleos y fuentes de ingreso; y (iv) desarrollo productivo e innovación por medio del sector privado, al apoyar la competitividad comercial de las organizaciones económicas de los productores. La operación se alinea con el Marco de Acción de Empleo con Perspectiva de Género (GN-3057) al mejorar la integración de los productores a las cadenas de valor, priorizando mujeres, jóvenes, PCT y PcD.

- 1.22 **Cambio Climático y Alineación con el Acuerdo de París (AP).** Esta operación fue analizada utilizando el Marco Conjunto de los BMD para Análisis de Alineación con París y el PAIA del Grupo BID (GN-3142-1). Se determinó que: (i) está alineada con la meta de adaptación del Acuerdo de París, ya que es congruente con las prioridades de adaptación establecidas en la NDC, el Plan Nacional de Adaptación y el Plan ABC+ de Brasil, mediante la adopción de tecnologías que reducen las vulnerabilidades climáticas de los biomas de Paraíba (Caatinga y Bosque Atlántico); y (ii) está alineada con la meta de mitigación del Acuerdo de París, puesto que las intervenciones financiadas por PIRs y PNs son coherentes con la meta de reducción de emisiones de la NDC del país y con el Plan ABC+. La operación busca apoyar la transición hacia un modelo agrícola más sostenible, promoviendo la recuperación y protección de los recursos naturales de la Caatinga y el Bosque Atlántico, mejorando así las condiciones ambientales de las comunidades rurales y su entorno.
- 1.23 Según la metodología conjunta de los BMD de financiamiento climático, se estima que 86,91% de los recursos del BID se invierten en apoyo a la adaptación y mitigación climática. Estos recursos contribuyen a la meta de financiamiento climático del Grupo BID (30% del volumen de aprobaciones). Asimismo, de acuerdo con la metodología de Seguimiento de Finanzas Verdes del Grupo BID (GN-3101), considerando que la financiación climática de la operación se destina exclusivamente a la agricultura de bajo carbono y a tecnologías de adaptación climática, es posible afirmar que el 86.91% de los recursos de la operación contribuyen al objetivo de sostenibilidad ambiental de “Protección, uso sostenible y restauración de la biodiversidad y los ecosistemas”, según GN-3101. Esta metodología establece que la contribución a este objetivo incluye actividades que “desarrollan o implementan soluciones basadas en la naturaleza, acciones para preservar, proteger, gestionar de manera sostenible y restaurar ecosistemas naturales o modificados, y simultáneamente, proporcionar bienestar humano y beneficios para la biodiversidad”. Dado que esta contribución se considera simultáneamente financiamiento climático, el financiamiento verde y climático total de la operación es del 86.91%.
- 1.24 **Estrategia del Banco en el país.** La operación está alineada con la Estrategia de País del Grupo BID con Brasil (GN-2973-2) en sus objetivos estratégicos de: (i) promover mayor competitividad, por medio de la adopción de tecnologías por los beneficiarios que mejoran la productividad; y (ii) integrar las regiones menos desarrolladas, por medio del incremento de la producción y productividad agropecuarias. También está alineada a los temas transversales de género y diversidad y de sostenibilidad y cambio climático. Además, es consistente con: la Estrategia Integrada del BID de Mitigación y Adaptación al Cambio Climático y de Energía Sostenible y Renovable (GN-2609-1), al promover adopción de

tecnologías que contribuyen con la adaptación al cambio climático y a reducir la deforestación; con el Marco Sectorial de Agricultura (GN-2709-10), por apoyar el aumento de la productividad agropecuaria; el Marco Sectorial de Seguridad Alimentaria (GN-2825-8), por promover aumento de la producción de alimentos, tanto para autoconsumo como venta; y el Marco Sectorial de Género y Diversidad (GN-2800-8), por promover generación de ingresos y participación de mujeres, PCT, PcD y LGBTQIAPN+.

- 1.25 **Lógica de la intervención.** El Gobierno de Paraíba implementa programas contra la pobreza rural con apoyo del Banco Mundial desde 1978 (Cooperar) y del FIDA desde el año 2012 (PROCASE I) centrado en la región semiárida. Esta operación expande las acciones del PROCASE I a todo el estado de Paraíba, promoviendo cambios técnicos en la producción y construcción de capacidades en las familias y sus organizaciones para aumentar la seguridad alimentaria, mejorar la comercialización de excedentes y fortalecer la adaptación al cambio climático. Se focalizará en comunidades pobres, priorizando a mujeres, jóvenes, PCT y PcD, brindando recursos no reembolsables para financiar inversiones productivas, ambientales y sociales. Además, adoptará un enfoque transversal para promover transformaciones en relaciones de género e inclusión de PCT, la comunidad LGBTQIAPN+ y PcD.

## **B. Objetivos, componentes y costo**

- 1.21 **Objetivos de la cuarta operación individual bajo la CCLIP.** El objetivo general del proyecto es reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional y la adaptación de la población rural al cambio climático. Los objetivos específicos son los siguientes: (i) aumentar la adopción de tecnologías agrícolas, incluidas las de adaptación y mitigación al cambio climático; (ii) mejorar la inclusión productiva y social de los agricultores familiares, priorizando mujeres, jóvenes, PCT y PcD; y (iii) mejorar las condiciones ambientales de las comunidades rurales y su entorno. Contribuye al logro de los objetivos multisectoriales de la CCLIP, promoviendo la mejoría de productividad e ingresos mediante la adopción de tecnologías agropecuarias y la integración de los productores en las cadenas de valor.
- 1.22 **Componente I. Sistemas productivos resilientes para reducir la pobreza rural (BID US\$42,8 millones (de los cuales Inversión Directa en Género US\$20.80 millones, Diversidad US\$2.91 millones), FIDA US\$6,04 millones, Local US\$15,10 millones).** El componente se vincula a los objetivos específicos (i), (ii) y (iii) de la operación. Financiará planes para mejorar la producción y comercialización de los beneficiarios, fortalecer su capacidad de adaptación al cambio climático y recuperar áreas ambientalmente degradadas. Incluirá dos tipos de planes: Planes de Inversión Resiliente (PIR) y Planes de Negocios (PN). Ambos planes serán complementarios, promoviendo los PIR mejoras en la producción, acceso a servicios y condiciones ambientales en las comunidades rurales, mientras que los PN beneficiarán a cooperativas de mayor escala. Además, el componente financiará el desarrollo de innovaciones que resuelvan limitaciones de la AF, en particular maquinaria y equipos.
- 1.23 **Los PIR** beneficiarán a grupos de comunidades rurales, que serán priorizadas por: mayor proporción de familias con bajos ingresos y de familias encabezadas

por mujeres, jóvenes, PCT, PcD y LGBTQIAPN+; dificultades de acceso a servicios (asistencia técnica, agua y saneamiento); con procesos de degradación ambiental. Los beneficiarios de los PIR serán seleccionados entre los miembros de esas comunidades que tengan interés y compromiso en participar en las actividades técnicas, siendo priorizados mujeres, jóvenes, miembros de PCT, PcD y LGBTQIAPN+. Financiarán inversiones en tres ejes: (i) productivo, incluyendo insumos, herramientas, equipamientos y otras inversiones necesarias para viabilizar la adopción de tecnologías para mejorar la seguridad alimentaria, la producción sostenible y la adaptación al cambio climático. (ii) social, incluyendo tecnologías sociales de recolección y almacenamiento de agua para consumo humano y sistemas familiares para el tratamiento y reutilización de aguas negras y grises; y (iii) ambiental, incluyendo inversiones para la gestión y restauración ambiental, como viveros, producción de semillas nativas, reforestación y recuperación de áreas degradadas, y protección de suelos y aguas. La propuesta productiva y tecnológica de los PIR se basará en la agroecología, con uso de insumos biológicos en lugar de sintéticos. Podrán apoyar también actividades no agrícolas, como artesanías y turismo de base comunitaria.

- 1.24 **Los PN** beneficiarán a cooperativas y organizaciones similares, y financiarán inversiones y asistencia técnica especializada para fortalecer capacidades de gestión, promover agregación de valor, mejorar la comercialización y la adaptación al cambio climático. Incluirá, entre otros, modernización de equipamientos e instalaciones para mejorar calidad de productos y atender normas sanitarias y ambientales, costos de certificación orgánica y sellos colectivos que valorizan productos sostenibles. Tanto los PIR como los PN podrán incluir equipamiento de energía renovable y conectividad rural. Se seleccionarán prioritariamente cooperativas que: son exitosas y poseen potencial y disposición de aumentar su membresía o tienen potencial de desarrollo pero precisan fortalecer su capacidad de gestión; más del 50% de sus miembros son mujeres o jóvenes.
- 1.25 Requisitos clave de los planes, como criterios de elegibilidad, inversiones financiables y no financiables, montos máximos, mecanismos de gestión y rendición de cuentas de los recursos, y tratamiento de los aspectos ambientales y sociales, se detallan en el ROP. Cada PIR financiará hasta US\$335.000 por plan y cada PN hasta US\$250.000 por plan.<sup>12</sup> Los recursos aportados por el proyecto no serán reembolsables para los beneficiarios, que deberán aportar una contrapartida mínima del 10% (PIR) o 20% (PN) del valor del plan. Para cerrar la brecha de ingresos, se destinará el 50% de los fondos para PIR y el 50% para PN a asociaciones y cooperativas lideradas por mujeres, y el 20% de los fondos de PIR a grupos mayoritariamente jóvenes. Se establecerán criterios de priorización para favorecer grupos mixtos con más mujeres, jóvenes y productores de PCT. Específicamente, serán priorizados los planes para PCT, así como aquellos en los que más de 50% de los beneficiarios sean mujeres y más del 20% jóvenes.
- 1.26 **Componente II. Fortalecimiento organizacional y de capacidades y gestión del conocimiento (BID US\$20,87, FIDA US\$2,98 millones, Local US\$7,45**

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<sup>12</sup> Cada PIR financiará hasta US\$2.800 por familia y cada PN hasta US\$800 por miembro de cooperativa.

**millones).** El componente se vincula a los objetivos específicos (i) y (ii) de la operación. Financiará: (i) fortalecimiento de capacidades de los agricultores familiares, incluyendo contratación de servicios de asistencia técnica agroecológica permanente para apoyar el diseño y ejecución de PIR, capacitación de agricultores y de entidades de asistencia técnica que prestarán servicios a los beneficiarios; (ii) fortalecimiento de capacidades de las organizaciones de agricultores familiares, incluyendo asistencia técnica especializada para apoyar el diseño y ejecución de PN, fortalecimiento de ferias locales y centros de comercialización, estructuración de servicios de inspección sanitaria y experiencias piloto de certificación orgánica participativa; (iii) planes específicos para promover equidad de género, participación de jóvenes, de PCT, personas LGBTQIAPN+ y PcD, así como la seguridad alimentaria y nutricional; (iv) capacitación de familias sobre políticas públicas para la AF y sus modalidades de acceso y sobre temas ambientales claves en el área rural; (v) regularización de tierras y ambiental, con foco en comunidades tradicionales y asentamientos de reforma agraria que se encuentran en proceso avanzado y sin situaciones de conflicto; y (vi) gestión del conocimiento y cooperación sur-sur y triangular, que financiará estudios, sistematización de experiencias, comunicación y difusión, e intercambios con experiencias relevantes en otros países de la región.

- 1.27 **Gestión, seguimiento y evaluación del proyecto (BID US\$6,85 millones, FIDA US\$0,98 millones, Local US\$2,45 millones).** Financiará equipos, consultorías y otros gastos necesarios para: (i) administración y gestión del proyecto; (ii) seguimiento, monitoreo y evaluación (M&E); (iii) capacitaciones para el personal de la UGP; y (iv) auditorías del proyecto.

### **C. Indicadores clave de resultados**

- 1.28 **Beneficiarios directos.** Serán aproximadamente 60.000 familias (210.000 personas) en comunidades rurales, especialmente en municipios con menor Índice de Desarrollo Humano y mayores carencias. Incluye 18.000 familias con PIR, 5.000 familias socias de cooperativas y otras organizaciones con PN, 5.000 familias beneficiadas con regularización de tierras y ambiental y más de 32.000 con mayor capacidad para acceder a programas públicos. Se fortalecerán más de 30.000 mujeres, 12.000 jóvenes y 1.300 de PCT. Se prevé que las familias encabezadas por mujeres constituirán al menos el 50% de los beneficiarios en PIR y PN.
- 1.29 **Resultados esperados.** Al fin del programa, se prevé: (i) reducción de 34% en la incidencia de pobreza o extrema pobreza en los beneficiarios directos; (ii) aumento de 45% en la diversidad alimentaria mínima en los beneficiarios directos; (iii) aumento de la producción agropecuaria; y (iv) reducción de 1.449.802 tCO<sub>2</sub>-eq (toneladas de emisiones de gases de efecto invernadero) en 20 años. Los impactos, resultados y productos se detallan en el Anexo II.
- 1.30 **Viabilidad económica.** El análisis costo-beneficio (EEO#1) evalúa los beneficios del préstamo, incluyendo el aumento de ingresos agrícolas y la reducción de emisiones de gases de efecto invernadero asociadas a mejoras en el sistema productivo de los beneficiarios. Los resultados confirman la viabilidad económica del proyecto, con VAN de US\$52.563.531 millones y TIR de 26,6% en un período de 20 años.

## II. ESTRUCTURA DE FINANCIAMIENTO Y PRINCIPALES RIESGOS

### A. Instrumentos de financiamiento

- 2.1 El financiamiento del Banco para esta cuarta operación individual bajo la CCLIP “Programa de Agricultura y Desarrollo Sostenible” (BRO0008) asciende a US\$70 millones, el cual será financiado por un préstamo de inversión específica con cargo a los recursos del Capital Ordinario del Banco. El FIDA aportará US\$10 millones a través de un cofinanciamiento conjunto directamente al Estado de Paraíba. El Banco y el FIDA suscribirán un Acuerdo de Coordinación que detallará responsabilidades operativas, incluyendo la supervisión técnica, fiduciaria, ambiental y social del Banco de la ejecución de los recursos del FIDA, así como la coordinación de las misiones de supervisión entre ambas instituciones. El Banco cobrará una tasa de servicios a FIDA para cubrir parcialmente el costo de preparación, supervisión y monitoreo del proyecto. Se espera la aprobación del financiamiento del FIDA en diciembre de 2024.
- 2.2 El plazo para desembolsos será de seis años, definido en función de las características de las actividades previstas para el proyecto en virtud de la propuesta aprobada por el Gobierno Federal<sup>13</sup>.

**Cuadro 5. Costos estimados del Proyecto (en millones de US\$)<sup>14</sup>**

Componente	BID	FIDA*	Local**	Total	%
<b>Componente I – Sistemas productivos resilientes para reducir la pobreza rural</b>	<b>42,28</b>	<b>6,04</b>	<b>15,10</b>	<b>63,42</b>	<b>60,4</b>
Implantación de sistemas de producción biodiversos resilientes	37,61	5,37	13,43	56,42	53,7
Fortalecimiento y diversificación de la comercialización	4,00	0,57	1,43	6,00	5,7
Incentivos a la innovación	0,67	0,10	0,24	1,00	1,0
<b>Componente II – Fortalecimiento organizacional y de capacidades y gestión del conocimiento</b>	<b>20,87</b>	<b>2,98</b>	<b>7,45</b>	<b>31,30</b>	<b>29,8</b>
Fortalecimiento de las capacidades de los agricultores familiares	13,50	1,93	4,82	20,25	19,3
Fortalecimiento de las capacidades de las organizaciones para comercialización	1,55	0,22	0,55	2,33	2,2

<sup>13</sup> Carta consulta aprobada por la Comisión de Financiamientos Externos (Cofix) del Ministerio de Economía por medio de la Resolución No. 22 del 1 de junio de 2023.

<sup>14</sup> Los costos por actividad, dentro de cada componente, son indicativos.

**Cuadro 5. Costos estimados del Proyecto (en millones de US\$)<sup>14</sup>**

Componente	BID	FIDA*	Local**	Total	%
Creación y mejora de ferias locales y centros de comercialización	3,07	0,44	1,10	4,60	4,4
Regularización de tierra y ambiental	1,33	0,19	0,48	2,00	1,9
Gestión del conocimiento y cooperación sur-sur y triangular	1,41	0,20	0,50	2,12	2,0
<b>Gestión, seguimiento y evaluación del proyecto</b>	<b>6,85</b>	<b>0,98</b>	<b>2,45</b>	<b>10,28</b>	<b>9,8</b>
<b>Total</b>	<b>70,00</b>	<b>10,00</b>	<b>25,00</b>	<b>105,00</b>	<b>100,0</b>

\* Recursos de cofinanciamiento.

\*\* Corresponde a contrapartida local de US\$21,875 millones en relación con el contrato de préstamo entre el Banco y el Estado de Paraíba y de US\$3,125 millones relativo al contrato de préstamo entre el FIDA y el Estado de Paraíba.

**Cuadro 6. Cronograma tentativo de desembolsos (US\$ millones)**

Fuente	Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Total
BID	1,50	3,70	14,41	24,17	17,77	8,45	70,00
FIDA	0,21	0,53	2,06	3,45	2,54	1,21	10,00
Local	0,54	1,32	5,15	8,63	6,34	3,02	25,00
<b>Total</b>	<b>2,25</b>	<b>5,55</b>	<b>21,62</b>	<b>36,25</b>	<b>26,65</b>	<b>12,68</b>	<b>105,00</b>
<b>% por año</b>	<b>2,14</b>	<b>5,28</b>	<b>20,59</b>	<b>34,52</b>	<b>25,39</b>	<b>12,08</b>	<b>100,00</b>

2.3 **Análisis fiscal.** La Clasificación de Capacidad de Pago (CAPAG) actual del Estado de Paraíba es "A", que es la mejor clasificación. Para autorizar la firma del contrato de préstamo, el Gobierno Federal de Brasil analizará nuevamente la situación fiscal del Estado de Paraíba a fin de otorgar su aprobación final.

## **B. Riesgos ambientales y sociales**

2.4 Según el Marco de Política Ambiental y Social (MPAS) , y en base a la información disponible en este momento, la operación está clasificada como Categoría B debido a que las actividades y planes financiados por los Componentes I y II pueden generar impactos ambientales y sociales negativos moderados a significativos a medio y largo plazo, gestionables y mitigables con medidas conocidas, que estarán previstas en los planes de gestión ambiental y social (PGAS) y planes de comunicación e involucramiento de las partes interesadas (PPPI). Estos impactos están vinculados a actividades agrícolas y actividades puntuales de construcción civil que financiará el proyecto, incluyendo generación de ruido, de residuos de la construcción civil y agrícolas y de polvo, emisiones, erosión y sedimentación de cursos de agua, presión sobre las hábitats

modificados y naturales. No se espera que las actividades orientadas a mejorar la productividad y los ingresos de los grupos de productores afecten negativamente ni contribuyan con la degradación de áreas y hábitats críticos. Se espera que la titulación de tierras promoverá el desarrollo económico y el mejor uso y conservación. Sin embargo, algunas situaciones conllevan riesgos de que generen conflictos entre potenciales beneficiarios y actores que reclaman la propiedad de la tierra.

- 2.5 La Clasificación de Riesgo Socioambiental es Sustancial, asociado a impactos ambientales y sociales negativos, temporales, gestionables y mitigables, a riesgos de intervención e impactos en hábitats modificados con un valor significativo para la biodiversidad, y riesgos de impacto indirecto para hábitats naturales y críticos.
- 2.6 El Riesgo de Desastres y Cambio Climático se clasificó como Moderado debido a la exacerbación de los riesgos de desastres naturales durante eventos extremos de sequías, precipitación e inundaciones e incendios en bioma sensible. La infraestructura que se va a construir es de criticidad moderada, ya que es de tamaño medio, lo que deberá confirmarse cuando se definan los proyectos y las áreas de implementación a través de una Evaluación de Riesgo de Desastres, a incluirse en el PGAS previo a la ejecución. Estas clasificaciones se confirmaron a través de los resultados de los estudios en la Evaluación Ambiental y Social Estratégica (EASE) realizados durante la debida diligencia. Los criterios de elegibilidad establecidos para la operación excluyen actividades que conlleven desplazamientos involuntarios (físicos o económicos), impactos negativos en los medios de subsistencia, impactos negativos en las comunidades tradicionales y/o pueblos indígenas, así como impactos en los recursos ecosistémicos de los que dependen los pueblos indígenas y en su patrimonio cultural. Tampoco serán elegibles inversiones que generen impactos adversos en hábitats críticos.
- 2.7 Para tratar adecuadamente estos riesgos y con el fin de atender los requerimientos establecidos en las Normas de Desempeño Ambiental y Social (NDAS), fue desarrollada una: (i) Evaluación Ambiental/Social Estratégica (EASE); (ii) un Plan de Gestión Ambiental/Social Estratégico (PGASE); (iii) un Análisis Sociocultural centrado en las poblaciones indígenas, las comunidades *quilombolas* y otras comunidades tradicionales, previo a las intervenciones que se llevarán a cabo; y (iv) un Plan de Participación de las Partes Interesadas Específico (PPPI). Los riesgos referentes a las Comunidades Indígenas fueron evaluados durante la Debida Diligencia y se identificó la necesidad de una Consulta Libre Previa e Informada para las comunidades indígenas y tradicionales que pueden ser afectadas por el proyecto. Además, la UGP implementará un Sistema de Gestión Ambiental y Social (SGAS) consistente con la Norma de Desempeño Ambiental y Social (NDAS 1).
- 2.8 Los estudios ambientales y sociales fueron divulgados en su versión preliminar, en la página web del Banco previo a la Misión de Análisis, y se llevará a cabo un proceso de consulta pública para todo el proyecto, teniendo en cuenta los mecanismos culturalmente apropiados y el avance de los estudios y planes de gestión, previo a la fecha de Directorio de la operación.
- 2.9 La sostenibilidad socioambiental del programa debe estar garantizada por el cumplimiento de los estándares de desempeño del MPAS a través de la

implementación del SGAS y sus lineamientos (MGAS), presencia de un equipo específico – de un especialista ambiental y un especialista social – responsables de la gestión socioambiental en la UGP, que además coordinará la comunicación activa con las poblaciones afectadas.

### **C. Riesgos fiduciarios**

- 2.10 Para evitar posibles dificultades y atrasos en la ejecución por debilidades de la SEAFDS y demoras en los procesos de adquisiciones, se propone: (i) utilizar una Unidad de Gestión del Programa (UGP) para la administración y gestión del proyecto; (ii) contratar al Instituto Interamericano de Cooperación para la Agricultura (IICA) como agencia especializada para apoyar la gestión de contrataciones del personal de la UGP y de capacitaciones de apoyo a la gestión del proyecto, dada su experiencia en proyectos similares<sup>3.6</sup>, incluyendo el PROCASE I (¶3.6); y (iii) realizar capacitaciones en políticas y procedimientos fiduciarios del BID. Además, será contratada por medio de un proceso competitivo una fundación relacionada a una universidad o centro de investigación para realizar: (i) la contratación bajo la modalidad de becarios de jóvenes rurales que apoyarán a la asistencia técnica y otras tareas del proyecto en sus comunidades; (ii) identificación y pagos a desarrolladores de innovaciones seleccionados; (iii) consultorías especializadas necesarias para la preparación y ejecución de Planes de Negocios en organizaciones que no tengan la capacidad de contratarlas y gestionar sus contratos en forma directa; y (iv) contrataciones necesarias para estudios, intercambios y otras acciones de gestión de conocimiento, cooperación sur-sur y triangular.
- 2.11 Para evitar riesgo de retrasos en las rendiciones de cuentas de los beneficiarios por los recursos transferidos a sus organizaciones, el ROP establecerá un mecanismo claro de rendición y la SEAFDS firmará un instrumento jurídico con cada organización beneficiaria, detallando responsabilidades y mecanismos. Además, la SEAFDS les brindará apoyo técnico para garantizar una rendición de cuentas adecuada.

### **D. Otros riesgos y temas clave**

- 2.12 **Entorno de ejecución económico y financiero.** Se considera un riesgo medio-alto la posibilidad de reducciones presupuestales durante el período de ejecución debido a deterioro fiscal. Para mitigarlo, se mantendrá un diálogo continuo con las contrapartes y monitoreo conjunto con el FIDA, incluyendo definir un plan de acción para mantener la priorización del programa, en caso de ser necesario.
- 2.13 **Entorno político.** Posibles cambios en la SEAFDS que retrasen la ejecución representan un riesgo medio-alto. Se mitigará mediante un diálogo continuo con nuevas autoridades, destacando la importancia del proyecto, y capacitación del personal técnico en áreas clave.
- 2.14 **Sostenibilidad de las inversiones.** Insuficientes capacidades y claridad en responsabilidades institucionales que afecten la sostenibilidad de las inversiones del programa representan un riesgo alto. Se mitigará mediante asistencia técnica a los beneficiarios, financiada bajo el Componente II, para fortalecer las



capacidades de gestión de las organizaciones de los beneficiarios responsables por los planes productivos.

### III. PLAN DE IMPLEMENTACIÓN Y GESTIÓN

#### A. Resumen de los arreglos de implementación

- 3.1 **Prestatario, Organismo Ejecutor y Garante.** El prestatario será el Estado de Paraíba y la República Federativa de Brasil será garante de las obligaciones financieras del prestatario en virtud del contrato de préstamo. El OE será el prestatario, por medio de la Secretaría de Agricultura Familiar y Desarrollo del Semiárido (SEAFDS), que será responsable por la gestión técnica y fiduciaria del Proyecto, y en cuya estructura fue creada una Unidad de Gestión del Proyecto (UGP). La Empresa Paraibana de Investigación, Extensión Rural y Regularización de Tierras (EMPAER) actuará como sub-ejecutora de las actividades de regularización de tierras del Componente II. Como parte de la preparación, se realizó un Análisis de la Capacidad Institucional de la SEAFDS y de la EMPAER, y fueron identificadas las áreas con oportunidades de mejora. Los resultados indican que la SEAFDS posee experiencia en ejecución de programas financiados por organismos internacionales, destacándose el recientemente finalizado PROCASE I, financiado por un préstamo de US\$18 millones del FIDA. No obstante, precisará utilizar una UGP para asegurar una adecuada capacidad para la gestión del programa en las áreas técnica, de adquisiciones, financiera, ambiental y social.
- 3.2 **Mecanismos de ejecución, administración y coordinación.** La SEAFDS, que actuará a través de la UGP, será responsable por la gestión y coordinación general del programa, y garantizará el cumplimiento del contrato de préstamo y del ROP. Entre otras tareas, se encargará de: (i) mantener comunicación formal con el Banco; (ii) presentar solicitudes de desembolso y rendición de cuentas; (iii) gestionar la auditoría externa; (iv) coordinar actividades de monitoreo y evaluación; (v) presentar al Banco la planificación operativa consolidada, Plan Financiero y Plan de Ejecución Plurianual (PEP) e informes de progreso; (vi) ejecutar las actividades; y (vii) monitorear la ejecución presupuestal y los insumos para los registros financieros y la adecuada rendición de cuentas al Banco. La UGP tendrá como equipo mínimo: (i) un coordinador general; (ii) un coordinador técnico; (iii) un gerente financiero; (iv) un gerente en adquisiciones; (v) un gerente del Componente I; (vi) un gerente del Componente II; (vii) un especialista en género y diversidad; (viii) un especialista en PCT; y (ix) un especialista en salvaguardas ambientales y sociales; y (x) un especialista en monitoreo y evaluación. La UGP contará, además del equipo central en João Pessoa, con oficinas territoriales, que contarán con un equipo técnico financiado por el proyecto y tendrán responsabilidades de difusión de informaciones, supervisión de las acciones del proyecto y apoyo en la rendición de cuentas de los planes con las organizaciones, entre otros. El número y localización de las oficinas serán definidos según la disposición geográfica y territorial de los planes.
- 3.3 El proyecto contará con un Comité Gestor, que tendrá una función de planeamiento estratégico, incluyendo entre otros la revisión de informes anuales y la aprobación del Plan Operativo Anual (POA). Además, los Colegiados de

Desarrollo Territorial Sostenible (CODETER), organismos para la participación y coordinación local de las acciones de gobierno, organizaciones sociales y de la sociedad civil, cumplirán una función consultiva, sirviendo como espacio para la comunicación de las acciones realizadas por el proyecto y la coordinación con otras iniciativas que ocurren en los territorios.

- 3.4 **Gestión de desembolsos.** Los desembolsos del préstamo serán efectuados en dólares americanos, bajo la modalidad de anticipo de fondos, en conformidad con lo previsto en la Guía de Gestión Financiera para Proyectos Financiados por el BID (OP-273-12). Las solicitudes de anticipos deberán satisfacer las necesidades de liquidez del programa, documentadas dentro del plan financiero por un período de hasta seis meses. Para cada anticipo (con excepción del primero), será necesaria la rendición de cuentas de al menos 60% del saldo acumulado de anticipos pendientes de justificar (ver Anexo III).
- 3.5 **Adquisición de obras y servicios.** Las adquisiciones y contrataciones financiadas total o parcialmente con recursos del préstamo se realizarán conforme a las Políticas para la Adquisición de Obras y Bienes Financiados por el BID (GN2349-15) y las Políticas para la Selección y Contratación de Consultores Financiados por el BID (GN-2350-15) y con las previsiones del contrato de préstamo y el Plan de Adquisiciones (PA). Las adquisiciones podrán ser supervisadas de manera ex-ante o ex-post según lo establecido en el PA. Cuando se ejecuten utilizando el sistema nacional, la supervisión se llevará a cabo aplicando el sistema del país.
- 3.6 **Contrataciones directas.** Se realizará la contratación directa del Instituto Interamericano de Cooperación para la Agricultura (IICA) como agencia especializada para administrar contrataciones relacionadas con la gestión del proyecto. Las funciones principales del IICA serán: (i) contratación del personal técnico y administrativo para la gestión del proyecto; y (ii) contrataciones logísticas para implementar acciones de capacitación previstas para la administración y gestión. El IICA recibirá transferencias de recursos del proyecto para realizar esas contrataciones y adquisiciones, lo que involucra en total US\$5,88 millones. El costo estimado total de esta contratación del IICA es de US\$471.000 para los seis años de ejecución, y los pagos serán realizados en función (porcentaje) de los recursos ejecutados. Tal contratación está justificada de acuerdo con lo previsto en la GN-2350-15, 3.11 (d), por la experiencia de valor excepcional de esta institución, demostrada por su amplia experiencia y trayectoria en el apoyo a la ejecución de proyectos, el conocimiento y experiencia de su personal técnico en políticas de adquisiciones de organismos internacionales y su experiencia en el PROCASE I.
- 3.7 **Planes de Inversión Resiliente y Planes de Negocio.** Los aproximadamente 200 PIR y 60 PN previstos serán implementados cada uno de ellos por una organización comunitaria o cooperativa respectivamente, para lo cual la SEAFDS firmará con cada una un instrumento jurídico estableciendo obligaciones y responsabilidades en la ejecución del plan, así como las condiciones para los desembolsos a las organizaciones, porcentajes y medios de verificación. El modelo de este instrumento jurídico se incluirá como anexo del ROP.

- 3.8 **Asistencia técnica.** La SEAFDS contratará por medio de proceso competitivo servicios de asistencia técnica para encargarse de la elaboración de diagnósticos participativos y la elaboración y apoyo a la ejecución de los PIR, mientras que las cooperativas beneficiarias de los PN podrán contratar con el apoyo del proyecto, la asistencia técnica especializada para su diseño y ejecución. En base a la amplia experiencia del PROCASE I y otros proyectos, se aplicará el marco jurídico federal<sup>15</sup> existente para implementar las inversiones en tecnologías sociales (e.g., cisternas) previstas en los PIR, siendo contratadas, por medio de procesos competitivos, organizaciones de la sociedad civil con experiencia en esas tecnologías que se encargarán también de proporcionar capacitación sobre su uso y mantenimiento.
- 3.9 **Reglamento Operativo del Programa (ROP).** El ROP aprobado por el Banco incluirá criterios para diseño y ejecución de PIR y PN, cuestiones ambientales y sociales, y aspectos de integridad, entre otros temas.
- 3.10 **Auditoría externa.** Los estados financieros del programa serán auditados anualmente por el Tribunal de Cuentas del Estado de Paraíba o por una Firma de Auditoría Independiente elegible para el Banco, contratada por la SEAFDS. Los estados financieros auditados serán presentados por el prestatario al Banco hasta 120 días después del cierre de cada ejercicio fiscal. Los estados financieros auditados finales serán presentados hasta 120 días después de la fecha del último desembolso del proyecto o de sus extensiones.
- 3.11 Serán condiciones contractuales especiales previas al primer desembolso del financiamiento: **(i) la aprobación y entrada en vigor del ROP, en los términos previamente acordados con el Banco; (ii) la designación y contratación de los miembros del equipo mínimo de la UGP.** La aprobación previa del ROP antes del primer desembolso, basada en la experiencia regional del Banco, es esencial. La segunda condición garantiza que la SEAFDS tenga un equipo listo para iniciar la ejecución.
- 3.12 **Será condición contractual especial de ejecución:** la firma y entrada en vigor del instrumento jurídico entre el Prestatario y la EMPAER previamente al inicio de la ejecución de las actividades de regularización de tenencia de tierras en el marco del Componente II.
- 3.13 **Reconocimiento de gastos.** El Banco podrá reconocer con cargo al aporte local, hasta por la suma de US\$2,5 millones (10% del monto estimado del aporte local), gastos elegibles efectuados por el prestatario antes de la fecha de aprobación del préstamo, por medio de la SEAFDS y de la EMPAER, para la contratación del personal de la UGP, estudios y diagnósticos, y servicios y equipamientos necesarios para la gestión del proyecto y para la ejecución de acciones de los componentes, siempre que se hayan cumplido con requisitos sustancialmente análogos a los establecidos en el contrato de préstamo. Dichos gastos deberán haberse efectuado a partir del 5 de julio de 2023 (fecha de registro de la

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<sup>15</sup> Ley nº 12.873/13, Decreto nº 9.606/18 e [instrucciones normativas específicas para cada una de las tecnologías sociales, por ejemplo, la de la cisterna de calzada.](#)

operación), pero en ningún caso se incluirán gastos efectuados más de 18 meses antes de la fecha de aprobación del préstamo.

## **B. Resumen de los arreglos para el monitoreo de resultados**

- 3.14 El proyecto cuenta con un Plan de Monitoreo y Evaluación ([EER#2](#)) que presenta: (i) la metodología de medición de indicadores; (ii) la metodología de evaluación de impacto; (iii) los requerimientos de datos; y (iv) los responsables y presupuesto estimado.
- 3.15 **Monitoreo.** El prestatario, a través de la UGP, presentará al Banco informes semestrales, a más tardar 60 días después del fin de cada semestre. Estos informes incluirán datos para el Informe de Avance y Monitoreo (PMR) basado en indicadores de la Matriz de Resultados. El prestatario utilizará sistemas gerenciales para monitorear y seguir el PMR.
- 3.16 **Evaluación.** La evaluación de medio término será presentada al Banco dentro de los 90 días desde la fecha en que se haya desembolsado el 50% de los recursos del préstamo o cuando hayan transcurrido 36 meses desde la entrada en vigor del contrato de préstamo, lo que ocurra primero. La evaluación final, que tendrá como referencia, entre otras fuentes cualitativas, la evaluación de impacto y la evaluación económica ex post, será presentada dentro de los 90 días desde la fecha en que se desembolsó el 95% de los recursos del préstamo. Estas evaluaciones se realizarán siguiendo la guía del Informe de Terminación de Proyecto del Banco. El prestatario será responsable por implementar las actividades del Plan de Monitoreo y Evaluación. La evaluación final incluirá los resultados de la evaluación de impacto, que se financiará con recursos del préstamo, y utilizará el método cuasi experimental de diferencias en diferencias con “Propensity Score Matching” para evaluar el impacto del programa sobre los principales indicadores de impacto y resultado.

## **IV. CRITERIOS DE ELEGIBILIDAD**

- 3.17 La cuarta operación individual bajo la CCLIP “Programa de Agricultura y Desarrollo Sostenible” ([BR O0008](#)) cumple con los requisitos establecidos en la Política del Instrumento CCLIP (GN-2246-13) y Guías Operativas (OP-1622-3), dado que: (i) se realizó una evaluación completa de la capacidad institucional de la SEAFDS, y se identificó que tiene la capacidad de ejecución, así como áreas de mejora; (ii) el objetivo de la operación contribuye al logro de los objetivos multisectoriales de la CCLIP, al promover la adopción de tecnologías agropecuarias y la integración de los productores en las cadenas de valor; (iii) la operación está contemplada en los sectores de servicios agropecuarios bajo la CCLIP; y (iv) se incluyen las acciones que deben emprenderse relacionados a mejoras identificadas en la evaluación de capacidad institucional. En cuanto a la CCLIP: (i) sus objetivos figuran entre las prioridades definidas en la Estrategia de País del Grupo BID con Brasil 2019-2022 (GN-2973); y (ii) la SEAID, organismo de enlace de la CCLIP, tiene autoridad para cumplir ese papel dado su mandato

institucional de coordinar, dar seguimiento y evaluar operaciones con financiamiento internacional.<sup>16</sup>

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<sup>16</sup> SEAID actúa como organismo de enlace también de las CCLIPs Pro-Segurança (BR-O0011), Programa de Modernización del Gasto Social en Brasil (BR-O0009), y Brasil Mais Digital (BR-O0010), aprobadas respectivamente el 18 de noviembre de 2020, el 16 de diciembre de 2020 y el 7 de abril de 2021.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex 2: CI Logframe**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



### MATRIZ DE RESULTADOS - EXTENDIDA

<b>Objetivo del Proyecto:</b>	<p>Los objetivos específicos de esta operación serán:</p> <ul style="list-style-type: none"> <li>(i) Aumentar la adopción de tecnologías agropecuarias que contribuyan a la adaptación y mitigación del cambio climático;</li> <li>(ii) Mejorar la inclusión productiva y social de los agricultores familiares, priorizando mujeres, jóvenes, PCT y PcD;</li> <li>(iii) Mejorar las condiciones ambientales de las comunidades rurales y su entorno;</li> </ul> <p>El logro de estas metas contribuirá al objetivo general de reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional y la adaptación de la población rural al cambio climático.</p>
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### Objetivo General de Desarrollo

Indicadores	Unidad de medida	Línea de Base		Meta		Medio de verificación	Observaciones
		Valor	Año	Valor	Año		
<b>OBJETIVO GENERAL: Reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional y la adaptación de la población rural al cambio climático.</b>							
<b>I1.</b> Índice de Pobreza Multi-dimensional (Headcount ajustado)	Índice IMP	43	2020	2031	30	Evaluación de Impacto (EI)	Valores de LB y Meta definidos en base al estudio de Evaluación de Impacto de la fase 1 de Procace, realizado en 2020 (Silva, 2023)
<b>I1a.</b> Porcentaje de hogares encabezados por mujeres		42	2020	2031	29		Gender flag
<b>I1b.</b> Porcentaje de hogares encabezados por jóvenes		37	2020	2031	26		
<b>I1c.</b> Porcentaje de hogares pertenecientes a PCT		43	2020	2031	30		AD+IP flags
<b>I1d.</b> Porcentaje de PcD		44	2020	2031	31		PwD flag
<b>I2.</b> Porcentaje de hogares que reportan una diversidad dietética mínima (MDDW)	%	44	2020	2031	64	EI	Valores de LB y Meta: Silva, 2023 FIDA Core Outcome Indicator (COI) 1.2.8 (sensible a la nutrición)
<b>I2a.</b> Porcentaje de hogares encabezados por mujeres		46	2020	2031	68		Gender flag
<b>I2b.</b> Porcentaje de hogares encabezados por jóvenes		44	2020	2031	71		
<b>I2c.</b> Porcentaje de hogares pertenecientes al PCT		46	2020	2031	63		AD+IP flags



Indicadores	Unidad de medida	Línea de Base		Meta		Medio de verificación	Observaciones
		Valor	Año	Valor	Año		
<b>I2d.</b> Porcentaje de hogares encabezados por PcD		49	2020	2031	78		PwD flag
<b>I3.</b> Agricultores que aumentan su producción agrícola	Agricultor	0	2025	2031	10.800	EI	Adaptado del FIDA COI 1.2.4 Se aplica el supuesto de que el 60% de los productores aumentan su producción, según los resultados de la evaluación PROCASE I <i>Vinculado a la consecución de la R1.1 para la adaptación al cambio climático.</i>
<b>I3a.</b> Hogares encabezados por mujeres		0	2025	2031	5.400		Gender flag
<b>I3b.</b> Hogares encabezados por jóvenes		0	2025	2031	2.160		
<b>I3c.</b> Familias pertenecientes a PCT		0	2025	2031	540		AD+IP flags
<b>I3d.</b> PcD		0	2025	2031	216		PwD flag
<b>I4.</b> Número de toneladas de emisiones de gases de efecto invernadero (CO <sub>2</sub> e) evitadas y/o secuestradas	tCO <sub>2</sub> e/ha	0	2024	2031	1.449.802	Herramienta de balance de carbono EX-Ante de la FAO (EX-ACT)	FIDA COI 3.2.1 (Financiamiento de mitigación)
<b>I4a.</b> Hectáreas de superficie	Superficie (ha)	0	2024	2031	13.575		
<b>I4b.</b> tCO <sub>2</sub> e/ha/año	tCO <sub>2</sub>	0	2024	2031	5,0		

**RESULTADOS ESPERADOS**

Resultados esperados	Unidad de medida	Línea de base		Meta		Medio de verificación	Observaciones
		Valor	Año	Valor	Año		
<b>Objetivo específico 1. Aumentar la adopción de tecnologías agropecuarias que contribuyan a la adaptación y mitigación del cambio climático.</b>							
<b>R1.1</b> Porcentaje de hogares que utilizan insumos, tecnologías o prácticas sostenibles y climáticamente inteligentes	%	62	2020	2031	67	EI	FIDA COI 3.2.2 (Financiación de la adaptación) LB y Meta: Silva, 2023
<b>R1.2</b> Agricultores con acceso mejorado a inversiones y servicios agrícolas	Agricultor	0	2025	2031	60.000	Sistema de fusiones y adquisiciones	FIDA CI.1 (divulgación)
<b>R1.2a</b> Mujeres agricultoras		0	2025	2031	30.000		Gender flag
<b>R1.2b</b> Hombres agricultores		0	2025	2031	30.000		
<b>R1.2c</b> Jóvenes agricultores		0	2025	2031	12.000		
<b>R1.2d</b> Agricultores pertenecientes a PCT		0	2025	2031	3.000		AD+IP flags
<b>R1.2e</b> PcD		0	2025	2031	1.200		PwD flag
<b>Objetivo específico 2. Mejorar la inclusión productiva y social de los agricultores familiares, priorizando mujeres, jóvenes, PCT y PcD.</b>							
<b>R2.1</b> Porcentaje de agricultores familiares que venden su producción en mercados	%	61	2020	2031	72	EI	LB y Meta: Silva, 2023
<b>R2.1a</b> Porcentaje de mujeres agricultoras		57	2020	2031	71		Gender flag
<b>R2.1b</b> Porcentaje de jóvenes agricultores		61	2020	2031	72		
<b>R2.1c</b> Porcentaje de hogares pertenecientes al PCT		61	2020	2031	72		AD+IP flags

Resultados esperados	Unidad de medida	Línea de base		Meta		Medio de verificación	Observaciones
		Valor	Año	Valor	Año		
<b>R2.1d</b> Porcentaje de PCD		64	2020	2031	79		PwD flag
<b>R2.2</b> Organizaciones apoyadas por PN, aumentan sus ventas	Organizaciones	0	2020	2031	12	EI; Consulta evaluativa específica sobre comercialización en cooperativas apoyadas	FIDA COI 2.2.5
<b>R2.3</b> Porcentaje de mujeres que ocupan puestos directivos en organizaciones rurales	%	5	2020	2031	12	EI; Consulta evaluativa sobre el empoderamiento de las mujeres en las organizaciones apoyadas	LB y Meta: Silva, 2023
<b>R2.3a</b> Porcentaje de mujeres jóvenes		8	2020	2031	11		Gender flag
<b>R2.3b</b> Porcentaje de mujeres pertenecientes a PCT		5	2020	2031	12		Gender+AD+IP flags
<b>R2.3c</b> Porcentaje de mujeres con discapacidad		7	2020	2031	13		Gender+PWD flags
<b>R2.4</b> Cambio en el porcentaje de personas que informan estar empoderadas relativo a la línea de base	%	0	2020	2031	5	EI	Referencia para meta: <a href="#">Salazar et al (2018)</a>
<b>R2.4a</b> Porcentaje de mujeres		0	2024	2031	5		FIDA COI IE.2.1 (transformador en materia de género) Gender flag
<b>R2.4b</b> Porcentaje de jóvenes		0	2024	2031	5		
<b>R2.4c</b> Porcentaje de personas PCT		0	2024	2031	5		AD+IP flags
<b>R2.4d</b> Porcentaje de personas con discapacidad (PcD)		0	2024	2031	5		PwD flag
<b>R2.5</b> Personas con nuevos empleos	Persona	0	2024	2031	200	EI; seguimiento de los nuevos empleos generados en las organizaciones apoyadas	Se considera cualquier nueva generación de ingreso, incluidos la resultante de puestos de trabajo estacionales, trabajo dentro y fuera de la finca, y como persona independiente o empleado/a de MIPyMEs.

Resultados esperados	Unidad de medida	Línea de base		Meta		Medio de verificación	Observaciones
		Valor	Año	Valor	Año		
<b>R2.5a</b> Mujeres con nuevos empleos		0	2024	2031	100		Gender flag
<b>R2.5b</b> Jóvenes con nuevos empleos		0	2024	2031	150		FIDA COI 2.2.1 (sensible a jóvenes)
<b>R2.5c</b> Personas pertenecientes al PCT con nuevos empleos		0	2024	2031	50		AD+IP flags
<b>R2.5d</b> PcD con nuevos puestos de trabajo		0	2024	2031	50		PwD flag
<b>Objetivo específico 3. Mejorar las condiciones ambientales de las comunidades rurales y su entorno.</b>							
<b>R3.1</b> Superficie de propiedades rurales registradas en el CAR dentro de los municipios objeto del Proyecto	Hectárea	68.804	2024	2031	168.804	Seguimiento de los recibos de registro CAR	Cumplimiento de la primera etapa de registro en el CAR. El registro de una propiedad en el CAR depende de la participación activa del propietario en la provisión de los documentos y certificados necesarios para realizar el trámite técnico y legal. Además, deben acompañar a los equipos encargados de la georreferenciación de su(s) parcela(s).
<b>R3.2</b> Comunidades con título de regularización territorial y ambiental entregado	Comunidad	0	2024	2031	150	Lista de comunidades atendidas con certificación y/o titulación	El otorgamiento del título comunitario depende de la participación activa de la asociación comunitaria en la provisión de los documentos y certificados necesarios para realizar el trámite técnico y legal. Además, debe acompañar a los equipos encargados de la georreferenciación de su(s) parcela(s).
<b>R3.2a:</b> Comunidades quilombolas con título de regularización territorial y ambiental entregado		0	2024	2031	47		AD flag

## INDICADORES DE PRODUCTO

Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Componente I: Sistemas productivos resilientes para reducir la pobreza rural</b>												
<b>Subcomponente 1.1: Implantación de sistemas productivos resilientes con biodiversidad</b>												
<b>Producto 1.1.1</b> Planes de Inversión Resiliente (PIR) conveniados	Planes	0	2025	0	30	80	90	0	0	200	Sistema de monitoreo y evaluación (M&E)	
<b>Hito 1:</b> Familias beneficiadas	Familias	0	2025	0	2.700	7.200	8.100	0	0	18.000		
<b>Hito 2:</b> Familias encabezadas por mujeres beneficiadas		0	2025	0	1.350	3.600	4.050	0	0	9.000		Cuota: 50% Gender flag
<b>Hito 3:</b> Familias encabezadas por jóvenes beneficiadas		0	2025	0	540	1.440	1.620	0	0	3.600		Cuota: 20%
<b>Hito 4:</b> Familias de PCT beneficiadas		0	2025	0	135	360	405	0	0	900		Cuota: 5% AD+IP flags
<b>Hito 5:</b> PcD beneficiadas	Personas	0	2025	0	54	144	162	0	0	360		Cuota: 2% PwD flag
<b>Hito 6:</b> Personas que acceden a tecnologías que secuestran carbono o reducen las emisiones de gases de efecto invernadero		0	2025	0	564	1.504	1.692	0	0	3.760		FIDA COI 3.1.3 (financiamiento de mitigación)
<b>Producto 1.1.2</b> Planes de Inversión Resiliente (PIR) ejecutados con más del 75% de rendición de cuentas	Planes	0	2025	0	0	30	70	70	30	200	Sistema M&E	

Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Subcomponente 1.2: Fortalecimiento y diversificación de la comercialización</b>												
<b>Producto 1.2.1</b> Planes de Negocio (PN) para la estructuración de cooperativas/unidades de procesamiento conveniados	Planes	0	2025	0	5	20	30	5	0	60	Sistema M&E	
<b>Hito 1:</b> Familias beneficiadas	Familias	0	2025	0	420	1.680	2.520	420	0	5.040		
<b>Hito 2:</b> Familias encabezadas por mujeres beneficiadas		0	2025	0	210	840	1.260	210	0	2.520		Cuota: 50% Gender flag
<b>Hito 3:</b> Familias encabezadas por jóvenes beneficiadas		0	2025	0	84	336	504	84	0	1.008		Cuota: 20%
<b>Hito 4:</b> Familias de PCT beneficiadas		0	2025	0	21	84	126	21	0	252		Cuota: 5% AD+IP flags
<b>Hito 5:</b> PcD beneficiadas		Personas	0	2025	0	8	34	50	8	0		100
<b>Producto 1.2.2</b> Planes de Negocios (PN) para la estructuración de cooperativas/unidades de procesamiento ejecutados con más del 75% de rendición de cuentas	Planes	0	2025	0	0	5	15	30	10	60	Sistema M&E	FIDA COI 2.1.3
<b>Subcomponente 1.3: Incentivos a la innovación</b>												
<b>Producto 1.3.1</b> Tecnologías innovadoras desarrolladas o adaptadas	Unidades	0	2025	0	0	5	10	10	0	25	Sistema M&E	Equipos, maquinaria, insumos, implementos, productos, etc.

Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Componente II: Fortalecimiento organizacional y de capacidades y gestión del conocimiento</b>												
<b>Subcomponente 2.1: Fortalecimiento de las capacidades de los agricultores familiares</b>												
<b>Producto 2.1.1:</b> Eventos de capacitación para entidades ATER Agroecológicas y CTE realizados	Eventos	0	2025	6	10	2	2	0	0	20	Registro de participantes e inscripción de la actividad y participantes en el Sistema M&E	CTE = Asesoramiento técnico especializado
<b>Hito 1:</b> Técnicos de ATER y CTE capacitados	Técnico	0	2025	90	150	30	30	0	0	300		
<b>Producto 2.1.2</b> Familias atendidas por ATER Agroecológica	Familias	0	2025	0	2.700	9.900	18.000	15.300	8.100	18.000	Registro de las familias atendidas en el Sistema M&E	Considerando la permanencia de las familias por 3 años
<b>Hito 1:</b> Familias encabezadas por mujeres beneficiadas		0	2025	0	1.350	4.950	9.000	7.650	4.050	9.000		Cuota: 50% Gender flag
<b>Hito 2:</b> Familias encabezadas por jóvenes beneficiadas		0	2025	0	540	1.980	3.600	3.060	1.620	3.600		Cuota: 20%
<b>Hito 3:</b> Familias pertenecientes a PCT beneficiadas		0	2025	0	135	495	900	765	405	900		Cuota: 5% AD+IP flags
<b>Hito 4:</b> PcD beneficiadas	Personas	0	2025	0	54	198	360	306	162	360		Cuota: 2% PwD flag
<b>Producto 2.1.3</b> Eventos de capacitación e intercambios de agricultores realizados	Eventos	0	2025	0	12	50	50	20	0	132	Registro de participantes e inscripción de la actividad y participantes en el Sistema M&E	

Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Producto 2.1.4</b> Eventos de capacitación para el acceso a Políticas Públicas y Otros Programas realizados	Eventos	0	2025	5	30	100	150	80	35	400	Registro de las familias atendidas en el Sistema M&E	
<b>Hito 1:</b> Familias beneficiadas	Familias	0	2025	400	2.400	8.000	12.000	6.400	2.800	32.000		
<b>Hito 2:</b> Familias encabezadas por mujeres beneficiadas		0	2025	200	1.200	4.000	6.000	3.200	1.400	16.000		Cuota: 50% Gender flag
<b>Hito 3:</b> Familias encabezadas por jóvenes beneficiadas		0	2025	80	480	1.600	2.400	1.280	560	6.400		Cuota: 20%
<b>Hito 4:</b> Familias de PCT beneficiadas		0	2025	20	120	400	600	320	140	1.600		Cuota: 5% AD+IP flags
<b>Hito 5:</b> PcD beneficiadas	Personas	0	2025	8	48	160	240	128	56	640		Cuota: 2% PwD flag
<b>Subcomponente 2.2: Fortalecimiento de las capacidades de las organizaciones para comercialización</b>												
<b>Producto 2.2.1</b> Cooperativas y organizaciones de productores atendidas con CTE	Cooperativas y Organizaciones	0	2025	0	5	25	50	35	5	60	Sistema M&E	Considerando la permanencia de la organización por 2 años
<b>Producto 2.2.2</b> Ferias locales y centros de comercialización creados o mejorados	Instalaciones	0	2025	0	5	10	15	12	8	50	Sistema M&E	
<b>Producto 2.2.3</b> Servicios de Inspección Sanitaria en funcionamiento	Unidades	0	2025	0	0	0	1	1	0	2	Sistema M&E	
<b>Producto 2.2.4</b> Piloto de sistemas de certificación participativa en funcionamiento	Pilotos	0	2025	0	2	5	5	3	0	15	Sistema M&E	



Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Subcomponente 2.3: Diversidad, género, juventud, nutrición y seguridad alimentaria</b>												
<b>Producto 2.3.1</b> Plan de género y diversidad (PCT, PcD, LGBTQIAPN+) elaborado	Planes	0	2025	1	0	0	0	0	0	1	Entrega del plan elaborado	Gender, AD, IP, LGBTQ flags
<b>Producto 2.3.2</b> Fases anuales del plan de género y diversidad implementadas	Fases	0	2025	0	1	1	1	1	1	5	Sistema M&E	
<b>Producto 2.3.3</b> Plan de juventud elaborado	Planes	0	2025	1	0	0	0	0	0	1	Entrega del plan elaborado	
<b>Producto 2.3.4</b> Fases anuales del plan de juventud implementadas	Fases	0	2025	0	1	1	1	1	1	5	Sistema M&E	
<b>Producto 2.3.5</b> Plan de fortalecimiento de PCT elaborado	Planes	0	2025	1	0	0	0	0	0	1	Entrega del plan elaborado	AD+IP flags
<b>Producto 2.3.6</b> Fases anuales del plan de fortalecimiento de PCT implementadas	Fases	0	2025	0	1	1	1	1	1	5	Sistema M&E	
<b>Producto 2.3.7</b> Plan de nutrición y seguridad alimentaria elaborado	Planes	0	2025	1	0	0	0	0	0	1	Entrega del plan elaborado	
<b>Hito 1:</b> Familias recibiendo apoyo específico para mejorar su nutrición	Familias	0	2025	0	2.700	7.200	8.100	0	0	18.000		FIDA COI 1.1.8 (sensible a la nutrición)
<b>Producto 2.3.8</b> Fases anuales del plan de nutrición y seguridad alimentaria implementadas	Fases	0	2025	0	1	1	1	1	1	5	Sistema M&E	

Producto	Unidad de medida	Línea de Base		Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Fin del proyecto	Medio de verificación	Observaciones
		Valor	Año									
<b>Producto 2.3.9</b> Agentes de Desarrollo Local contratados	Agente	0	2025	0	30	110	200	200	200	200	FAPESQ entrega lista final de seleccionados	Considerando que el Agente permanecerá en el PIR hasta el final del Proyecto
<b>Subcomponente 2.4: Regularización de tierras y ambiental</b>												
<b>Producto 2.4.1</b> Familias beneficiarias de la regularización de tierras y ambiental	Familias	0	2025	0	500	1.500	2.000	600	400	5.000	Sistema M&E / Sistema Nacional de Catastro Ambiental Rural (SICAR)	FIDA COI 1.1.1 (financiamiento de mitigación)
<b>Hito 1:</b> Título inscrito a nombre de la mujer	Mujer	0	2025	0	250	750	1.000	300	200	2.500		Cuota: 50% Gender flag
<b>Hito 2:</b> Título inscrito a nombre del joven	Joven	0	2025	0	100	300	400	120	80	1.000		Cuota: 20%
<b>Subcomponente 2.5: Gestión del Conocimiento (GC), Cooperación Sur-Sur y Triangular (CSS)</b>												
<b>Producto 2.5.1</b> Sistematizaciones y estudios en Gestión del Conocimiento elaborados y publicados	Estudios	0	2025	0	2	3	5	5	10	25	Equipo de GC y comunicación del proyecto	Se trata de diferentes materiales promocionales (vídeos, podcasts, libros)
<b>Producto 2.5.2</b> Fases anuales de comunicación y divulgación en la gestión del conocimiento implementadas	Fases	0	2025	1	1	1	1	1	1	6	Equipo de GC y comunicación del proyecto	
<b>Producto 2.5.3</b> Eventos de Intercambio de Cooperación Sur-Sur realizados	Eventos	0	2025	0	0	3	3	3	1	10	Equipo de GC y comunicación del proyecto	

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex 3: Logframe**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



**Paraiba Rural Sustainable Development Project**

**Logical Framework**

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
<b>Outreach</b>	1 Persons receiving services promoted or supported by the project				Project M&E System	Annual	Project M&E Unit	Continuity of public policies and programmes that support rural poverty reduction.
	Males	0	12000	30000				
	Females	0	12000	30000				
	Young	0	4800	12000				
	Not Young							
	Indigenous people	0	1200	3000				
	Non-Indigenous people							
	Total number of persons receiving services	0	24000	60000				
	Persons with disabilities	0	480	1200				
	1.a Corresponding number of households reached				Project M&E System	Annual	Project M&E Unit	
	Households	0	24000	60000				
	1.b Estimated corresponding total number of households members				Project M&E System	Annual	Project M&E Unit	
	Household members	0	84000	210000				
<b>Project Goal</b> Reduce rural poverty and food and nutrition insecurity for family farmers	Poverty reduction (multidimensional)				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	Continuity of public policies and programmes that support rural poverty reduction/ Non-occurrence of acute drought episodes.
	Percentage of reduction	43	39	30				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
<b>Development Objective</b> Continuity of public policies and programmes that support rural poverty reduction/ Non-occurrence of acute drought episodes.	1.2.8 Women reporting minimum dietary diversity (MDDW)				Impact Survey	Baseline, Mid-Term and End of Project	Independent consultancy firm	Continuity of public policies and programmes that support rural poverty reduction/ Non-occurrence of acute drought episodes.
	Women (%)	46	55	68				
	Women (number)	4140	4950	6120				
	Households (%)	44	53	64				
	Households (number)	7920	9540	11520				
	Household members	27720	33390	40320				
	Non-indigenous							
	Women-headed households	4140	4950	6120				
	Non-women-headed households							
	2.2.1 Persons with new jobs/employment opportunities				Impact Survey	Baseline, Mid-Term and End of Project	Independent consultancy firm	
	Males	0	40	100				
	Females	0	40	100				
	Indigenous people	0	20	50				
	Young	0	60	150				
	Total number of persons with new jobs/employment opportunities	0	80	200				
	Persons with disabilities	0	20	50				
	IE.2.1 Individuals demonstrating an improvement in empowerment				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	
	Indigenous people	0	8	5				
	Indigenous people	0	72	45				
	Young	0	8	5				
	Young	0	288	180				
	Total persons	0	8	5				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Total persons	0	1440	900				
	Females	0	8	5				
	Females	0	720	450				
	Males	0	8	5				
	Males	0	720	450				
	Persons with disabilities	0	29	18				
	Persons with disabilities	0	8	5				
	3.2.1 Tons of Greenhouse gas emissions (tCO2e) avoided and/or sequestered				Impact Survey - Carbon-Balance Tool (EX-ACT)	Baseline, Mid-Term, and End of Project	Independent consultancy firm	
	Hectares of land	0	0	13575				
	tCO2e/20 years	0	0	1449802				
	tCO2e/ha	0	0	107				
tCO2e/ha/year	0	0	5					
<b>Outcome</b> C1. Families increase their resilience through agroecological productive intensification for self-consumption and improved market access	1.2.4 Households reporting an increase in production				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	Droughts or climate change are managed with appropriate adaptation measures.
	Total number of household members	0	15120	37800				
	Households	0	60	60				
	Households	0	4320	10800				
	Households who sell their production in markets				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	
	Households	61	66	72				
	2.2.5 Rural producers' organizations reporting an increase in sales				Project M&E System	Baseline, Mid-Term, and End of Project	Project M&E Unit	
	Percentage of rural POs	0	20	20				
	Number of Rural POs	0	5	12				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Rural POs with women in leadership position	0	4	10				
<b>Output</b> C1. Families and their organizations receive investments to improve their production, adding value to products for sale, as well as infrastructure for access to water and energy, in a context of adaptation to climate change.	Resilient Investment Plans (RIP) implemented				Project M&E System	Annual	Project M&E Unit	Droughts or climate change are managed with appropriate adaptation measures.
	Plans	0	80	200				
	Households	0	7200	18000				
	Males	0	3600	9000				
	Females	0	3600	9000				
	Young	0	1440	3600				
	Indigenous people	0	360	900				
	Persons with disabilities	0	144	360				
	3.1.3 Persons accessing technologies that sequester carbon or reduce greenhouse gas emissions				Project M&E System	Annual	Project M&E Unit	
	Males	0	752	1880				
	Females	0	752	1880				
	Young	0	301	752				
	Indigenous people	0	75	188				
	Total persons accessing technologies	0	1504	3760				
	Persons with disabilities	0	30	75				
	2.1.3 Rural producers' organizations supported							
	Total size of POs	0	2000	5000				
	Rural POs supported	0	24	60				
	Males	0	1000	2500				
	Females	0	1000	2500				
	Young	0	400	1000				
	Indigenous people	0	100	250				



Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Rural POs supported that are headed by women	0	12	30				
	Persons with disabilities	0	40	100				
	Innovative technologies developed or adapted				Project M&E System	Annual	Project M&E Unit	
	Technologies	0	5	25				
<b>Outcome</b> C2. Families adopt environmentally sustainable practices adapted to climate change.	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	Maintenance of public policies and access conditions to credit and public procurement/ Non-occurrence of acute drought episodes.
	Total number of household members	44640	46800	48240				
	Households	62	65	67				
	Households	11160	11700	12060				
	Women who hold management positions in rural organizations				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	
	Females	5	8	12				
	Area of rural properties registered in the CAR in the municipalities covered by the Project				Project M&E System	Baseline, Mid-Term, and End of Project	Project M&E Unit	
	Hectares of land	68804	108804	168804				
	Communities with land and environmental regularization title delivered				Project M&E System	Baseline, Mid-Term, and End of Project	Project M&E Unit	
	Communities	0	100	150				
	SF.2.1 Households satisfied with project-supported services				Impact Survey	Baseline, Mid-Term, and End of Project	Independent consultancy firm	
	Household members	0	63000	157500				
	Non-indigenous households							
	Non-women-headed households							
	Households (%)	0	75	75				
Households (number)	0	18000	45000					

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	SF.2.2 Households reporting they can influence decision-making of local authorities and project-supported service providers				Impact Survey	Baseline, Mid-term and End of Project	Independent consultancy firm	
	Household members	0	58800	147000				
	Non-indigenous households							
	Non-women-headed households							
	Households (%)	0	70	70				
	Households (number)	0	16800	42000				
<b>Output</b> C2. Families and their organizations have increased their capacities, including women, young people, PCT and PwD, for agroecological production, improving their food and nutrition, and accessing other public policies.	Training events for TA organizations				Project M&E System	Annual	Project M&E Unit	Droughts or climate change are managed with appropriate adaptation measures/ Agricultural products' prices remain favorable for family farmers.
	Events	0	18	20				
	Trained ATER and CTE technicians	0	270	300				
	Families assisted by TA				Project M&E System	Annual	Project M&E Unit	
	Households	0	7200	18000				
	Males	0	3600	9000				
	Females	0	3600	9000				
	Young	0	1440	3600				
	Indigenous people	0	360	900				
	Persons with disabilities	0	144	360				
	Training events and farmer exchanges held							
	Events	0	62	132				
	Training events for access to Public Policies and Other Programs				Project M&E System	Annual	Project M&E Unit	
	Events	0	135	400				
	Households	0	10800	32000				
	Females	0	5400	16000				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Young	0	2160	6400				
	Indigenous people	0	540	1600				
	Persons with disabilities	0	216	640				
	Cooperatives and producer organizations assisted with CTE				Project M&E System	Annual	Project M&E Unit	
	Cooperatives and producer organizations	0	24	60				
	Cooperative families	0	2000	5000				
	Local fairs and Marketing Centers created/improved				Project M&E System	Annual	Project M&E Unit	
	Fairs and marketing centers	0	15	50				
	Health Inspection Services in operation				Project M&E System	Annual	Project M&E Unit	
	Health inspection services	0	1	2				
	Participatory certification systems pilot in operation				Project M&E System	Annual	Project M&E Unit	
	Systems	0	7	15				
	Diversity, gender, youth, nutrition and food security plans prepared				Project M&E System	Annual	Project M&E Unit	
	Gender Plan	0	1	1				
	Youth Plan	0	1	1				
	PCT Strengthening Plan	0	1	1				
	Nutrition and Food Safety Plan	0	1	1				
	1.1.8 Households provided with targeted support to improve their nutrition				Project M&E System	Annual	Project M&E Unit	
	Total persons participating	0	7200	18000				
	Males	0	3600	9000				
	Females	0	3600	9000				
	Households	0	7200	18000				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Household members benefitted	0	25200	63000				
	Indigenous people	0	360	900				
	Non-Indigenous people							
	Young	0	1440	3600				
	Not Young							
	Non-women-headed households							
	Number of persons with disabilities	0	144	360				
	Local Development Agents hired				Project M&E System	Annual	Project M&E Unit	
	Agents	0	200	200				
	1.1.1 Number of beneficiaries gaining increased secure access to land				Project M&E System	Annual	Project M&E Unit	
	Males	0	1000	2500				
	Females	0	1000	2500				
	Indigenous people	0	100	250				
	Young	0	400	1000				
	Total number of beneficiaries with increased secure access to land	0	2000	5000				
	Persons with disabilities	0	40	100				
	Knowledge Management Studies prepared							
	Studies	0	5	25				
	South-South Cooperation exchange events held				Project M&E System	Annual	Project M&E Unit	
	Events	0	4	10				

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex 4: Integrated Project Risk Matrix (IPRM)**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



## Overall Summary

<b>Risk Category / Subcategory</b>	<b>Inherent risk</b>	<b>Residual risk</b>
<b>Country Context</b>	<b>Moderate</b>	<b>Moderate</b>
<i>Political Commitment</i>	<i>Low</i>	<i>Low</i>
<i>Governance</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Macroeconomic</i>	<i>Low</i>	<i>Low</i>
<i>Fragility and Security</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Sector Strategies and Policies</b>	<b>Low</b>	<b>Low</b>
<i>Policy alignment</i>	<i>Low</i>	<i>Low</i>
<i>Policy Development and Implementation</i>	<i>Low</i>	<i>Low</i>
<b>Environment and Climate Context</b>	<b>Substantial</b>	<b>Substantial</b>
<i>Project vulnerability to environmental conditions</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Project vulnerability to climate change impacts</i>	<i>Substantial</i>	<i>Substantial</i>
<b>Project Scope</b>	<b>Moderate</b>	<b>Moderate</b>
<i>Project Relevance</i>	<i>Low</i>	<i>Low</i>
<i>Technical Soundness</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Institutional Capacity for Implementation and Sustainability</b>	<b>Substantial</b>	<b>Substantial</b>
<i>Implementation Arrangements</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Monitoring and Evaluation Arrangements</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Project Financial Management</b>	<b>Substantial</b>	<b>Moderate</b>
<i>Project Organization and Staffing</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project Budgeting</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Project Funds Flow/Disbursement Arrangements</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Project Internal Controls</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project Accounting and Financial Reporting</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project External Audit</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Project Procurement</b>	<b>Moderate</b>	<b>Moderate</b>
<i>A.1 Legal, Regulatory and Policy Framework</i>	<i>Moderate</i>	<i>Moderate</i>
<i>A.2 Institutional Framework and Management Capacity</i>	<i>Low</i>	<i>Low</i>
<i>A.3 Public Procurement Operations and Market Practices.</i>	<i>Low</i>	<i>Low</i>
<i>A.4 Accountability, Integrity and Transparency of the Public Procurement System</i>	<i>Substantial</i>	<i>Substantial</i>
<i>B.1 Assessment of Project Complexity</i>	<i>Substantial</i>	<i>Substantial</i>
<i>B.2 Assesment of Implementing Agency Capacity</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Project Procurement Overall</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Environment, Social and Climate Impact</b>	<b>Substantial</b>	<b>Moderate</b>
<i>Biodiversity Conservation</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Resource Efficiency and Pollution Prevention</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Cultural Heritage</i>	<i>Low</i>	<i>Low</i>
<i>Indigenous People</i>	<i>Low</i>	<i>Low</i>
<i>Labour and Working Conditions</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Community health, safety and security</i>	<i>Moderate</i>	<i>Moderate</i>

<b>Risk Category / Subcategory</b>	<b>Inherent risk</b>	<b>Residual risk</b>
<i>Physical and Economic Resettlement</i>	<i>Low</i>	<i>Low</i>
<i>Greenhouse Gas Emissions</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Vulnerability of target populations and ecosystems to climate variability and hazards</i>	<i>Substantial</i>	<i>Substantial</i>
<b>Stakeholders</b>	<b>Moderate</b>	<b>Moderate</b>
<i>Stakeholder Engagement/Coordination</i>	<i>Low</i>	<i>Low</i>
<i>Stakeholder Grievances</i>	<i>Moderate</i>	<i>Moderate</i>
<b>Overall</b>	<b>Moderate</b>	<b>Moderate</b>

<b>Country Context</b>	<b>Moderate</b>	<b>Moderate</b>
<b>Political Commitment</b>	<b>Low</b>	<b>Low</b>
<p><b>Risk:</b></p> <p>There will be elections for state and federal governments throughout the implementation, which may alter the degree of political priority given to the Project, leading to changes in technical teams, implementation delays, discontinuity of correlated rural development public policies, and budgetary restrictions.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>The Project directly responds to the priorities and interests of the state government. Phase II of PROCASE will be one of the main instruments for combating rural poverty in the state, mobilizing more territories and local actors. PROCASE is included in the state's Pluriannual Plan, which ensures programmatic and budgetary stability for at least the next three years and is aligned with the Pluriannual Plan and priorities of the federal government. The SEAFDS team actively participated in the Project's design and the consultation process involving local farmers and civil society organizations. IDB and IFAD will closely follow up on the evolving political situation and keep a continuous dialogue with state and federal counterparts to inform new authorities of Project characteristics and benefits, as well as keep participating in policy dialogue platforms such as the Forum of State Secretaries and Northeast Consortium. The IFAD Office in Salvador will play a critical role in monitoring changes in the political scenario.</p>		
<b>Governance</b>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>The Project Management Unit and partner institutions may not possess all the knowledge and capacities necessary for the geographic expansion of the Project and implementation of new activities. The design of the structure, positions, and competencies of the PMU may not be the most suitable for Project implementation.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>The challenges and lessons learned from the implementation of phase I have been considered in the design of phase II, minimizing, or pre-emptively addressing future implementation risks. Similarly, the design of the new PMU and institutional arrangements with key partners will be defined considering these lessons learned and challenges to improve the governance and the effective implementation of activities. The Project design also includes capacity-building and institutional strengthening activities for partner organizations with the same objective. IFAD systematic monitoring will also identify potential governance issues in the Project and contribute to finding timely solutions.</p>		
<b>Macroeconomic</b>	<b>Low</b>	<b>Low</b>



<p><b>Risk:</b></p> <p>There may be difficulty mobilizing the counterpart funding from the State Government for the Project. A downturn in economic activity could lead to a decrease in tax revenue and, consequently, budgetary constraints on public policies complementary to the Project.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>The design of phase II is incorporated into the Pluriannual Plan 2024-2027, ensuring a minimum level of programmatic and budgetary stability. The State of Paraíba has a well-evaluated fiscal management by the federal government due to low indebtedness, current savings, and a favorable liquidity index. The state has been evolving in its macroeconomic context post-COVID, and the projections for the coming years are favorable.</p>		
<p><b>Fragility and Security</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>Brazil as a whole, and especially the poorest states, still suffer from the effects of the country's political and economic crisis and the global health crisis of COVID-19, which have caused high unemployment rates, an exponential increase in the population living below the poverty line, as well as food insecurity. Food insecurity has increased throughout the pandemic, especially in the North and Northeast regions. Additionally, data reveals the growing negative effects of climate change in Project areas, especially the concentration and spatial and temporal irregularity of rainfall, increased temperatures, and more frequent, longer, and more severe droughts. This could require expansion and/or reformulation of interventions to achieve the planned objectives.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>Since 2023, the country's economic and fiscal situation has improved, with an increase in GDP and a significant decrease in unemployment and food insecurity rates. The forecasts for the national macroeconomic scenario are favorable for the coming years. PROCASE II will contribute to this scenario by seeking to increase the income and food security of beneficiary families, especially women, youth, traditional communities, and Indigenous people. The Project will seek to implement an integrated resilience approach to assist family farmers in adapting to, coping with, and/or recovering more rapidly from future climatic, economic, and environmental shocks, prioritizing, for example, social technologies for water access, technical assistance with an agroecological approach, as well as marketing strategies for family agriculture products.</p>		
<p><b>Sector Strategies and Policies</b></p>	Low	Low
<p><b>Policy alignment</b></p>	Low	Low
<p><b>Risk:</b></p> <p>Non-alignment of PROCASE II with the main public policies of the Government of Paraíba and/or the Federal Government.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>Since phase I, PROCASE has been included in the state's Pluriannual Plan and is aligned with the main federal government programs to support family farming and fight rural poverty and hunger (including topics such as food security, water, rural women, youth, and PCTs empowerment, agroecology, and sustainable natural resources management). The current and new IFAD COSOPs were formulated considering this alignment with the federal government and the state governments of the Northeast (through close coordination and collaboration with the Governors' Northeast Consortium). The Project was also designed considering IDB's development goals and strategy for Brazil.</p>		
<p><b>Policy Development and Implementation</b></p>	Low	Low

<p><b>Risk:</b></p> <p>Considering the design process involving the state government and local organizations and focused on the continuity of actions to combat rural poverty, there is no identified risk that it will not represent or be in conflict with such priorities, targeted beneficiary population, and the main programs to combat rural poverty.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>The Project design envisages collaboration and complementary activities with other state agencies and partners. The Project will have knowledge management activities and will seek to strengthen the monitoring and evaluation system. IFAD's systematic monitoring will track proper implementation and timely corrective actions when needed.</p>		
<p><b>Environment and Climate Context</b></p>	<b>Substantial</b>	<b>Substantial</b>
<p><b><i>Project vulnerability to environmental conditions</i></b></p>	<b><i>Moderate</i></b>	<b><i>Moderate</i></b>
<p><b>Risk:</b></p> <p>The Project will be executed in two biomes: the Caatinga and the Atlantic Forest (Portuguese: Mata Atlântica or Zona da Mata). The challenges family farmers face, however, are similar in both biomes. These include adverse soil conditions (shallow, with little organic matter and subject to erosion and desertification processes) and restrictions on water availability (quality and quantity), which can affect the productive activities supported by the Project. Some traditional practices of clear-cutting, slash and burn, and overgrazing are exacerbating deforestation and desertification trends, accentuating the negative effects of any environmental restrictions on the Project's activities.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>The Project will promote agroecological farming practices, with a focus on agroforestry systems, combined with restoration projects of degraded areas. In combination and at the landscape level, these practices can improve air and water quality and mitigate extreme events such as floods and droughts. In addition, agroecological practices can improve the productivity of agricultural areas, thereby reducing the pressure on existing natural areas. Native species will be prioritized during the implementation of productive systems, increasing climate resilience. The Project will also promote social technologies for water resource management to improve communities' resilience during drought periods, including cisterns for human consumption and agricultural production, gray water reuse, and subterranean dams.</p>		
<p><b><i>Project vulnerability to climate change impacts</i></b></p>	<b><i>Substantial</i></b>	<b><i>Substantial</i></b>
<p><b>Risk:</b></p> <p>Using the ThinkHazard tool reveals the incidence of floods, droughts, landslides, fires, and extreme heat events. Climate models point to a significant increase in temperature and higher variability of precipitation events. They also predict a drop in precipitation, although it is not significant. Such changes will affect crop and animal production, as well as local biodiversity and supply chains. The tendency is for family income to deteriorate, contributing to an increase in inequality and exacerbating existing conflicts and migratory flows.</p>	Substantial	Substantial

<p><b>Mitigations:</b></p> <p>The Project aims to develop climate-resilient agroecological agriculture in synergy with environmental recovery and preservation through the adoption of agroecological practices, such as restoration of degraded lands (pastures, agricultural soils, and riparian areas), agroforestry systems, integrated pest management (IPM), species diversification and adoption of green fertilizers. The Project will promote the adoption of native species adapted to the local climate and strengthen the production chains of family farming products, increasing marketing and processing capacity. The Project also aims to increase access to agroecological, climate-resilient technical assistance (TA). PROCASE II will also provide access to better quality water for the community, promoting social technologies such as cisterns for human consumption and agricultural production, subterranean dams, and water tanks. Water treatment and recycling solutions will be adopted to ensure that part of the communities have access to basic sanitation and, as a result, reduce soil, land, and water contamination, in addition to preventing diseases associated with waste produced in family units.</p>		
<b>Project Scope</b>	<b>Moderate</b>	<b>Moderate</b>
<b>Project Relevance</b>	<b>Low</b>	<b>Low</b>
<p><b>Risk:</b></p> <p>There is no significant risk that the Project's objectives and relevance are not fully aligned with the development priorities of the IDB, IFAD (new COSOP 2024-2032), or the state government. The Project addresses the central challenges of rural development, and its design is also aligned with Paraíba's policies and priorities.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>Nonetheless, mitigation measures will be taken through permanent dialog between the IDB, IFAD, and the State Government. The full involvement of stakeholders during preparation and implementation, including civil society and farmers' organizations, should allow adjustments to be made in an aligned and early manner.</p>		
<b>Technical Soundness</b>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>The area of operation will be much larger than during the first phase, which presents the risk of dispersion of the Project's activities as well as greater complexity for operational management.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>The Project's intervention will follow a plan based on the definition of priority areas, which will consider the location of the target group and the interventions of other projects (Sertão Vivo, PDHC III, COOPERAR). The Project's intervention will also consider the priorities defined for each of the state's 15 Rural Territories.</p>		
<b>Institutional Capacity for Implementation and Sustainability</b>	<b>Substantial</b>	<b>Substantial</b>
<b>Implementation Arrangements</b>	<b>Substantial</b>	<b>Substantial</b>
<p><b>Risk:</b></p> <p>i) The risk that the Project executing agency's capacities are insufficient for adequate and effective Project management, leading to delays and lower quality of execution. ii) EMPAER should take on the role of sub-executor and be in charge of land and environmental regularization activities, as well as being responsible for part of the TA services that will be provided to beneficiary families, with a methodology and intensity that is quite different from what the institution's technical staff is used to. In PROCASE I, EMPAER only took on the provision of TA on a limited scale. iii) The risk related to two multilateral actors (IFAD and IDB) involved in the project supervision and implementation.</p>	Substantial	Substantial

<p><b>Mitigations:</b></p> <p>i) PROCASE II will establish a Project Management Unit (PMU) in SEAFDS that has extensive experience in project execution, including from International Financial Institutions, such as IFAD, and keep key staff with vast experience in executing the previous phase. ii) Based on the institutional capacity assessment carried out in the final design phase, the needs to be considered can be identified to define an operational mode and a project management organization that considers the most fragile areas and plans mitigation actions. A training program for TA teams and evaluations will also be implemented. iii) The Coordination Agreement drafted and to be signed between IFAD and IDB clearly sets roles and responsibilities. This is the third Type C project with IDB and the PSI in Piauí has entered into force in November 2023 and the “implementation arrangements” between IFAD and IDB are working well with both agencies well-coordinated.</p>		
<p><b>Monitoring and Evaluation Arrangements</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>PROCASE has not adopted an information management system that could monitor activities and account for beneficiaries efficiently. PROCASE I's current M&amp;E team is reduced.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>PROCASE II will have resources for developing or acquiring an M&amp;E system to monitor all Project information. Regarding management, there are resources for hiring 2 M&amp;E professionals exclusively for the Project, as well as resources for attending courses to strengthen the team's capacities.</p>		
<p><b>Project Financial Management</b></p>	<b>Substantial</b>	<b>Moderate</b>
<p><b>Project Organization and Staffing</b></p>	<b>Substantial</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>i) risk of implementation delays if dedicated finance staff PMU is not hired in a timely manner; ii) Incompliance with finance policies and procedures and financing agreements if requirements are not well understood by PMU Finance Staff</p>	Substantial	Moderate
<p><b>Mitigations:</b></p> <p>(i) include budget for PMU finance staff in project budget and recruitment and appointment of key finance staff as a condition for first disbursement in FA; ii) During start up phase training on IDB and IFAD finance policies and procedures.</p>		
<p><b>Project Budgeting</b></p>	<b>Substantial</b>	<b>Substantial</b>
<p><b>Risk:</b></p> <p>If the state's fiscal situation worsens, the budget allocated to the project could be reduced with as a result delays in implementation.</p>	Substantial	Substantial
<p><b>Mitigations:</b></p> <p>Close coordination with SEFAZ to ensure the availability of a sufficient budget from the start date of the Project.</p>		
<p><b>Project Funds Flow/Disbursement Arrangements</b></p>	<b>Substantial</b>	<b>Substantial</b>
<p><b>Risk:</b></p> <p>Implementation delays if counterpart funds are not transferred on time to the Project to cover salaries and operating costs, which are fully funded by the government of Paraíba</p>	Substantial	Substantial

<p><b>Mitigations:</b></p> <p>Close coordination with SEFAZ to ensure the availability of a sufficient budget from the start date of the Project.</p>		
<p><b>Project Internal Controls</b></p>	<b>Substantial</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>i) Use of funds transferred to farmers organizations under investment or business plans not used for intended purposes. ii) Lack of segregation of duties, in particular during the start-up phase, if the hiring of finance staff is delayed</p>	Substantial	Moderate
<p><b>Mitigations:</b></p> <p>i) Establish in the Program's Operational Regulations (ROP) clear mechanisms for the approval, disbursements and reporting on the use of funds transferred in the form of investment and business plan and include in agreements signed with producer organizations details of responsibilities and procedures. The approval of the Program's Operational Regulations (ROP), by IDB and IFAD as a condition for first disbursement; ii) Hiring of key finance staff as a condition for disbursement in FA; segregation of duties incorporated in the ROP.</p>		
<p><b>Project Accounting and Financial Reporting</b></p>	<b>Substantial</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>(i) Reliance on Excel for preparation of Interim Financial Reports in Excel, resulting in human errors and delays in submission; ii) Delays or inadequate quality of reporting on use of funds from investment and business plans by farmers organizations and/or cooperatives; iii) Incomplete or delayed reporting of counterpart funding in particular since, as per IDB's standard practice, beneficiary contributions are not included in total project.</p>	Substantial	Moderate
<p><b>Mitigations:</b></p> <p>(i) Before the start of the Project and as a condition for disbursement in FA, implementation of a complementary automated reporting system similar to the SIGMA system used within the Worldbank financed Cooperar project, that generates basic financial statements and financial reports as required by IDB and accepted by IFAD as equivalent to IFRS and allows for budget monitoring by component and categories based on data from the governmental SIAF system.ii) The ROP and agreements signed with farmers organization and cooperatives will establish a clear procedures for reporting on the use of funds transferred under investment and business plans (iii) Establish and document in the ROP a process for capturing beneficiaries' contributions in conjunction with M&amp;E data, training of technicians, and clear criteria for recording and valuation of the same and ensure the technical assistance provided to producer organization includes support on administrative matters and reporting on use of funds.</p>		
<p><b>Project External Audit</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>Accounting standards used for preparation of audited financial statements not disclosed in audit opinion and/or notes</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>In coordination with BID ensure accounting standard to be used and disclosure of the same is included in TdR for external audits.</p>		
<p><b>Project Procurement</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>A.1 Legal, Regulatory and Policy Framework</b></p>	<b>Moderate</b>	<b>Moderate</b>

<p><b>Risk:</b></p> <ul style="list-style-type: none"> <li>- This limitation of methods can lead to inefficient procurement if it does not take into account the different Priority Elements that may be involved in determining the need for procurement (quality, time, etc);</li> <li>- Absence of a consolidated instrument, in the format of a manual, that contains detailed information about the procedures and content of the documents required for the contracting process;</li> <li>- National law does not contain express prohibitions regarding the disclosure of information during the evaluation phase;</li> <li>- National Law does not provide for an autonomous review body for procurement activities;</li> <li>- Lack of standard contractual conditions;</li> </ul>	Moderate	Moderate
<p><b>Mitigations:</b></p> <ul style="list-style-type: none"> <li>- Development training and capacity building program on the procurement procedures for the entire procurement cycle;</li> <li>- Define in the PIM clear rules on: a) the content of bidding documents; b) evaluation stage; c) main management and monitoring documents; d) document storage and their respective deadlines; e) security protocols;</li> <li>- Consider the full use or adoption of international standards with their manuals and standardized instruments;</li> <li>- Intensify planning and preparation of consultancy procurement activities, taking into account the complexity of the object;</li> <li>- Evaluate the possibility of using international methods defined in clear policies and detailed in specific manuals;</li> <li>- Adopt a review committee and/or alternative conflict resolution methods;</li> <li>- Adopt a regulation proposed by an official body as a reference for good procedural practices;</li> <li>- Prepare standard bidding documents or use existing models that have been duly adapted;</li> <li>- Drawn up general clauses for the main types of contracts celebrated by the Project. IFAD GCC may be adopted with appropriate adaptations;</li> <li>- Standard contractual conditions should include provisions on Alternative Dispute Resolution (ADR), specifically through arbitration, in alignment with international standards;</li> <li>- Develop an acquisition procedures manual aligned with national laws and international good practices;</li> <li>- Capacity building on use of sustainable contracting criteria in the Project's procurement cycle;</li> <li>- Adhering to IFAD SECAP and IFAD policies.</li> </ul>		
<p><b>A.2 Institutional Framework and Management Capacity</b></p>	<b>Low</b>	<b>Low</b>
<p><b>Risk:</b></p> <ul style="list-style-type: none"> <li>- Low priority for planning.;</li> <li>- Absence of extratified statistical information on procurement can make it difficult to evaluate policies and identify the efficiency of the system.</li> </ul>	Low	Low
<p><b>Mitigations:</b></p> <ul style="list-style-type: none"> <li>- Facilitate capacity building on strategic planning;</li> <li>- Adopt procurement management systems that allow evaluation through statistical information, as well as market planning and analysis</li> </ul>		
<p><b>A.3 Public Procurement Operations and Market Practices.</b></p>	<b>Low</b>	<b>Low</b>
<p><b>Risk:</b></p> <ul style="list-style-type: none"> <li>- Fragility in the integration between procurement planning and technical areas;</li> <li>- Use of contracts templates with General Clauses is still not frequently used;</li> <li>- The rules to ensure the confidentiality of the evaluation procedure are not present in a clear way and a single manual;</li> <li>- Punctual delays in the execution of contracts.</li> </ul>	Low	Low

<p><b>Mitigations:</b></p> <ul style="list-style-type: none"> <li>- Internal flows must promote the integration and participation of the procurement area in the planning cycle of Project activities;</li> <li>- Training on Project and IFAD's policies;</li> <li>- Adopt standard bid documents whenever possible;</li> <li>- Use of contractual clauses containing the general conditions of the contract is encouraged. (IFAD standard documents as well as their CGC can be adapted for use by the project);</li> <li>- The evaluation rules must be clearly defined in the Project implementation manual;</li> <li>- Use of IFAD's Contract Monitoring Tool (CMT) to gather information about the contracts implementation.</li> </ul>		
<p><b>A.4 Accountability, Integrity and Transparency of the Public Procurement System</b></p>	<b>Substantial</b>	<b>Substantial</b>
<p><b>Risk:</b></p> <ul style="list-style-type: none"> <li>- The sharing of teams for technical assistance in different decision-making bodies;</li> <li>- The inclusion of standard contract clauses that provide for prohibited practices is not mandatory;</li> <li>- Low perception about the application of laws on fraud, corruption and other prohibited practices with the application of penalties declared;</li> <li>- Lack of information about special integrity training programs offered to procurement teams;</li> <li>- Stakeholders are not actively participating in promoting good practices and actions for integrity and ethics;</li> <li>- lack of standardized forms for archiving conflict of interest information;</li> </ul>	Substantial	Substantial
<p><b>Mitigations:</b></p> <ul style="list-style-type: none"> <li>- Define an independent appeals body or entity;</li> <li>- Clearly and expressly define in its compliance/integrity documents and policies what are considered prohibited practices and how to avoid them;</li> <li>- Development of Internal communication plans and training programs on the Project's fundamental policies and values;</li> <li>- Include clauses and policies that address prohibited practices in the main contractual documents;</li> <li>- Implement integrity and anti-corruption training as part of the project;</li> <li>- Establish clear documents on ethics and integrity as a requirement in the project;</li> <li>- Include IFAD's mandatory policies in all contractual documents, including for subcontractors;</li> <li>- Conduct comprehensive due diligence before formalizing any contracts;</li> <li>- Include evaluation criteria that recognize the adoption and appreciation of good practices and innovative practices by bidders;</li> <li>- Adopt clauses and policies that address prohibited practices in the main contractual documents;</li> <li>- Adopt forms of declaration on conflict of interest and property information and keep them filed in the procurement processes (IFAD standard forms can be adapted).</li> </ul>		
<p><b>B.1 Assessment of Project Complexity</b></p>	<b>Substantial</b>	<b>Substantial</b>

<p><b>Risk:</b></p> <p>This is a type C project where IDB Procurement rules will be followed. The state of Paraíba's legislation allows for the use of IFIs procurement rules. Moreover, the State Comptroller's Office (CGE) has a system where all project procurements are entered, and this system includes all the procurement methods of these financing organizations, in accordance with the Loan Agreement. IICA - Inter-American Institute for Cooperation on Agriculture will also be an implementing partner and they already work on several projects using the rules of the World Bank and IFAD, which are similar to those of the IDB. IICA has also an online system storing all the procurement documents, which can be made available to lenders. This system has already been inspected by IFAD without any problems. Procurement that may be carried out directly by the Project will have all their documents registered in the CGE system. The procurement that will be carried out by the beneficiary farmers' associations will also be monitored by the Project's technicians and registered in the agreement control system, which reduces risk and promotes greater transparency.</p> <p>Another complexity of the Project is due to the fact that procurement will be done by both the PMU and the associations and farmers.</p> <p>The procurement done by farmers' associations will be of low complexity, but with a large number of acquisitions, as the project will cover the entire semi-arid region of the State, with 194 municipalities. This may require a great effort of coordination and monitoring.</p>	Substantial	Substantial
<p><b>Mitigations:</b></p> <ul style="list-style-type: none"> <li>• Provide training on IDB procurement rules to the project teams: including teams of potential implementers, the Attorney General's Office, and the State Comptroller's Office, to strengthen the understanding of the agreed rules.</li> <li>• PMU's procurement activities do not present highly complex selections or acquisitions and the Project team already has experience with the methods of international financial organizations, having carried out IFAD and IBRD projects. They also intend to hire IICA to carry out the selection and hiring of individual consultants, as occurred in phase 1 of PROCASE. Consider the support of civil servants who have worked in the previous phase and inviting consultants who have worked in the previous phase or who have worked on projects with similar procurement rules to take part in the selection process.</li> <li>• Farmer associations will have bidding committees and they will execute the "Request for Quotation" method for planned purchases. These commissions will be trained by the PROJECT and will have the support of technical experts in purchasing. The complexity of the project is high, but with full conditions for risk mitigation and adequate management.</li> </ul>		
<p><b>B.2 Assessment of Implementing Agency Capacity</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>The State of Paraíba has the technical capacity in both national and international public procurement, and the Project will be executed in accordance with the IDB's procurement regulations but there is the risk that the capacity of the implementing agency is insufficient to adequately manage the Project, causing delays in execution.</p> <p>The public procurement processes used by the state of Paraíba are generally carried out using the Electronic Auction modality, which is also accepted by the IDB with the suppression of the negotiation clause after the award of the lowest price. This modality could also be used in the Project's procurements.</p>	Moderate	Moderate



<p><b>Mitigations:</b></p> <p>The implementation of the project will be centralized in the Secretariat of Family Agriculture, with the partnership of EMPAER as technical sub-executor. Due to the good execution of phase 1 of PROCASE, the PMU acquired successful experience with this type of arrangement. Control and monitoring of the execution of the Investment Plans of producer organizations will be carried out through an agreement (convênio) system. The technical assistance teams will monitor the bid process, the receipt of goods and services and the rendering of accounts. The implementing agency will have the support of IICA for the selection and hiring of consultants, which is an institution experienced in implementing rural projects and applying the financing partners procurement rule and operates with an adequate and transparent system. The implementing Agency has good execution capacity but will need to maintain good coordination of the actors involved to avoid delays in implementation.</p> <ul style="list-style-type: none"> <li>• Involve procurement staff with experience in public procurement of IFIs that have rules similar to those of the IDB and provide training to project staff involved in procurement on the rules established in the Loan Agreement.</li> <li>• Train the auctioneer on the Electronic Auction method adapted to IDB's procurement policy as agreed in the Loan Agreement.</li> </ul>		
<p><b>Project Procurement Overall</b></p>	<p><b>Moderate</b></p>	<p><b>Moderate</b></p>
<p><b>Risk:</b></p> <p>With a moderate risk at both the country and projects levels, it can be mitigated by implementing the actions defined during design. Mainly, the use of IDB rules as the implementing partner and adjusting any gap determined in the gap analysis.</p>	<p>Moderate</p>	<p>Moderate</p>
<p><b>Mitigations:</b></p> <p>Provide training on IDB procurement rules to the project teams: including teams of potential implementers, the Attorney General's Office, and the State Comptroller's Office, to strengthen the understanding of the agreed rules.</p>		
<p><b>Environment, Social and Climate Impact</b></p>	<p><b>Substantial</b></p>	<p><b>Moderate</b></p>
<p><b>Biodiversity Conservation</b></p>	<p><b>Moderate</b></p>	<p><b>Moderate</b></p>
<p><b>Risk:</b></p> <p>The agricultural components of the Project will be developed in an already altered landscape on landholdings with an average area of 10 hectares. The risk of conversion or degradation of biodiversity, habitats, ecosystems, and ecosystem services resulting from Project activities is thus limited. Furthermore, the Project will invest in the environmental restoration of critical habitats, such as riparian forests, and promote agroforestry systems, thus increasing biodiversity in the beneficiary's farms.</p> <p>Animal farming systems, which are historically linked to deforestation and desertification trends, will be strengthened by PROCASE II with agroecological productive systems, environmental monitoring, and land restoration activities, among others, limiting their potential negative impact and increasing the region's vegetation cover.</p> <p>The Project will not promote the planting of invasive species, but independent introduction by farmers may occur.</p>	<p>Moderate</p>	<p>Moderate</p>

<p><b>Mitigations:</b></p> <p>Investment plans at plot or farmers' association levels will be required to observe Brazilian Law guidelines regarding the conservation of biodiversity and native vegetation. Those will be reflected in the Project's ESMF and ESMP. Moreover, the Project will implement a variety of measures that will limit the impact of animal husbandry activities, including agroforestry, diversification of fodder trees including native forage trees, optimal rotation, agroecological Technical Assistance, genetic improvement of animal breeds, participatory management of natural habitats, sustainable use of protected areas, project-level monitoring of deforestation, construction of nurseries and expansion of processing and marketing capacities, increasing the profitability of production systems. The gain in productivity brought by agroforestry systems will also serve as a deterrent to deforestation since degraded pasture lands have much lower yields. Regarding invasive species, the Project will only promote productive systems that use native species and non-invasive exotic species, avoiding species with invasive potential, such as Neem, Algaroba, and Leucaena.</p>		
<p><b>Resource Efficiency and Pollution Prevention</b></p>	<p><b>Moderate</b></p>	<p><b>Moderate</b></p>
<p><b>Risk:</b></p> <p>The Project will not seek or support the use of hazardous substances nor the significant extraction of natural resources. Nonetheless, pesticides may be needed in the case of pest outbreaks. Extraction of water resources for human use and irrigation will observe best practices and national regulations and will not jeopardize the sustainability or quality of water stocks. Most water infrastructures will be rainfed cisterns and dams, with limited impact on groundwater and surface water resources. The Project will also promote the installation of efficient stoves that will reduce the need for firewood in the region, reducing deforestation trends. The Project will focus on green fertilizers and will not encourage the purchase of chemical fertilizers. It will also support small livestock production, so there may be an increase in herd size.</p>	<p>Moderate</p>	<p>Moderate</p>
<p><b>Mitigations:</b></p> <p>The risk associated with the eventual use of pesticides will be mitigated through the judicious assessment of the need for their use, and the WHO guidelines will be followed regarding handling, application, disposal, and risk class. No WHO Ia and Ib class toxicity hazard substances will be allowed to be used. The Project will support environmentally sustainable practices and help farmers modify their production systems if they have unsustainable practices (for example, overgrazing or cutting and burning native vegetation). It will also contribute to increasing forest coverage through reforestation practices and the restoration of degraded areas, especially near animal husbandry activities.</p>		
<p><b>Cultural Heritage</b></p>	<p><b>Low</b></p>	<p><b>Low</b></p>
<p><b>Risk:</b></p> <p>The Project will not cause significant degradation of cultural or physical resources, including threats to or loss of resources of historical, religious, or cultural importance. The Project will only work on land already being used for agriculture and will not implement activities in recognized cultural heritage sites.</p>	<p>Low</p>	<p>Low</p>
<p><b>Mitigations:</b></p> <p>The Project will ensure that cultural considerations are made during the implementation of the proposed activities. Project activities will foster the respect and preservation of traditional culture, knowledge, and practices of Indigenous Peoples and Traditional Communities.</p>		
<p><b>Indigenous People</b></p>	<p><b>Low</b></p>	<p><b>Low</b></p>

<p><b>Risk:</b></p> <p>Indigenous peoples will not be adversely impacted by Project activities, but there is a risk that there will be no effective participation of Indigenous peoples in Project decisions that affect them.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>i) The Project strengthens the protection of indigenous people's cultural and physical resources, promotes economic development through productive investments, values traditional agricultural systems, and recognizes and rescues indigenous food culture. Thus, Project interventions are expected to increase incomes, food security, and improved nutrition for IPs. ii) Project eligibility/exclusion criteria prohibit the acquisition or restriction of land use in areas of indigenous and traditional communities. iii) The Environmental, Social, and Climate Management Plan (ESCMP) will include a Plan for Disclosure and Public Consultations, contemplating the participation of quilombola, Indigenous, and other traditional communities, informing about the Project and location of proposed interventions in the communities, reporting on the activities and location of any intervention in the area bordering the demarcated Territory. iv) The ESCMP will also include a Social Communication and Community Participation program that respects and includes forms of documentation and means of communication that are accessible and adequate to the cultural specificities of Indigenous peoples and traditional communities of the Project area. v) The Project's methodology is participatory and demand-driven, with indigenous and traditional communities presenting their development plans and co-creating the Project's activities in a process of self-determined development. vi) The Project will ensure the Free, Prior, and Informed Consent (FPIC) of the Project-affected Communities of Indigenous Peoples. vii) The Project will elaborate a socio-cultural analysis of indigenous populations and traditional communities living in the project area.</p>		
<p><b>Labour and Working Conditions</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>Employment conditions in impoverished rural areas of Brazil, as is the case in the Project's intervention area, may not be fully compliant with national and international labor and working regulations. This can lead to risks of payment below the minimum wage, child labor, unsafe conditions, or excessive hours, among others.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>i) All contracts with contractors, suppliers, and third parties to be financed with IFAD resources will include provisions that prohibit child labor and promote decent working conditions. ii) The PMU (Project Management Unit) will establish a mechanism to supervise and monitor the Project's activities, considering working condition issues. iii) Through the Project's complaints and grievances mechanism (GRM), stakeholders or society, in general, will be able to submit anonymous complaints regarding abusive labor practices (e.g., forced or child labor), cases of gender-based violence, discriminatory working conditions, and unsafe/unsanitary working conditions, which will be addressed and resolved as indicated in the mechanism. iv) The Executing Agency will prepare and maintain an Environmental and Social Management System (ESMS) for the operation with specific elements related to Labor and Working Conditions under ESPS 2 of IDB. Therefore, the Project will lead to an improvement in labor and working conditions.</p>		
<p><b>Community health, safety and security</b></p>	<b>Moderate</b>	<b>Moderate</b>

<p><b>Risk:</b></p> <p>There is no risk that the Project activities will have adverse effects on the physical, mental, nutritional, or social health and safety of an individual, group, or population. However, recurrent gender-based violence in the Project area may have potential adverse effects on the physical, mental, or social well-being of individuals or groups. Works to be carried out under the Project may entail a limited influx of project workers from outside the beneficiary's communities. As proposed works, such as building cisterns, are small, the duration of such an influx and the quantities of works are expected to be small with no adverse impacts. Another potential risk relates to the piloting project approach to new target groups (e.g. LGBTQIAPN+ and persons with disabilities), which may involve some complexities.</p>	Moderate	Moderate
<p><b>Mitigations:</b></p> <p>The Project will contribute to improving the health and nutrition of rural populations, promoting agroecological practices, supporting access to water and sanitation, and improving food and nutrition security.</p> <p>In accordance with IFAD's Policy on Preventing and Responding to Sexual Harassment, Sexual Exploitation, and Abuse (2020), the Project will ensure that adequate safeguard measures are in place for a safe and harassment-free working environment, including sexual harassment and free from sexual exploitation and abuse in its activities and operations. All Project implementation teams, partners, and Project participants will receive training on preventing and responding to sexual harassment and SEA. Any complaint of sexual harassment, exploitation, or abuse received through the Project's complaint procedure will be referred immediately to the IFAD Ethics Office for further action. Project interventions focusing on gender will include orientations to beneficiaries on the different forms of violence against women, available protective measures safeguarded by the Maria da Penha Law, and how to report it.</p> <p>The Project works involve the implementation of social technologies (ST) with the active mobilization and participation of communities, whose members will receive capacity-building on how to implement and maintain STs with the support of a few outside trainers.</p> <p>The Project will partner with civil society organizations and movements representative of the LGBTQIAPN+ community and with experience working with this target group to ensure transformational approaches are implemented and that the LGBTQIAPN+ are effectively included in project activities.</p>		
<p><b><i>Physical and Economic Resettlement</i></b></p>	<b><i>Low</i></b>	<b><i>Low</i></b>
<p><b>Risk:</b></p> <p>The Project's intervention should not cause the physical resettlement of families or significant adverse economic effects, especially to marginalized groups.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>The Project will have a solid targeting strategy and will promote positive social, physical, cultural, and economic impacts, especially for marginalized groups.</p>		
<p><b><i>Greenhouse Gas Emissions</i></b></p>	<b><i>Moderate</i></b>	<b><i>Moderate</i></b>
<p><b>Risk:</b></p> <p>Emissions from Project activities are likely to be negligible as the Project will focus on activities that should increase biomass on farms through the promotion of agroforestry systems, reduction in the use of fire as an agricultural management tool, improved pasture management and better soil conservation practices. Such an increase in biomass and adoption of agricultural practices may offset eventual emissions of other project activities, such as support to small agro-industries (that consume energy in processing, packaging, and transport). A detailed EX-ACT assessment prepared confirms the above.</p>	Moderate	Moderate

<p><b>Mitigations:</b></p> <p>The Project will most likely have negative emissions (carbon sequestration). It will contribute to increasing forest coverage with reforestation practices, sustainable use of riparian areas, recovery of degraded areas, and introduction of energy-efficient stoves.</p>		
<p><b>Vulnerability of target populations and ecosystems to climate variability and hazards</b></p>	<b>Substantial</b>	<b>Substantial</b>
<p><b>Risk:</b></p> <p>The target population and ecosystems are vulnerable to climate variability and extreme events, notably droughts and hot spells, especially in the Caatinga biome. In the Zona da Mata region (Atlantic Forest), the risks are more related to extreme rainfall events, such as floods and landslides. These problems are compounded by poverty and limited access of the targeted population to public policies geared towards reducing their vulnerability to climate change.</p>	Substantial	Substantial
<p><b>Mitigations:</b></p> <p>A Targeted Adaptation Assessment was prepared to provide guidance on adaptation measures that farmers and rural extension agents can implement. Since climate resilience is a focus of PROCASE II, many project activities will have adaptive potential, such as social technologies that increase access to water (cisterns, subterranean dams) and climate-resilient agriculture (agroecological TA, agroforestry based on native species, etc.).</p>		
<p><b>Stakeholders</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Stakeholder Engagement/Coordination</b></p>	<b>Low</b>	<b>Low</b>
<p><b>Risk:</b></p> <p>There is a risk that the relevant stakeholders are not identified, that there is inadequate/insufficient disclosure of information, and that the key stakeholders invited to be part of the Project show little interest in or commitment to the Project's objectives and activities.</p>	Low	Low
<p><b>Mitigations:</b></p> <p>At the community and family level, the Project will implement a participatory and demand-driven process in defining activities that meet the needs and aspirations of the beneficiaries. The Project will also establish continuous communication, awareness-raising, and coordination with the various partners at different levels (local, regional, and state), starting at the Project preparation stage. It will foster visibility activities to publicize and clarify doubts about the Project activities' results, both for the target groups and the partners involved in implementation. Promoting awareness and participation among local communities, farmers, and other key players is essential to ensure adherence and commitment to the proposed activities. A stakeholder engagement plan for the lifetime of the Project (including equal participation of women and men and considering Indigenous Peoples and vulnerable groups) will be prepared. The Project will also conduct a public consultation process, considering culturally appropriate mechanisms and the progress of studies and management plans.</p>		
<p><b>Stakeholder Grievances</b></p>	<b>Moderate</b>	<b>Moderate</b>
<p><b>Risk:</b></p> <p>The implementation of the Project may lead to the submission of complaints by various stakeholders involved in or impacted by the Project's activities, thus affecting the continuity of activities and the established schedule. There is a risk that the Project will have ineffective grievance redress processes, leading to unaddressed grievances that jeopardize the achievement of the Project's development objectives.</p>	Moderate	Moderate

**Mitigations:**

The Project will incorporate a clear and effective Grievance Redress Mechanism (GRM) in accordance with IDB's Safeguard Policy and IFAD's guidance documents - Framework for Operational Feedback from Stakeholders and IFAD Guidelines 2021 on Engagement, Feedback and Redress of Project Target Group Grievances. The procedure includes mechanisms for expressing the complaint or grievance, the response time, and the resolution spheres. This mechanism should be easily accessible to the population and have a rapid resolution, ensuring that the submitted complaints are quickly analyzed and that the situations are mutually agreed upon to satisfy the parties involved. The Project will also raise awareness among stakeholders about the available GRM. It will also include this information as part of IFAD/IDB missions and part of the training of the technical assistance teams that will work with the beneficiaries.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex 5: CI Environmental safeguards review**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





**A comparative assessment of IDB's and IFAD's social, environmental, and climate change related safeguard standards.**

**PARAÍBA RURAL SUSTAINABLE DEVELOPMENT PROJECT – PROCASE II**

**Flávio Teodoro Chaves, M.Sc**

## List of acronyms

<b>ARAP</b>	Abbreviated Resettlement Action Plan
<b>BAP</b>	Biodiversity Action Plan
<b>BMP</b>	Biodiversity Management Plan
<b>CBD</b>	Convention on Biological Diversity
<b>CDP</b>	Community Development Plan
<b>CHIA</b>	Cultural Heritage Impact Assessment
<b>CHMP</b>	Cultural Heritage Management Plan
<b>DRMP</b>	Disaster Risk Management Plan
<b>EHS</b>	World Bank Group Environmental, Health and Safety Guidelines
<b>EMS</b>	Environmental and Social Management System
<b>ESCOMP</b>	Environmental, Social and Climate Change Management Plan
<b>ESDD</b>	Environmental and Social Due Diligence
<b>ESIA</b>	Environmental Impact and Social Assessment
<b>ESMF</b>	Environmental and Social Management Framework
<b>ESMP</b>	Environmental and Social Management Plan
<b>ESPF</b>	Environmental and Social Policy Framework
<b>ESPS</b>	Environmental and Social Performance Standards
<b>FPIC</b>	Free, Prior and Informed Consent
<b>GA</b>	Gender Analysis
<b>GHG</b>	Greenhouse Gases
<b>GIIP</b>	Good International Industry Practice
<b>GMO</b>	Genetically Modified Organism
<b>ICP</b>	Informed Consultation and Participation
<b>IDB</b>	Inter-American Development Bank
<b>IFAD</b>	International Fund for Agricultural Development
<b>ILO</b>	International Labour Organization
<b>IPM</b>	Integrated Pest Management
<b>IPP</b>	Indigenous Peoples Plan
<b>IVM</b>	Integrated Vector Management
<b>NDC</b>	Nationally Determined Contributions
<b>NGO</b>	Non-governmental organization
<b>OP</b>	Operational Policy
<b>PA</b>	Paris Agreement
<b>PCR</b>	Physical cultural resources
<b>PDT</b>	Project Development Team
<b>PIR</b>	Resilient Investment Plan
<b>PMP</b>	Pest Management Plan
<b>PN</b>	Business Plan
<b>PS</b>	Performance Standard
<b>RAF</b>	Resettlement Action Framework
<b>RAP</b>	Resettlement Action Plan
<b>SCA</b>	Sociocultural Analysis
<b>SECAP</b>	Social, Environmental and Climate Assessment Procedures
<b>SESA</b>	Strategic Environmental and Social Assessment
<b>SSPP</b>	Specific Stakeholder Participation Plan
<b>TAA</b>	Targeted Adaptation Assessment
<b>UN</b>	United Nations
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization

## Introduction

1. The goal of this assessment is to compare the safeguard performance standards and procedures of both IFAD (table 1) and IDB (table 2) and to highlight eventual differences or gaps<sup>1</sup> relevant to the implementation of the Paraíba Rural Sustainable Development Project -PROCASE II. The Project is to be jointly financed by both institutions and IFAD has agreed to adopt the IDB's procedures and documents for Project preparation. According to IDB's Risk Assessment, the Project has received a "B" Environmental and Social Impact Categorization (ESIC), a "High" Disaster and Climate Change Risk (DCCRC) and a "Substantial" Environmental and Social Risk Rating (ESRR). Following the SECAP screening exercise the Project has received a "moderate" E&S rating and a "substantial" climate risk rating. No gaps that would result in noncompliance with IFAD's SECAP were found in the assessment presented below, except for the one regarding Climate Change, which is not an IDB safeguard policy. Hence, to meet the requirements of both institutions for this Project, and to adhere to IFAD's requirements for this level of climatic risk a Targeted Adaptation Assessment (TAA) is required and has been prepared. An assessment of how each IFAD standard is addressed in the study being carried out following IDB's policies is presented at the end of this text.

2. *Table 1: IFAD's performance standards (PS).*

IFAD –SECAP/PS
<b>Standard 1: Biodiversity conservation</b>
<b>Standard 2: Resource efficiency and pollution prevention</b>
<b>Standard 3: Cultural heritage</b>
<b>Standard 4: Indigenous peoples</b>
<b>Standard 5: Labour and working conditions</b>
<b>Standard 6: Community health and safety</b>
<b>Standard 7: Physical and economic resettlement</b>
<b>Standard 8. Financial intermediaries and direct investments</b>
<b>Standard 9: Climate change</b>

3. As mentioned above, according to the IDB's Environmental and Social Policy Framework (ESFP), and based on the information collected during the Project's design phase, the operation is classified as Category B because the activities and plans financed by Components I and II may generate moderate to significant negative environmental and social impacts in the medium to long term that are manageable and mitigable with known measures, which will be provided for in the environmental and social management plans (ESMPs), the stakeholder engagement and communication plans. These impacts are linked to agricultural activities and one-off civil construction activities to be financed by the Project, including noise generation, civil and agricultural construction waste and dust, emissions,

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<sup>1</sup> As per the SECAP in co-financed projects, the IFAD will conduct a SECAP-aligned gap analysis to identify whether additional studies, audits, environmental and social documentation, or mitigation measures are required to meet SECAP requirements. When the requirements of a borrower/recipient/partner differ from those aligned with SECAP, the borrower/recipient/partner will be required to implement whichever is more stringent. For projects involving multiple subprojects that are identified, designed and implemented during the project cycle, the borrower/recipient/partner will carry out appropriate environmental and social assessments of these subprojects, and include measures to strengthen capacity for conducting environmental and social due diligence.

erosion and sedimentation of watercourses, pressure on modified and natural habitats. Activities aimed at improving the productivity and income of producer groups are not expected to adversely affect or contribute to the degradation of critical areas and habitats, given the adoption of agroecological practices. It is expected that land titling will promote economic development and improved land use and conservation. However, some situations carry risks of conflict between potential beneficiaries and actors claiming ownership of the land. These conclusions are in line with IFAD's risk assessment for the Project.

4. The Socio-Environmental Risk Classification is Substantial, associated with negative, temporary, manageable and mitigable environmental and social impacts, intervention risks and impacts on modified habitats with significant biodiversity value, and indirect impact risks to natural and critical habitats. The result of such assessment is more stringent than the one performed by the IFAD team which resulted in a Moderated Socio-Environmental Risk Classification.

5. The IFAD Project Development Team (PDT) noticed during the last mission that the IDB's Environmental and Social Management Programs were designed for activities with major environmental impacts reflecting the IDB overall more stringent approach to safeguards. Many of these programs may be challenging to implement for a rural development project with localized and dispersed impacts. The IFAD PDT, therefore, requested the reformulation and adjustment of some of the Programs to facilitate their implementation aligned with the realities of the rural milieu in which the Project will be implemented.

6. Disaster and Climate Change Risk was classified as Moderate due to the exacerbation of natural disaster risks during extreme events of drought, rainfall and flooding and fire in a sensitive biome. The IFAD climate risk screening however rated the Project's climate risk as Substantial. Consequently, a Targeted Adaptation Assessment was prepared to ensure that the IFAD's safeguard policy requirements are met and that additional guidance is provided to the Borrower during the Project's implementation phase.

7. The infrastructure to be built is of moderate criticality, as it is of medium size, which should be confirmed when defining projects and implementation areas through a Disaster Risk Assessment, to be included in the ESMP prior to implementation. These classifications were confirmed through the results of the Strategic Environmental and Social Assessment (SEA) studies conducted during due diligence.

8. The eligibility criteria established for the operation exclude activities that lead to involuntary displacement (physical or economic), negative impacts on livelihoods, negative impacts on traditional communities and/or Indigenous peoples, as well as impacts on the ecosystem resources on which Indigenous peoples depend and on their cultural heritage. Investments that generate adverse impacts on critical habitats will also be ineligible.

9. Climate Change and Alignment with the Paris Agreement (PA). This operation was analyzed using the MDB Joint Framework for Paris Alignment Analysis and the IDB Group's PAIA (GN-3142-1). It was determined that: (i) it is aligned with the adaptation goal of the Paris Agreement, as it is congruent with the adaptation priorities set out in the Nationally Determined Contributions (NDC), the National Adaptation Plan and Brazil's ABC+ Plan through the adoption of technologies that reduce the climate vulnerabilities of the Paraíba biomes (Caatinga and Atlantic Forest); and (ii) is aligned with the mitigation target of the Paris Agreement, as the interventions financed by Resilient Investment Plans (PIRs) and Business Plans (PNs) are consistent with the country's NDC emissions reduction target and the ABC+ Plan. The operation seeks to support the transition to a more sustainable agricultural model, promoting the recovery and protection of the natural resources of the Caatinga and Atlantic Forest, thus improving the environmental conditions of rural communities and their surroundings.

10. To adequately address these risks and meet the requirements set out in the Environmental and Social Performance Standards (ESPS), the PDT developed a (i) Strategic Environmental/Social Assessment (SEA); (ii) a

Strategic Environmental/Social Management Plan (ESMP); (iii) a Socio-Cultural Analysis focused on Indigenous peoples, Quilombola and other traditional communities, prior to the interventions to be carried out; and (iv) a Specific Stakeholder Participation Plan (SSPP). Risks concerning Indigenous Communities were assessed during the due diligence and the need for a Free, Prior and Informed Consultation for Indigenous and traditional communities that may be affected by the Project was identified. In addition, the PMU will implement an Environmental and Social Management System (ESMS) consistent with the IDB’s Environmental and Social Performance Standard (ESPS 1).

11. The environmental and social studies were disclosed in their preliminary version on the Bank’s website prior to the Review Mission, and a public consultation process was carried out for the entire Project, considering culturally appropriate mechanisms and the progress of the studies and management plans, prior to the date of the IDB’s Board of Directors for the operation.

12. The socio-environmental sustainability of the Project will be guaranteed by compliance with the Environmental and Social Policy Framework (ESPF) performance standards and the SECAP through the implementation of the ESMS and its guidelines. For that purpose, a specific team, with an environmental specialist and a social specialist, will be responsible for socio-environmental management and safeguards implementation (procedures and instruments) at the PMU and will ensure an active coordination and communication with the beneficiaries, stakeholders, implementation partners and donors.

**Table 2: IDB’s Environmental and social performance standards (ESPS).**

IDB – ESPF/ESPS
<b>ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts</b>
<b>ESPS 2: Labour and Working Conditions</b>
<b>ESPS 3: Resource Efficiency and Pollution Prevention</b>
<b>ESPS 4: Community Health, Safety, and Security</b>
<b>ESPS 5: Land Acquisition and Involuntary Resettlement</b>
<b>ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>
<b>ESPS 7: Indigenous Peoples</b>
<b>ESPS 8: Cultural Heritage</b>
<b>ESPS 9: Gender Equality</b>
<b>ESPS 10: Stakeholder Engagement and Information Disclosure</b>

13. The study is based on a desk review of IDB Environmental and Social Policy Framework (ESPF) and IFADs’ Updated Social, Environmental and Climate Assessment Procedures (SECAP) of 2021 and respective guidance documents (Guidelines for the environmental and social performance standards and Updated Social, Environmental and Climate Assessment Procedures, volumes 2 and 3). Furthermore, the Project’s Social and Environmental Strategic Assessment and Project IDB Profile were consulted. Other documents consulted for this assessment are mentioned in the paper’s final section.

14. The comparison analyzes how social, environmental and climate change themes are treated in terms of coverage and stringency. It provides a recommendation as to which standards are either more stringent or comprehensive, and, therefore, recommended to be used, fully or in combination with one another, to ensure that all issues are adequately managed and comply with IFAD’s norms. The analysis covers standards, but also requirements, processes, rules and policies. In some cases, IFAD’s and IDB standards may not cover a theme through a standard, but rather in related policies and guidelines, such as in the cases of gender, youth, and mainstreaming. For example, the SECAP is applied not only to cover risk management but also mainstreaming whilst IDB’s current

ESPF refers to its older operational policies (OP-703, OP-765, OP-704 and OP-761<sup>2</sup>) that remain in effect for all matters related to IDB’s mainstreaming work on such policies and themes.

15. **Table 3: IFAD’s and IDB’s safeguard standards and themes.**

IFAD – PS	IDB - ESPS
SECAP (policy statement)	ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts
Standard 1: Biodiversity conservation	ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
Standard 2: Resource efficiency and pollution prevention	ESPS 3: Resource Efficiency and Pollution Prevention
Standard 3: Cultural heritage	ESPS 8: Cultural Heritage
Standard 4: Indigenous peoples	ESPS 7: Indigenous Peoples
Standard 5: Labour and working conditions	ESPS 2: Labour and Working Conditions
Standard 6: Community health and safety	ESPS 4: Community Health, Safety, and Security
Standard 7: Physical and economic resettlement	ESPS 5: Land Acquisition and Involuntary Resettlement
Standard 8. Financial intermediaries and direct investments	<b>IDB does not have a standard.</b>
Standard 9: Climate change	<b>IDB does not have a stand-alone standard for this theme.</b>
<b>IFAD does not have a stand-alone safeguard standard for this theme.</b>	ESPS 9: Gender Equality
<b>IFAD does not have a stand-alone safeguard standard to cover this theme.</b>	ESPS 10: Stakeholder Engagement and Information Disclosure

16. In broad terms, the IFAD and IDB safeguard policies are equivalent concerning the themes covered. However, IFAD does not have stand-alone standards on Gender Equality, and Stakeholder Engagement and Disclosure. In the same token, IDB does not have stand-alone standards for financial intermediaries and direct investments and for Climate Change (possibly the most relevant difference in the context of this analysis and regarding the Project). This does not mean that these issues are not considered elsewhere in both institution's documents and that there is a lack of guidance on how to handle these specific issues<sup>3</sup>.

17. The emphasis on certain concerns or topics and whether they are treated as stand-alone safeguard standards or subsumed under specific standards is at the core of the differences in approach between the two institutions. The differences in approach between both institutions lie in the where the different concerns are addressed and in the specific safeguards instruments (i.e. assessments, studies, frameworks and management plans) that are needed for formal compliance with policy requirements.

<sup>2</sup> OP-703 Environmental and Safeguards Compliance Policy, OP-765 Indigenous People, OP-704 Disaster Risk Management Policy, OP-761 Women in Development.

<sup>3</sup> As for example IFAD’s Policy on the Disclosure of Documents (2010), [CC9F0FE9 \(ifad.org\)](http://www.ifad.org), and the Policy on Gender Equality and Women’s Empowerment (2012) or in regard to stakeholder engagement covered by paragraphs 29 and 30 of the SECAP. Also covered on standard 3, 4, 5, 6 and 7, related to consultations of targeted groups, depending on the social theme.

## **Corporate level approach**

18. At the corporate level, both institutions share a similar approach to managing social, environmental, and climate change impacts. The principles of “doing no harm” (i.e. managing eventual social, environmental, and climate change impacts following a mitigation hierarchy) and “doing good” (i.e. mainstreaming social, environmental, and climate change concerns) pervade both institutions’ frameworks. “Do no harm” is mandatory whilst “doing good” refers to introducing measures to mainstream: gender, youth and nutrition, persons with disabilities, climate change and Indigenous people according to the possibilities presented by each project in alignment with the SDGs and making sure no one is left behind are encouraged on a case by case basis, according to the possibilities presented by each project.

19. The overall approach consists of an initial project screening and risk categorization in accordance with the magnitude, probability and complexity of impacts, and discussion of studies to be prepared by the Borrower. It is important to highlight that IFAD has a specific risk assessment and classification for Climate Change risks. Following project preparation, a review of borrower’s social and environmental impact studies and mitigation frameworks or plans and the proposed environmental and social management system (EMS) is prepared. The EMS has to be adequately staffed and time-bound mitigation and monitoring plans have to be adequately budgeted.

20. Both institutions use a risk-based approach that invests in increased oversight and resources of complex projects and promotes increased responsiveness to changes in adaptive risk management and stakeholder engagement. Agreements regarding safeguard implementation are part of the Project’s legal covenants. Lack of compliance with those are subject to remedies.

21. They also share a common approach concerning distributing roles and responsibilities between the institutions, borrowers, and executing agencies in safeguards implementation. The requirement of Management Systems to be put in place and operated by the Borrowers with transparency and inclusiveness, ensuring that eventual grievances may escalate to the attention of the senior management level at both institutions, is also common.

22. Finally, both institutions have lists of activities and items that cannot be financed in their operations (cf. exclusion lists at the end of this document). They largely cover the same topics. However, IFAD has specific provisions on the prohibition of Genetically Modified Organisms (GMOs) that may be relevant to the Project if drought-resistant GMOs are ever considered in agricultural adaptation project-funded activities.

## **Findings and conclusion**

23. Overall IFAD’s social, environmental and climate change commitments will be adequately fulfilled with the use of IDB’s ESPF and corresponding performance standards (including exclusion list with the caveat above on the prohibition of GMO – not found in the ESPF). Only in the case of IFAD’s requirements regarding Climate Change IFAD’s risk review and ensuing instruments would not be adequately covered by IDB’s standards.

24. Using IFAD’s Climate Change standard (9) could add value to assessing Project risks and ensuring provisions for managing risks and impacts. A climate risk screening would be necessary to meet IFAD’s safeguard objectives and requirements. A Climate Impact and Vulnerability Assessment would be required if the climate risk is high or substantial.

25. Additionally, some themes like nutrition and vulnerable target groups (women, youth, persons with disabilities and Indigenous peoples) which are analyzed in the SECAP assessment notes, could be strengthened in

the project's Social and Environmental Strategic Assessment prepared for the project in order to better align the ESPF and SECAP's objectives, requirements and procedures.

26. The following table summarizes findings of the comparison of the standards regarding eventual gaps and suggests which standards may be used and eventual measures to address minor gaps to ensure compliance with IFAD's policies and commitments. The following table presents both institutions' performance standards side by side in more detail, looking at their respective objectives, requirements, and instruments. In its last column, it presents an opinion as to whether or not IFAD can accept IDB's standards in the case of this Project.



IFAD –PS	IDB -ESPS	Recommendation
SECAP (policy statement)	ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts	Overall, both statements are equivalent in objectives, goals, procedures, and requirements.
Standard 1: Biodiversity conservation	ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Overall, IDB’s standard is equivalent to IFAD’s in terms of coverage and stringency. Nonetheless, IDB seems to have more detailed guidance that can support the Borrower in preparing a strong assessment and biodiversity management plan. Using IDB’s standard will also result in compliance with IFAD’s requirements.
Standard 2: Resource efficiency and pollution prevention	ESPS 3: Resource Efficiency and Pollution Prevention	IDB’s standard is equivalent to IFAD’s in coverage and stringency. There are no gaps or significant differences. Therefore, using IDB’s standard will also result in adherence to IFAD’s requirements.
Standard 3: Cultural heritage	ESPS 8: Cultural Heritage	IDB’s standard is more detailed and has more requirements. Therefore, its use will also result in adherence to IFAD’s requirements.
Standard 4: Indigenous peoples	ESPS 7: Indigenous Peoples	Both standards are quite similar in terms of objectives and requirements and overall adhere to the same set of goals and principles. IDB’s standard is more detailed and has more requirements and instruments. Therefore, its use will also result in compliance with IFAD’s requirements.
Standard 5: Labour and working conditions	ESPS 2: Labour and Working Conditions	There are no gaps or significant differences between IFAD and IDB’s standards on labour and working conditions. IDB’s standard is more detailed and has more requirements. Therefore, its use will also result in adherence to IFAD’s requirements.
Standard 6: Community health and safety	ESPS 4: Community Health, Safety, and Security	There are no gaps or significant differences between IFAD and IDB’s standards on labour and working conditions. IDB’s standard is more detailed and has more requirements. Therefore, its use will also result in adherence to IFAD’s requirements.
Standard 7: Physical and economic resettlement	ESPS 5: Land Acquisition and Involuntary Resettlement	IDB’s standard is more detailed and has more requirements. However, IFAD requires that <b>potential impacts from changes in land use should be examined as an integral aspect of the Project’s social and environmental assessment.</b> Therefore, should IDB’s standard be triggered, an eventual adjustment to Project impact assessments may be necessary to comply with IFAD’s commitments and requirements.
Standard 8. Financial intermediaries and direct investments	<b>IDB does not have a standard.</b>	<b>Not applicable to the Project.</b>
Standard 9: Climate change	<b>IDB does not have a stand-alone standard for this theme.</b>	IDB’s objectives and requirements regarding climate change (mitigation and adaptation) are found in different ESPS and documents other than the ESPF. IFAD’s standard consolidates such requirements and objectives in a single guidance statement and mandates specific analyses. It requires a specific climate risk screening and instruments for their management. It is recommended that adjustments to IDB’s

		<p>instruments are made to satisfy IFAD's requirements regarding this standard. This could include:</p> <ol style="list-style-type: none"> <li>1. Apply a climate screening questionnaire.</li> <li>2. Include the climate aspects in the Project's ESMP since this is a good way to include adaptation and mitigation measures as well.</li> </ol> <p>If the Project has a high or substantial climate risk, preparing a Climate Change Impact and Vulnerability Assessment or Target Climate Change Impact Assessment is necessary.</p>
<b>IFAD does not have a stand-alone safeguard standard for this theme.</b>	ESPS 9: Gender Equality	<p>IFAD has no specific gender standard, while IDB's standards are detailed and comprehensive in their objectives and requirements.. Nonetheless, to comply with IFAD's commitments, baseline assessments to measure the WEAI progress should be integrated into the gender analysis and in the Projects' risk and impact management instruments.</p>
<b>IFAD does not have a stand-alone safeguard standard to cover this theme.</b>	ESPS 10: Stakeholder Engagement and Information Disclosure	<p>IDB's standard is comprehensive and detailed, sharing the same principles and goals as IFAD's policy. Therefore its use will also result in compliance with IFAD's requirements.</p>

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IFAD-SECAP	IDB-ESPS	Project level evaluation
IFAD's Social, Environmental, and Climate Assessment Procedures (SECAP) <sup>4</sup>	ESPS1. Assessment and Management of Environmental and Social Risks and Impacts.	
<p>The SECAP provides a blanket statement for IFAD's approach to handling social, environmental and climate change risks and impacts of its projects. In aim and content, it is equivalent to IDB's overall policy statement on its ESPF. It draws on the United Nations Model Approach to Environmental and Social Standards for United Nations Programming, which in turn is based on the United Nations Environmental Management Framework for Advancing Environmental and Social Sustainability in the United Nations System.</p> <p><b>Standards objectives:</b></p> <p>Thus, the SECAP establishes that all projects undergo an <b>environmental, social, and climate assessment</b>. The SECAP indicates the screening procedures and delineates the specific assessments and impact management plans needed to ensure that the risks and impacts (<b>both those that affect the project and those caused by the project</b>) are addressed and managed throughout the project cycle transparently and inclusively. More specifically, it aims to:</p> <ol style="list-style-type: none"> <li>1. To identify and evaluate the project's environmental, social and climate change risks and impacts.</li> </ol>	<p><b>Content:</b> this PS provides a blanket statement for IDB's overall approach to handling projects' social and environmental impacts. It is equivalent to IFAD's SECAP document (volume 1) as it outlines principles and guidance on the objectives, procedures, and requirements to identify, avoid, mitigate or compensate for projects' social, environmental and climate change impacts.</p> <p><b>Standards objectives:</b></p> <ol style="list-style-type: none"> <li>1. To identify and evaluate environmental and social risks and impacts of the project.</li> <li>2. To adopt a <b>mitigation hierarchy and a precautionary approach</b> to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, project-affected people, and the environment.</li> <li>3. To promote Borrowers' improved environmental and social performance</li> </ol>	<p>The fundamentals and overall approach for managing social and environmental risks and impacts of investment projects are equivalent in the aims (do no harm – do good), attribution of risk categories, due-diligence procedures, mitigation hierarchy, definition of roles and responsibilities between the banks and borrowers and in terms of accountability by setting systems for stakeholder engagement and participatory processes and grievance redress<sup>5</sup>. However, only IFAD has a consolidated document containing the assessments and proposed risk and impact management measures – the SECAP assessment note, which the PDT prepares.</p> <p>IDB's Environmental and Social Management Programs were designed for activities with major environmental impacts reflecting the IDB overall more stringent approach to safeguards. Many of these programs may be challenging to implement for a rural</p>

<sup>4</sup> The updated SECAP 2021 comprises three volumes. Volume 1 sets out IFAD's aspirations regarding environmental, social, and climate adaptation, mitigation and sustainability, and describes its approach to addressing environmental, social and climate risks and impacts throughout the project cycle. It highlights IFAD's mainstreaming requirements (including for **mainstreaming themes youth, gender, environment and climate change, and nutrition**) and includes nine environmental, social and climate standards, which set out the mandatory requirements that borrowers/recipients/partners must apply to IFAD-supported projects. Volume 2 includes ten non-mandatory guidance notes to assist the borrowers/recipients/partners in implementing the updated SECAP and Volume 3 provides supporting materials including templates and checklists.

<sup>5</sup> IDB has established the Independent Consultation and Investigation Mechanism (MICI) to address the complaints from communities harmed by projects funded by any of the institutions that make up the Inter-American Development Bank Group related to non-compliance with the Group's social and environmental standards.

IFAD-SECAP	IDB-ESPS	Project level evaluation
<p>2. To adopt a <b>mitigation hierarchy and a precautionary approach</b> to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, project-affected people, and the environment.</p> <p>3. To promote Borrowers' improved environmental and social performance through the effective use of management systems.</p> <p>4. To promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.</p> <p>5. To ensure that grievances from project-affected people and external communications from other stakeholders are responded to and managed appropriately. This includes a grievance mechanism.</p> <p>The degree of risk is determined on a case-by-case basis, with measures to manage risk appropriate to the project's nature and scale, and its level of environmental, social, and climate risk.</p> <p><b>Requirements and instruments:</b> the SECAP establishes that the Borrower is the primary responsible for preparing environmental, social and climate assessments, conducting climate risk analysis and managing project-related risks and impacts. Hence, it requires the due diligence of the Borrower's capacity and commitment to implement the project and posits the eventual institutional strengthening measures needed to ensure a smooth safeguards implementation.</p> <p>Following the screening and risk and impact categorization the Borrower may be required to prepare the following instruments: i) ESIA; ii) abbreviated ESIA; iv) abbreviated</p>	<p>through the effective use of management systems.</p> <p>4. To ensure that grievances from project-affected people and external communications from other stakeholders are responded to and managed appropriately.</p> <p>5. To promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.</p> <p>As with IFAD the degree of risk is determined on a case-by-case basis, with measures to manage risk appropriate to the nature and scale of the project, and its level of environmental, social and climate risk.</p> <p><b>Requirements and instruments:</b> the ESPF establishes that the Borrower is the primary responsible for preparing environmental, social, and climate assessments, conducting climate risk analysis and managing project-related risks and impacts. Hence, it requires the due diligence of the Borrower's capacity and commitment to implement the project and posits the eventual institutional strengthening measures needed to ensure a smooth safeguards implementation.</p> <p>Following the screening and risk and impact categorization, the Borrower may be required to prepare the following instruments: Environmental and Social Impact Assessment (ESIA); Environmental and Social Audit; Hazard or Risk Assessment; Cumulative Impact Assessment; Social and Conflict Analysis; Environmental and Social Management Plan (ESMP); Environmental and Social Management</p>	<p>development project with localized and dispersed impacts. The IFAD PDT requested the reformulation and adjustment of some of the Programs to facilitate their implementation aligned with the realities of the rural milieu in which the Project will be implemented.</p>

IFAD-SECAP	IDB-ESPS	Project level evaluation
<p>environmental, social and climate management framework (ESMF); v) resettlement action plan/framework (RAP/RAF); vi) abbreviated resettlement action plan/framework (ARAP/ARF); vii) biodiversity action plan (BAP); viii) cultural heritage management plan (CHMP); ix) guidance and outline for Cumulative Impact Assessment; x) Pest Management Plan (PMP); xi) Targeted adaptation assessment; xii) Transboundary Impact assessment; and xiii) Vulnerability Impact and Adaptation Assessment. Additional instruments are mandatory according to the standards triggered by each project (e.g. biodiversity management plans, Indigenous peoples plans, cultural heritage management plans).</p> <p>Based on these assessments and also in the due diligence findings the IFAD's PDT will prepare a SECAP assessment note for project appraisal and board submission.</p>	<p>Framework (ESMF); Regional ESIA; Sectoral ESIA; Strategic Environmental and Social Assessment (SESA).</p> <p>Additional instruments are mandatory according to the standards triggered by each project (e.g. biodiversity management plans, Indigenous peoples plan, cultural heritage management plans).</p>	

<b>Standard 1: Biodiversity conservation</b>	<b>ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>		Project level assessment
<p>This standard seeks to protect biodiversity in the context of natural, modified or critical habitats.</p> <p><b>Standard’s objectives:</b></p> <ul style="list-style-type: none"> <li>● Maintain and conserve biodiversity;</li> <li>● Preserve ecosystems’ integrity;</li> <li>● Maintain and enhance the benefits of ecosystem services;</li> <li>● Adopt the use of a precautionary approach to biodiversity conservation and ensure opportunities for environmentally sustainable development;</li> <li>● Ensure the fair and equitable sharing of the benefits from the utilization of genetic resources; and</li> <li>● Respect, preserve, and maintain knowledge, innovations and practices of Indigenous peoples, and local communities relevant to the conservation and sustainable use of biodiversity and their customary use of biological resources.</li> </ul> <p><b>Requirements and instruments:</b> For substantial- and high-risk projects, the</p>	<p>This standard seeks to protect biodiversity in the context of natural, modified or critical habitats and ensure the sustainable use of living natural resources.</p> <p><b>Standard’s objectives:</b></p> <ul style="list-style-type: none"> <li>● To protect and conserve terrestrial, freshwater, coastal, and marine biodiversity.</li> <li>● To maintain the ecosystem functions to ensure the benefits from ecosystem services.</li> <li>● To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.</li> </ul> <p><b>Requirements and instruments:</b> As per the ESPF guidance the Borrower’s environmental and social risks and impacts identification process is required to include a sequence of</p>	<p>Both standards seek to protect biodiversity in the context of natural, modified or critical habitats and ensure the sustainable use of living natural resources. IFAD’s provisions for the sustainable management of living natural resources are included in its Standard 2: Resource efficiency and pollution prevention. When compared with the ESPF guidance on the development of biodiversity management plans, they are more detailed in the SECAP (volume 3). However, IDB has a comprehensive and detailed guidance document for assessing and managing biodiversity impacts and risks at the operational level<sup>7</sup> and that may be used by the project.</p> <p>Overall IDB’s standard is equivalent to IFADs in terms of coverage and stringency. Nonetheless, IDB has more detailed guidance that can support the Borrower in preparing a strong assessment and biodiversity management plan. The use of IDB’s standard will result also in compliance to IFAD’s requirements.</p>	<p>The IDB’s screening has triggered its ESPS 1, 2, 3, 4, 6, 7, 8, 9 and 10. The IDB has requested to the Borrower to prepare an Environmental and Social Impact assessment (ESIA), on which the Project’s Environmental and Social Management Framework (ESMF) will be based to address the questions and carry out detailed analyses of the social and environmental risks, in accordance with the triggered standards. The ESMF will propose an Environmental and Social Management Plan (ESMP). Furthermore, it required the Borrower to constitute and maintain an Environmental, and Social Management System (EMS) throughout Project implementation. Based on the analysis of the terms of reference and preliminary version of the studies we understand that IFAD’s SECAP requirements are fully met except for the requirements for climate change. Given the “substantial” risk rating obtained in the IFAD’s SECAP screening tool a Targeted Climate Change Adaptation assessment (TAA) was prepared to fill this policy gap.</p>

<sup>7</sup> Guidance for Assessing and Managing Biodiversity Impacts and Risks in Inter-American Development Bank Supported Operations. Technical Note N° IDB-TN-93. November 2015. <https://publications.iadb.org/publications/english/document/Guidance-for-Assessing-and-Managing-Biodiversity-Impacts-and-Risks-in-Inter-American-Development-Bank-Supported-Operations.pdf>

<p>Borrower must assess direct and indirect adverse impacts on biodiversity. For moderate-risk projects, the Borrower will prepare an environmental and social management plan (ESMP). Low-risk projects do not require a formal assessment but may need to meet the requirements of codes of practice. If screening has triggered this standard, then a <b>Biodiversity Impact Assessment</b> or enhanced considerations of Biodiversity in the EIA will be required. The Borrower will develop a <b>Biodiversity Action Plan</b><sup>6</sup> that reflects relevant requirements of standard 1. The scale of the plan will vary depending on the nature and magnitude of potential risks and impacts. Where specific details and sites of proposed projects are not yet fully defined, the Borrower will develop a <b>management framework</b>.</p>	<p>tasks adapted to the specific circumstances of the project, its risk profile and location, such as: delimitation of area of influence and study area; Development of the biodiversity baseline; Identification of risks and impacts; Assessment of risks and impacts; Identification of avoidance, minimization, and mitigation measures. This should lead to the development of a <b>Biodiversity Management Plan</b>.</p>		
<p><b>Standard 2: Resource efficiency and pollution prevention</b></p>	<p><b>ESPS 3: Resource Efficiency and Pollution Prevention</b></p>		
<p>The standard seeks to promote the sustainable and efficient use of resources and to prevent pollution. It covers specific guidance for projects that include: GHG, fisheries, aquaculture, soils, forest resources, pesticide use and management.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● Avoid, minimize and manage the risks and impacts associated with hazardous substances and materials, including pesticides;</li> <li>● Avoid or minimize project-related emissions of short and long-lived climate-change-related pollutants;</li> </ul>	<p>The standard seeks to promote the sustainable efficient use of resources and to prevent pollution. The standard covers specific guidance for projects that include: water consumption, pollution prevention, wastes, hazardous materials, GHG, pesticide use and management.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.</li> </ul>	<p>IDB's standard is equivalent to IFAD's in terms of coverage and stringency. There are no gaps or significant differences. Both performance standards rely on <b>appropriate industry best management practices</b> such as those furnished by the World Bank Group Environmental, Health and Safety Guidelines (EHSG). Those guidelines are comprehensive and cover a wide range of industry sectors (including agribusiness and food production). Therefore, using IDB's standard will also result in adherence to IFAD's requirements.</p>	<p>The IDB standard is more specific and detailed and has more in-depth guidance on this topic. Therefore, IFAD's policy objectives regarding GHG emissions can be adequately met.</p>

<sup>6</sup> See Biodiversity Action Plan: Annotated Outline. SECAP volume 3.

<ul style="list-style-type: none"> <li>• Promote sustainable use of resources, including energy, land and water; and</li> <li>• Identify, where feasible, project-related opportunities for resource-use efficiency.</li> </ul> <p><b>Requirements and instruments:</b> If the standard is triggered, the Borrower must produce a full <b>environmental and social management framework (ESMF) or an environmental impact and social assessment (ESIA)</b> for potential high-risk projects. For substantial-risk projects, produce an abbreviated environmental and social management framework or abbreviated Environmental impact and social assessment. For moderate-risk projects, the Borrower may prepare an environmental and social management plan (ESMP). Low-risk projects do not require formal assessment, but may need to meet the requirements of codes of practice. The standard mandates the use of relevant expertise and that resource use and pollution-related impacts are assessed at appropriate geographic scale. Furthermore, the Borrower must ensure that the level of stakeholder engagement is at a scale appropriate to potential risks/impacts.</p>	<ul style="list-style-type: none"> <li>• To promote more sustainable use of resources, including energy and water.</li> <li>• To avoid or minimize project-related emissions of GHG.</li> <li>• To avoid or minimize generation of waste.</li> <li>• To minimize and manage the risks and impacts associated with pesticide use.</li> </ul> <p><b>Requirements and instruments:</b> when the standard is triggered the Borrower will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment. The principles and techniques applied during the project life cycle will be tailored to the hazards and risks associated with the nature of the project and consistent with good international industry practice (GIIP)<sup>8</sup>.</p>		
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<sup>8</sup> As reflected in various internationally recognized sources, including the World Bank Group Environmental, Health and Safety Guidelines (EHS). [https://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/sustainability-at-ifc/policies-standards/ehs-guidelines](https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines). The Borrower will refer to the EHS or other internationally recognized sources, as appropriate, when evaluating and selecting resource efficiency and pollution prevention and control techniques for the project. When applicable regulations differ from the levels and measures presented in the EHS, Borrowers will be required to achieve whichever is more stringent.



<p><b>Resource efficiency.</b> The borrower/recipient/partner is required to implement technically and financially feasible measures for improving the efficient consumption of energy, water, raw materials, and other resources.</p> <p><b>Pollution prevention.</b> The assessment process identifies technically and financially feasible pollution prevention and control techniques to avoid or minimize adverse impacts on human health and the environment.</p> <p>The borrower/recipient/partner should consider alternatives and implement actions to avoid or minimize project-related air emissions during project design and implementation.</p> <p><b>Historical pollution.</b> If project activities will generate significant emissions in previously polluted or degraded areas, the borrower/recipient/partner will adopt measures that avoid and minimize potential negative effects, potentially finding alternative locations.</p> <p><b>Hazardous materials.</b> IFAD-supported projects must seek to avoid or minimize the potential for community exposure to hazardous materials and substances that may be released through a project. Where there is potential for the public to be exposed to hazards, projects need to make special efforts to avoid or minimize their exposure by modifying, substituting or eliminating the conditions or materials causing the potential hazards.</p> <p>IFAD also requires its borrowers/recipients/partners to adopt appropriate measures to promote animal welfare, control the potential invasion or escape of animal species, and minimize antimicrobial resistance</p>	<p>The Borrower will implement technically and financially feasible and cost-effective measures for improving efficiency in its consumption of energy, water, and other resources and material inputs, with a focus on core areas of project activities. Such measures will integrate the principles of cleaner production into project development with the objective of conserving raw materials, energy, and water. Where best practice benchmarking data are available, the Borrower will make a comparison to establish the relative level of efficiency.</p> <p>In addition to the resource efficiency measures described above, the Borrower will consider alternatives and implement technically and financially feasible and cost-effective options to avoid or minimize project related GHG emissions during the design and operation of the project.</p> <p>The Borrower will avoid the release of pollutants or, when avoidance is not feasible, minimize and/or control the intensity and mass flow of their release.</p> <p>The Borrower will avoid the generation of hazardous and non-hazardous waste materials. Where waste generation cannot be avoided, the Borrower will reduce the generation of waste and recover and reuse waste in a manner that is safe for human health and the environment.</p> <p>The Borrower will, where appropriate, formulate and implement an</p>		
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<p><b>Sustainable management of living natural resources.</b> All IFAD-supported projects must ensure the sustainable management of living natural resources (e.g. forests, agriculture, fisheries, livestock) in line with article 10 of the CBD. In doing so, they must apply <b>appropriate industry best management practices</b> and, whenever possible, credible certification and verification systems.</p>	<p><b>integrated pest management (IPM)</b> and/or <b>integrated vector management (IVM)</b> approach in targeting economically significant pest infestations and disease vectors of public health significance.</p> <p>If less stringent levels or measures than those provided in the EHS are appropriate in view of specific project circumstances, the Borrower will provide full and detailed justification for any proposed alternatives through the environmental and social risks and impacts identification and assessment process. This justification must demonstrate that the choice for any alternate performance levels is consistent with the objectives of this ESPS.</p>		
<p><b>Standard 3: Cultural heritage</b></p>	<p><b>ESPS 8: Cultural Heritage</b></p>		
<p>This Standard is designed to preserve, protect, and promote cultural heritage in IFAD-supported projects in consistency with UNESCO cultural heritage conventions<sup>9</sup>.</p> <p><b>Standard's objectives:</b></p> <ul style="list-style-type: none"> <li>● Preserve and safeguard cultural heritage.</li> <li>● Ensure that active efforts are made to prevent IFAD-supported projects from altering, damaging, or removing any tangible or intangible cultural heritage;</li> </ul>	<p>This standard seeks to protect tangible and intangible cultural heritage, from the adverse impacts of project activities and support its preservation.</p> <p><b>Standard's objectives:</b></p> <ul style="list-style-type: none"> <li>● To protect cultural heritage from the adverse impacts of project activities and support its preservation.</li> <li>● To promote the equitable sharing of</li> </ul>	<p>IDB's standard is more detailed and has more requirements. One important highlight regards the consultation processes: IDB's ESPF mentions that the Borrower will conduct an Informed Consultation and Participation (ICP) process with project-affected people. Therefore, its use will also result in adherence to IFAD's requirements.</p>	<p>Although the theme is treated at different places in the IDB and IFAD policy objectives, are equivalent and should be addressed in the Borrower ESA, as the IDB has triggered this policy. It should be noticed that IDB has also requested the Borrower to prepare a Biodiversity Action Plan for the Project.</p>

<sup>9</sup> <https://whc.unesco.org/archive/convention-en.pdf>.

<ul style="list-style-type: none"> <li>● Promote the equitable sharing of benefits from the use of cultural heritage; and</li> <li>● Promote meaningful consultation on matters related to cultural heritage.</li> </ul> <p><b>Requirements and instruments:</b> For moderate, substantial and high-risk projects, it is necessary to assess direct and indirect adverse impacts on cultural heritage. The Borrower shall utilize relevant expertise and ensure cultural-heritage-related impacts are assessed at appropriate geographic scale. Ensure that the level of stakeholder engagement is at a scale appropriate to potential risks/impacts.</p> <ul style="list-style-type: none"> <li>(i) measures for avoiding, minimizing or mitigating any adverse impacts on the cultural heritage;</li> <li>(ii) provisions for managing “chance finds” of cultural heritage during implementation;</li> <li>(iii) necessary measures for strengthening institutional capacity with respect to protection of the cultural heritage; and</li> <li>(iv) a monitoring system to track the progress of these activities.</li> </ul> <p>Furthermore, the Borrower must develop a management plan (<b>CHMP/ESCMP</b>) that reflects relevant requirements of standard 3. Where specific details and sites of proposed projects are not yet fully defined, develop a <b>management framework</b>. The scale of the plan</p>	<p>benefits from the use of cultural heritage.</p> <p><b>Requirements and instruments:</b> When deemed necessary, the Borrower shall integrate a cultural heritage assessment into the project’s environmental and social risk and the impact identification process should include an <b>adequate pre-project cultural heritage baseline study</b> and information gathering process, which can be field or desk-based, depending on the nature of the project risks and impacts and likely presence of known or unknown cultural heritage. The nature of the survey should comply with national and local cultural heritage laws and regulations. If no such laws and regulations exist, it should be based on the relevant characteristics within the project’s area of influence, including geomorphology, as determined by a cultural heritage professional. The assessment should address risks and potential adverse impacts to cultural heritage. When possible, opportunities for the enhancement of cultural heritage should be highlighted in the assessment process.</p> <p>Where a project may affect cultural heritage, the Borrower will consult with the project-affected people who use, or have used within living memory, the cultural heritage for long-standing cultural purposes. The Borrower will consult with the project-affected people to identify cultural</p>		
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<p>will vary depending on the nature and magnitude of potential risks and impacts.</p> <p>The Borrower will also develop a stakeholder engagement plan and start early consultation to identify options to avoid potential adverse impacts and risks to cultural heritage (substantial- and high-risk projects). Assess whether confidentiality of cultural heritage items may need to be included as part of information disclosure.</p> <p>The consultative process for the cultural heritage component will normally include project-affected groups, relevant government authorities and interested NGOs. These groups will assist the Borrower and IFAD project development team in documenting the presence and significance of physical cultural resources (PCR), assessing potential impacts and exploring avoidance and mitigation options through a consultation process.</p> <p>Where a project involves the commercial use of cultural heritage of Indigenous peoples, the requirements of <b>FPIC</b> and Standard 4: Indigenous peoples are to be applied.</p>	<p>heritage of importance, and to incorporate into the Borrower's decision-making process the views of the project-affected people on such cultural heritage. Consultation will also involve the relevant national or local regulatory agencies that are entrusted with the protection of cultural heritage.</p> <p>For projects where impacts and risks on cultural heritage are deemed a significant issue, a focused <b>Cultural Heritage Impact Assessment (CHIA)</b> may be necessary even if a full-scale Environmental and Social Impact Assessment (ESIA) is not required. In other cases, the consideration of cultural heritage impacts should be fully integrated into the ESIA or part of a <b>sociocultural analysis (SCA)</b>, particularly if the project site is located on or close to Indigenous People's land or the area has had a previous history of cultural significance, as evidenced by engagement of potentially affected communities or past findings. For projects with potentially significant adverse impacts on project-affected people, the Borrower will conduct an <b>Informed Consultation and Participation (ICP)</b> process.</p> <p>For projects with potentially significant adverse impacts on project-affected people, the Borrower will conduct an ICP process in accordance with ESPS 1. For projects with adverse impacts to Indigenous Peoples, the Borrower is required to engage them in an ICP process and in certain</p>		
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	circumstances to obtain their FPIC, in accordance with ESPS 1 and 7.		
<b>Standard 4: Indigenous peoples</b>	<b>ESPS 7: Indigenous Peoples</b>		
<p>IFAD's work with Indigenous peoples is guided by its Policy on Engagement with Indigenous Peoples<sup>10</sup>. IFAD-supported projects will ensure that meaningful consultation and full and effective participation of Indigenous peoples are undertaken for all (investment) projects that may affect or involve Indigenous peoples and will ensure that a free prior and informed consent (FPIC) is applied in projects that:</p> <ul style="list-style-type: none"> <li>i. May have an impact on the land access and use rights of rural communities; and</li> <li>ii. Target Indigenous peoples or rural areas that are home to indigenous and tribal peoples and ethnic minorities.</li> </ul> <p><b>Standard's objectives:</b></p> <ul style="list-style-type: none"> <li>● Promote Indigenous peoples' ability to determine and develop priorities and strategies for exercising their right to development.</li> <li>● Ensure that programming is designed in partnership with Indigenous peoples, with their full effective and meaningful consultation and participation, with the objective of seeking their free, prior and informed consent (FPIC).</li> <li>● Ensure indigenous peoples obtain fair and equitable benefits and opportunities from supported</li> </ul>	<p>Environmental and Social Performance Standard (ESPS) 7 recognizes that Indigenous Peoples, as distinct social and cultural peoples, are often among the most marginalized and vulnerable segments of the population. Projects can also create opportunities for Indigenous Peoples to participate in and benefit from project-related activities that may help them achieve their aspirations for economic and social development with identity. The provisions for mainstreaming Indigenous Peoples of the OP-765 remain valid.</p> <p><b>Standard's objectives:</b></p> <ul style="list-style-type: none"> <li>● To ensure that the development process fosters full respect for the human rights, collective rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.</li> <li>● To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.</li> </ul>	<p>Both standards are quite similar in terms of objectives and requirements and overall adhere to the same set of goals and principles- notably in terms of acknowledging the rights and dignity of Indigenous peoples even in the cases when this may not be fully incorporated into local legal and institutional frameworks. IDB's standard is more detailed and has more requirements and instruments. Therefore, its use will also result in compliance with IFAD's requirements.</p>	<p>IDB requires the Borrower to obtain the FPIC of the Project-Affected Communities of Indigenous Peoples in certain circumstances (including documented and traditional use lands, including seasonal or cyclical use, for their livelihoods, or cultural, ceremonial, and spiritual purposes, in case of relocation of Indigenous People; cultural heritage including knowledge, innovations, or practices of Indigenous Peoples for commercial purposes.</p>

<sup>10</sup> [https://www.ifad.org/documents/38711624/39417924/ip\\_policy\\_e.pdf/a7cd3bc3-8622-4302-afdf-6db216ad5feb?t=1507215253000](https://www.ifad.org/documents/38711624/39417924/ip_policy_e.pdf/a7cd3bc3-8622-4302-afdf-6db216ad5feb?t=1507215253000)

<p>activities in a culturally appropriate and inclusive manner.</p> <ul style="list-style-type: none"> <li>• Recognize and respect the rights of Indigenous peoples to their lands, territories, waters and coastal seas and other resources that they have traditionally owned or otherwise occupied and used.</li> <li>• Assess direct and indirect, positive and negative impacts of project activities on Indigenous peoples, their rights, lands, territories and resources, social, cultural and economic status, livelihood systems, etc.</li> <li>• Ensure Indigenous peoples are actively involved in project design, risk identification and analysis.</li> </ul> <p><b>Requirements and instruments:</b> the Borrower will screen, mitigate, manage, and monitor risks and impacts. The requirements of Standard 4 should be considered and addressed in an integrated manner during the screening process, using the SECAP screening questions to identify if there are potentially significant impacts and risks related to Indigenous peoples. The Borrower will:</p> <ul style="list-style-type: none"> <li>• Apply the precautionary principle and follow the mitigation hierarchy.</li> <li>• Develop and implement an indigenous peoples plan and an FPIC implementation plan with appropriate mitigation and management measures, with the active participation of indigenous peoples.</li> <li>• Monitor affected Indigenous peoples using participatory approaches.</li> </ul>	<ul style="list-style-type: none"> <li>• To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.</li> <li>• To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) in a culturally appropriate manner with the Indigenous Peoples affected by a project throughout the project's life cycle.</li> <li>• To ensure the FPIC of the Project-Affected Communities of Indigenous Peoples when the circumstances described in this ESPS are present.</li> <li>• To respect and preserve the culture, knowledge, traditional knowledge, and practices of Indigenous Peoples.</li> <li>• The term "Indigenous Peoples" is used in a generic sense to refer to distinct social and cultural peoples possessing some of the following characteristics in varying degrees: Self-identification as members of a distinct Indigenous cultural group and recognition of this identity by others.</li> <li>• Collective attachment to geographically distinct habitats or ancestral</li> </ul>		
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<p>If moderate, substantial, or high risks are identified during screening, then relevant standard 4 requirements need to be addressed in project design and implementation, including as part of overall impact assessment, management, and mitigation and monitoring activities. However, even for projects categorized as low risk, IFAD's commitments to partnership and respect for the right to FPIC apply.</p> <p>If screening indicates that the project targets or affects Indigenous peoples, this triggers standard 4 and the project must examine the potential risks of impacts on Indigenous peoples, their rights, lands, territories, resources, livelihoods, etc. as an integral part of assessing the project's full range of potential adverse social and environmental risks and impacts.</p> <p>IFAD-supported projects will ensure that meaningful consultation and full and effective participation of indigenous peoples are undertaken for all (investment) projects that may affect or involve indigenous peoples and will ensure that <b>free prior and informed consent (FPIC)</b> is applied in projects that:</p> <ol style="list-style-type: none"> <li>i. May have an impact on the land access and use rights of rural communities; and</li> <li>ii. Target indigenous peoples or rural areas that are home to indigenous and tribal peoples and ethnic minorities.</li> </ol> <p>The assessment provides data and analysis for preparing mitigation and management measures, which for indigenous peoples issues generally takes the form of an indigenous peoples plan (IPP).</p>	<p>territories in the project area and to the natural resources in these habitats and territories.</p> <ul style="list-style-type: none"> <li>• Customary cultural, economic, social, or political laws and institutions that are separate from those of the mainstream society or culture</li> <li>• A distinct language or dialect, often different from the official language or languages of the country or region in which they reside.</li> </ul> <p><b>Requirements and instruments:</b> The requirements set out in this ESPS have been guided in part by international conventions and instruments, including those of the International Labour Organization (ILO) and the United Nations (UN). ESPS 7 requires the Borrower to engage early during project design in a process of <b>informed consultation and participation (ICP) in a culturally appropriate manner</b>. The Borrower's engagement process will ensure the <b>Free, Prior and Informed Consent (FPIC)</b> of the Project-Affected Communities of Indigenous Peoples. If risks and impacts are identified, the Borrower should prepare an <b>Indigenous Peoples Plan (IPP)</b>, with the ICP of the Project-Affected Communities of Indigenous Peoples, outlining the actions to minimize and/or compensate for adverse impacts in a culturally appropriate</p>		
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	<p>manner. The SCA and IPP can be two parts of the same document. A Sociocultural Analysis (SCA) should be carried out to identify risks and potential adverse impacts on Indigenous Peoples.</p> <p>Among other elements, the SCA should include baseline data on affected Indigenous Peoples, covering key environmental (including climate change scenarios, when appropriate), socioeconomic, and cultural aspects that may be impacted by the project. The analysis should also identify positive impacts and potential benefits of the project to Indigenous Peoples and consider ways to enhance them. An IPP may be prepared, or it may be a component of a broader Community Development Plan (CDP). The SCA/ IPP/CDP may be developed as components of the ESIA/ESMP.</p>		
<b>Standard 5: Labour and working conditions</b>	<b>ESPS 2: Labour and Working Conditions</b>		
<p>IFAD's Standard 5: Labour and working conditions aims to ensure that IFAD investments promoting rural employment respect the fundamental rights of workers. The Fund's commitment to inclusive and sustainable economic growth, full and productive employment, and decent work for all includes protecting the rights of project workers, ensuring their fair treatment and providing them with safe and healthy working conditions. The following requirements reflect this commitment, guided by international agreements, conventions and instruments, including those of the International Labour Organization (ILO) and the United Nations.</p>	<p>Environmental and Social Performance Standard (ESPS) 2 recognizes that pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers. The requirements set out in this ESPS have been in part guided by a number of international conventions and instruments, including those of the International Labour organization (ILO) and the United Nations (UN).</p> <p><b>Standards objectives:</b></p>	<p>There are no gaps or significant differences between IFAD's and IDB's standard on labour and working conditions. IDB's standard is more detailed and has more requirements. Therefore, its use will also result in adherence to IFAD's requirements.</p>	<p>Overall, IFAD's policy objectives are well covered in the proposed IDB ESIA. Specific analyses on labour and working conditions were requested to be carried out by the Borrower's on its ESIA. The IDB has requested the Borrower to prepare and operate a Grievance Redress Mechanism for all workers (direct and contracted).</p> <p>IDB's Project documentation indicates that this concern will be addressed in Project components design, and in the Project's ESMP. IFAD's policy concerns and objectives can be well addressed</p>



<p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● Promote direct action to foster decent rural employment.</li> <li>● Promote, respect, and realize fundamental principles and rights by: <ul style="list-style-type: none"> <li>- Preventing discrimination and promoting equal opportunities for workers;</li> <li>- Supporting freedom of association and the right to collective bargaining; and</li> <li>- Preventing the use of child labour and forced labour;</li> </ul> </li> <li>● Protect and promote the safety and health of workers.</li> <li>● Ensure that projects comply with national employment and labour laws, and international commitments.</li> <li>● Leave no one behind by protecting and supporting workers in disadvantaged and vulnerable situations, including women (e.g. maternity protection), young workers, migrant workers, workers in the informal economy and workers with disabilities.</li> </ul> <p><b>Requirements and instruments:</b> The Borrower will:</p> <ul style="list-style-type: none"> <li>● Screen proposed projects using the SECAP screening questions to identify potential adverse risks and impacts of the project on labour and working conditions. Such risks and impacts may relate to, inter alia, unsafe working conditions, violations</li> </ul>	<ul style="list-style-type: none"> <li>● To respect and protect the fundamental principles and rights of workers.</li> <li>● To promote the fair treatment, non-discrimination, and equal opportunity of workers.</li> <li>● To establish, maintain, and improve the worker-employer relationship.</li> <li>● To ensure compliance with national employment and labour laws.</li> <li>● To protect workers, including workers</li> <li>● in vulnerable situations such as women, people of diverse sexual orientations and gender identities, persons with disabilities, children (of working age, in accordance with this ESPS) and migrant workers, workers engaged by third parties, and primary supply workers.</li> <li>● To promote safe and healthy working conditions, and the health of workers.</li> <li>● To prevent the use of child labour and forced labour (as defined by the ILO).</li> <li>● To support the principles of freedom of association and collective bargaining of project workers.</li> <li>● To ensure that accessible and effective means to raise and address workplace</li> </ul>		<p>under this approach, as employment promotion and equal opportunities (cf. below) can be pursued in Project's components and activities and work conditions of contractor's personnel monitored.</p>
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<p>of labour rights, use of forced labour and child labour, and labour risks associated with the use of contractors and primary suppliers.</p> <ul style="list-style-type: none"> <li>● Categorize project risk (low/moderate/substantial/high).</li> <li>● Develop a stakeholder engagement plan and start early consultation to identify options to avoid potential adverse risks and impacts and risks regarding labour and working conditions (substantial/high).</li> <li>● Assess potential risks and impacts.</li> <li>● For moderate, substantial and high-risk projects, undertake appropriately scaled environmental and social assessment to assess risks and impacts on labour and working conditions.</li> <li>● Include review of relevant national employment and labour laws and regulations and identification of areas that require further attention and gap filling to ensure implementation of standard 5 requirements.</li> <li>● Where significant labour risks are present, employ qualified and experienced social experts with direct knowledge of local conditions and national labour and employment regulations.</li> <li>● Mitigate, manage, and monitor risks and impacts.</li> <li>● Apply the precautionary principle and mitigation hierarchy.*</li> <li>● Develop and implement appropriately scaled labour-management procedures to ensure</li> </ul>	<p>concerns are available to workers.</p> <p><b>Requirements and instruments:</b> The Borrower will adopt and implement labour management policies and procedures appropriate to the nature and size of the project and its workforce. These policies and procedures will set out its approach to managing workers consistent with the requirements of this ESPS and national law. The Borrower will provide workers with documented information that is clear and understandable regarding their rights under national labour and employment law and any applicable collective agreements, including their rights related to hours of work, wages, overtime, compensation, pension, and other benefits upon beginning the working relationship and when any material changes occur.</p> <p>Where the Borrower is a party to a collective bargaining agreement with a workers' organization, such agreement will be respected. The Borrower will identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out similar work. Where accommodation services are provided to workers covered by the scope of this ESPS, the Borrower will put in place and implement policies on the quality and management of the accommodation and provision of basic services.</p>		
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<p>labour-management practices that meet standard 5 requirements are followed.</p> <ul style="list-style-type: none"> <li>• Monitor all management and mitigation measures.</li> </ul> <p>These requirements apply to all project workers directly engaged by borrowers/recipients/partners to work on a project or perform work essential to the project, and to people employed or engaged through third parties (e.g. contractors, subcontractors, brokers, agents and intermediaries) to perform work essential to a project. When a project engages community workers, relevant provisions of the requirements will be applied in a proportionate manner, recognizing the potential risks and impacts. The full requirements apply to full-time, part-time, temporary, seasonal, and migrant workers. Government civil servants working in connection with IFAD-supported projects remain subject to the terms and conditions of their existing public-sector employment arrangements.</p>	<p>The Borrower will not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements.</p> <p>The Borrower will provide special measures of protection and assistance to address the vulnerabilities of project workers, such as women, people of diverse sexual orientations, and gender identity.</p> <p>The Borrower will provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns and provisions for special protection for reports of sexual and gender-based violence.</p> <p>The Borrower will not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty.</p> <p>The Borrower will provide a safe and healthy work environment, considering inherent risks related to the project and specific classes of hazards, including physical, chemical, biological, and radiological hazards, and specific threats to women, people of diverse sexual orientations and gender identities, persons with disabilities, children (of working age, in accordance with this ESMS), and migrant workers.</p> <p>The Borrower will take reasonable efforts to ascertain that the third parties who engage these workers are reputable and legitimate entities and have an appropriate ESMS that will</p>		
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	allow them to operate in a manner consistent with the requirements of this ESPS.		
<b>Standard 6: Community health and safety</b>	<b>ESPS 4: Community Health, Safety, and Security</b>		
<p>This Standard stresses avoiding – and where avoidance is not possible, minimizing and mitigating – health and safety-related risks and impacts that may arise from IFAD-supported projects, with special attention to marginalized and disadvantaged groups.</p> <p><b>Standards objectives:</b></p> <p>To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances, the standard objectives are:</p> <ul style="list-style-type: none"> <li>• To ensure that measures are taken to avoid or minimize community exposure to hazardous materials that will be used during project activities.</li> <li>• <b>To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.</b></li> <li>• To avoid or minimize community exposure to project-related traffic and road safety risks.</li> <li>• To minimize community exposure to diseases.</li> <li>• To ensure that projects abide by the principles of “do no harm to nutrition”.</li> </ul>	<p>Environmental and Social Performance Standard (ESPS) 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts, including those caused by natural hazards and climate change. In addition, communities that are already subjected to adverse impacts from natural hazards and climate change may also experience an acceleration and/or intensification of adverse impacts due to project activities.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>• To anticipate and avoid adverse impacts on the health and safety of the project-affected people during the project life cycle from both routine and non-routine circumstances.</li> <li>• To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the project-affected people.</li> <li>• To anticipate and avoid adverse impacts on the</li> </ul>	<p>There are no gaps or significant differences between IFAD’s and IDB’s standard on labour and working conditions. IDB’s standard is more detailed and has more requirements. Therefore, its use will also result in adherence to IFAD’s requirements.</p>	<p>The IFAD standard requirements are adequately covered in the IDB studies and proposed safeguard management instruments.</p>

<ul style="list-style-type: none"> <li>● To avoid risks of project-related gender-based violence, including risks of sexual harassment, sexual exploitation and abuse, and human trafficking to project-affected people and communities.</li> <li>● To avoid or minimize adverse impacts on ecosystem services that may arise from project activities.</li> <li>● To have in place effective measures to address emergency events.</li> <li>● To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.</li> </ul> <p><b>Requirements and instruments:</b> the Borrower will:</p> <ul style="list-style-type: none"> <li>● Screen proposed projects using the SECAP screening questions/tool to identify potential adverse impacts on community health, safety, and security.</li> <li>● Categorize project risk (low/moderate/substantial/high).</li> <li>● Develop a stakeholder engagement plan and start early consultation to identify options to avoid potential adverse impacts (substantial and high-risk projects).</li> <li>● For substantial and high-risk projects, assess direct and indirect adverse impacts on community health, safety, and security.</li> <li>● Produce a full environmental, social, and climate management framework or environmental impact and social assessment for potential high-risk projects. For substantial-risk projects, produce an abbreviated</li> </ul>	<p>project itself from natural hazards and climate change during the project life cycle.</p> <p><b>Requirements and instruments:</b> the Borrower will evaluate the risks and impacts to the health and safety of project affected people during the project lifecycle and will establish preventive and control measures consistent with good international industry practice (GIIP), such as in the World Bank Group Environmental, Health and Safety Guidelines (EHSG) or other internationally recognized sources.</p> <p>Where there are specific risks that could result in adverse effects on the health, safety, and well-being of people with sensitivities such as age, gender, disability, or short- or long-term health conditions, the Borrower will carry out a more detailed risk assessment and adjust to prevent injury and ill health.</p> <p>The Borrower will design, construct, operate, monitor, and decommission the structural elements or components of the project in accordance with GIIP, considering safety risks to third parties and the project-affected people, including traffic and road safety, and transferred risks.</p> <p>The Borrower will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by</p>		
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<p><b>environmental, social and climate management framework or abbreviated environmental impact and social assessment.</b></p> <ul style="list-style-type: none"> <li>• For moderate-risk projects, prepare an <b>environmental, social and climate management plan.</b></li> <li>• Low-risk projects do not require formal assessment, but may need to meet the requirements of <b>codes of practice.</b></li> <li>• Utilize relevant expertise and ensure impacts are assessed at appropriate geographic scale.</li> <li>• Ensure that the level of stakeholder engagement is at a scale appropriate to potential risks/impacts.</li> <li>• Develop a management plan that reflects relevant requirements of standard 6. Where specific details and sites of proposed projects are not yet fully defined, develop a management framework. The scale of the plan will vary depending on the nature, magnitude and significance of potential risks and impacts.</li> <li>• Monitor all mitigation measures and actions.</li> </ul> <p>As a general rule, projects that are categorized by IFAD as high risk or substantial risk will require comprehensive forms of assessment, meaning either an environmental, social and climate management framework (ESCMFs) or an environmental and social impact assessment (ESIA). Moderate-risk projects will not require the production of an ESIA but will need to prepare an environmental, social and climate management plan (ESCMP). Low-risk projects do not require detailed environmental or social assessment although, depending on</p>	<p>the project. Where there is potential for the public (including workers and their families) to be exposed to hazards, particularly those that may be life threatening, the Borrower will exercise special care to avoid or minimize their exposure by modifying, substituting, or eliminating the condition or material causing the potential hazards.</p> <p>The Borrower will avoid or minimize the potential for community exposure to water-related (i.e., waterborne, water-based, and vector-borne diseases) and communicable diseases that could result from, or exacerbated by, project activities, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. Where specific diseases are endemic in communities in the project area of influence, the Borrower is encouraged to explore opportunities during the project life cycle to improve environmental conditions that could help minimize their incidence. In the case of non-endemic disease outbreaks, the Borrower must take precautionary measures to avoid community exposure.</p> <p>The Borrower will avoid or minimize transmission of communicable diseases that may be associated with the influx of temporary or permanent project labour force.</p> <p>The Borrower’s environmental and social risks and impacts identification process should identify and assess project-related health risks caused by, or exacerbated by, climate change</p>		
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<p>the type of project, they may need to conform to relevant sector codes of practice.</p>	<p>In addition to the emergency preparedness and response requirements described in ESPS 1, the Borrower will also assist and collaborate with the project-affected people, local government agencies, and other relevant parties, in their preparations to respond effectively to emergency situations, especially when their participation and collaboration are necessary to respond to such emergency situations. The Borrower should establish an <b>Emergency Preparedness and Response Plan (EPRP)</b> that is appropriate for each phase of the project.</p> <p><b>The Borrower will identify and assess the potential risks caused by natural hazards, such as earthquakes, droughts, landslides, or floods, including those caused or exacerbated by climate change, as these relate to the project.</b> This may require the Borrower to undertake an <b>assessment of the risk of the project to natural hazards and climate change. Necessary disaster and climate change resilience and adaptation measures are documented in a DRMP.</b></p> <p>When the Borrower retains direct or contracted workers to provide security to safeguard its personnel and property, it will assess risks posed by its security arrangements to those within and outside the project site. In making such arrangements, the Borrower will be guided by the principles of proportionality and good international practice in relation to hiring, rules of conduct, training,</p>		
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	<p>equipping, and monitoring of such workers, and by applicable law.</p> <p>The Borrower will not sanction any use of force except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.</p> <p>The Borrower will engage experienced and competent professionals, acceptable to the Bank, for the design and supervision of the construction of new dams and require the owner of the dam to develop and implement a Dam Safety Report covering the design, bid tendering, construction, operation, maintenance, and decommissioning of the dam and associated works.</p> <p>In developing the design criteria for new dams, the Borrower shall consider the climate that the dam is likely to experience over its operational life. <b>The Borrower will conduct a climate change risk assessment to establish the range of climate projections for the area of the project associated with the dam.</b> For water retention structures, changing hydrology and changing probable maximum flows under climate change scenarios should be evaluated in order to inform the Dam Safety Report.</p>		
<b>Standard 7: Physical and economic resettlement</b>	<b>ESPS 5: Land Acquisition and Involuntary Resettlement</b>		This particular IFAD standard is not applicable to the Project.
Standard 7 is aimed at ensuring that displacement is avoided whenever possible. It also recognizes that when displacement cannot be avoided its scale must be minimized and that this must be done in a way that does	Environmental and Social Performance Standard (ESPS) 5 addresses impacts of project-related land acquisition, including restrictions on land use and access to assets and	IDB's standard is more detailed and has more requirements. However, IFAD requires that <b>potential impacts from changes in land use should be examined as an integral aspect of the project's</b>	This standard is not applicable to the Project.



<p>not increase socio-economic risks or otherwise negatively impact a community, ensuring that affected persons are compensated fairly prior to any displacement.</p> <p><b>Standards objectives:</b></p> <p>Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring feasible alternative project designs and sites;</p> <p>Avoid forced eviction;</p> <p>Ensure that resettlement activities are planned and implemented collaboratively, with meaningful participation of those affected;</p> <p>Enhance and restore the livelihoods of all displaced people who may be affected by project/programme activities; and</p> <p>Provide explicit guidance to borrower/recipient/partner on the conditions that need to be met regarding involuntary resettlement issues.</p> <p><b>Requirements and instruments:</b> the requirements contained in standard 7 seek to further these objectives and should be carefully reviewed in order to inform project screening and development. The guidance note provides further guidance on the various standard 7 requirements. The Borrower will consider feasible alternative project designs to avoid or minimize physical and/or economic displacement, while balancing environmental, social, and financial costs and benefits, paying particular attention to impacts on the poor and vulnerable.</p> <p>For moderate-, substantial- and high-risk projects, conduct an appropriately <b>scaled environmental and social assessment</b>. Identify</p>	<p>natural resources, which may cause physical displacement (relocation, loss of land or shelter), and/or economic displacement (loss of land, assets, or restrictions on land use, assets, and natural resources leading to loss of income sources or other means of livelihood. The term “involuntary resettlement” refers to both of these impacts and the processes to mitigate and compensate for these impacts.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs.</li> <li>● To avoid forced eviction.</li> <li>● To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and transitional hardships; (ii) minimizing disruption to their social networks and other intangible assets; and (iii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.</li> </ul>	<p><b>social and environmental assessment.</b> Therefore should the IDB standard be used, an eventual adjustment to project impact assessments may be necessary to comply with IFAD’s commitments and requirements.</p>	
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<p>displaced persons directly and indirectly impacted by the project and <b>evaluate risks to food security</b>.</p> <p>Develop a (abbreviated) <b>resettlement action plan (RAP) or framework (RAF)</b>, including a census and socio-economic survey, that specifies the procedures and actions to mitigate adverse effects, compensate losses and provide development benefits to affected persons and communities.</p> <p>Apply the precautionary principle and mitigation hierarchy.</p> <p>For moderate-, substantial- and high-risk projects develop a (abbreviated) RAP/RAF that stipulates entitlements, compensation and assistance designed to improve or at least restore livelihoods of displaced persons.</p> <p>Ensure an accessible, effective grievance redress mechanism is available and responsive.</p> <p>Implement a monitoring framework.</p> <p>The above elements should be reflected and elaborated in a (abbreviated) <b>resettlement action plan (RAP)</b> (where the specific project activities and sites are known at appraisal) or in a <b>resettlement action framework (RAF)</b>.</p> <p><b>If screening indicates that standard 7 is applicable for the project, potential impacts from changes in land use should be examined as an integral aspect of the project’s social and environmental assessment.</b></p> <p>IFAD requires borrower/recipient/partner to undertake FPIC processes for investment projects that have an impact on the land access and use rights of rural communities (as well as for projects that may affect Indigenous peoples ). Land acquisition that results in displacement (physical or economic) will likely trigger this requirement.</p>	<ul style="list-style-type: none"> <li>• To improve or restore the livelihoods and standards of living of displaced persons. To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure, and safety at resettlement sites</li> </ul> <p><b>Requirements and instruments:</b> the Borrower will consider feasible alternative project designs to avoid or minimize physical and/or economic displacement, while balancing environmental, social, and financial costs and benefits, paying particular attention to impacts on the poor and vulnerable.</p> <p>Compensation and Benefits for Displaced Persons: When displacement cannot be avoided, the Borrower will offer project-affected people compensation for loss of assets at full replacement cost and other assistance to help them improve or restore their standards of living or livelihoods, as provided in this ESPS. Compensation standards will be transparent and applied consistently to all project-affected people. Where livelihoods of displaced persons are land-based, or where land is collectively owned, the Borrower will, where feasible, offer land-based compensation to the displaced. The Borrower will take possession of acquired land and related assets only after compensation has been made available and, where applicable, resettlement sites and moving</p>		
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<p>IFAD seeks to avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring feasible alternative project designs and sites. As part of the social and environmental assessment, IFAD requires consideration of all feasible project alternatives and measures to avoid displacement, including the “no action” option.</p>	<p>allowances have been provided to the displaced persons in addition to compensation. The Borrower will also provide opportunities to displaced communities and people to derive appropriate development benefits from the project and will provide support to restore social networks and other intangible assets.</p> <p>The Borrower will establish procedures to monitor and evaluate the implementation of a <b>Resettlement Action Plan or Livelihood Restoration Plan</b>.</p> <p>Where the exact nature or magnitude of the land acquisition or restrictions on land use related to a project with potential to cause physical and/or economic displacement is unknown due to the stage of project development, the Borrower will develop a <b>Resettlement and/or Livelihood Restoration Framework</b> outlining general principles compatible with this ESPS. Once the individual project components are defined and the necessary information becomes available, such a framework will be expanded into a specific Resettlement Action Plan or Livelihood Restoration. Economically displaced persons who face loss of assets or access to assets will be compensated for such loss at full replacement cost.</p>		
<p><b>Standard 8. Financial intermediaries and direct investments</b></p>	<p><b>IDB does not have a stand-alone standard. Requirements and</b></p>		

	objectives for dealing with this theme are included in the ESPS 1.		
<p>This standard is guided by the Rural Finance Policy and Framework for IFAD non-Sovereign Private Sector Operations and Establishment of a Private Sector Trust Fund (NSO Framework). Direct investments include lending and equity stakes in private-sector companies (including corporate and project financing), and guarantee facilities. In line with IFAD’s mandate, beneficiaries are expected to be poor, vulnerable small producers and rural households.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>• Promote sound environmental, social and climate practices and sound human resources management within FIs and direct investees.</li> <li>• Ensure FIs and direct investees will assess and manage environmental and social risks and impacts of subprojects.</li> <li>• Promote good environmental and social management practices by direct investees and in the subprojects financed by FIs.</li> </ul> <p><b>Requirements and instruments:</b> the Borrower will screen and categorize potential environmental and social risks</p> <ul style="list-style-type: none"> <li>• Screen the proposed FI or direct investee using the screening procedure outlined in volume 1 of SECAP and reject the projects with activities on the IFAD exclusion list (see below).</li> <li>• Categorize the risk of the FI or direct investee using SECAP risk assessment tools.</li> </ul>	<p>The nature of intermediated financing means that the FIs will assume delegated responsibility for environmental and social risk and impact assessment, risk and impact management, and monitoring, as well as overall portfolio management. The delegation may take various forms depending upon different factors, such as the type of financing provided.</p> <p>The effectiveness of the FIs’ environmental and social risk and impact management will be evaluated and monitored regularly throughout the project cycle.</p> <p>For FI projects, the IDB will conduct due diligence on the FI and its portfolio to assess</p> <p>(i) existing environmental and social policies and procedures and the FI’s commitment, capacity, and track record to implement them;</p> <p>(ii) environmental and social issues associated with the current and likely future portfolio that could expose the IDB to environmental, social, and associated risks; and</p> <p>(iii) measures necessary to strengthen the FI’s existing environmental and social risk and impact management system. The IDB’s requirements and the scope of their application for FI clients depend on the nature of the investment and the level of environmental and social risk associated with the FI’s activities. To appropriately identify and measure</p>	<p><b>This standard will not be applied to the Project as it is only applied to private sector loans.</b> Although IDB does not have a stand-alone standard for this theme it has a comprehensive set of objectives and requirements to ensure that potential risks and impacts are adequately addressed. IDB’s guidance on this theme is detailed and has more requirements. Therefore its use could also result in adherence to IFAD’s requirements.</p>	<p>This standard is not applicable to the Project.</p>

<ul style="list-style-type: none"> <li>• The E&amp;S risks of the FI depend on the E&amp;S categories of subprojects and portfolio exposure.</li> <li>• Moreover, it will assess the environmental and social management system of the FI or direct investee. It will assess whether the FI or direct investee meets the requirements of a high-quality environmental and social management system. This typically has the following components:</li> <li>• An environmental and social policy that includes a requirement for subprojects to meet the ESS requirements</li> <li>• Identification of risks (environmental and social due diligence)</li> <li>• Management programmes</li> <li>• Internal organizational capacity and competency</li> <li>• Monitoring and reporting systems</li> <li>• Emergency preparedness and response</li> </ul> <p>The Borrower will conduct environmental and social due diligence (ESDD) for direct-investment projects. For high- and substantial-risk projects:</p> <ul style="list-style-type: none"> <li>• Conduct ESDD in accordance with IFAD’s requirements as defined in SECAP, <b>including environmental and social impact assessment (ESIA) or abbreviated ESIA and a compliance summary table with IFAD’s Social, Environmental and Climate Standards;</b></li> <li>• <b>Prepare a draft consultation and participation plan, grievance</b></li> </ul>	<p>these risks, the IDB will review a sample of the FI’s activities as well as its implementation capacity and ESMS. In particular, the following requirements apply:</p> <ul style="list-style-type: none"> <li>a. FIs must develop and operate an ESMS that is commensurate with the level of environmental and social risks in its portfolio and prospective activities. The ESMS should incorporate relevant principles of ESPS 1.</li> <li>b. FIs must apply relevant aspects of ESPS 2 to their workers.</li> <li>c. The portfolio financed with resources from the IDB must comply with the IDB Exclusion list.</li> <li>d. FIs with portfolios, and/or prospective subprojects that present moderate to high environmental or social risks will require high or substantial risk subprojects that they support to apply relevant standards of the ESPF, for those FIs to be eligible for financing with resources from the IDB. Where a specific subproject includes activities with high environmental and social risks, the FI will refer that subproject to the IDB for review before including it in the financed portfolio.</li> </ul>		
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<p><b>redress mechanism and environmental, social and climate management plan (ESCMP);</b></p> <ul style="list-style-type: none"> <li>● Include relevant indicators (outcome and milestone) in the ESCMP for monitoring of climate, environmental, health, safety and social issues; and</li> <li>● Ensure that the relevant provisions of ESCMPs (Environment, Social and Climate Management Plan), including costs of implementation, are fully included in bid and contract documents.</li> <li>● For moderate-risk projects the Borrower will develop an <b>ESCMP</b>.</li> </ul>	<p>As part of the monitoring and supervision activities, the IDB will periodically review the process and the results of the environmental and social due diligence conducted by the FI and the overall effectiveness of the FI's environmental and social management system. IDB supervision may include visits at the FI level, as well as to recipients of FI loans, particularly in the case of high or substantial-risk subprojects. The frequency and focus of supervision visits will be commensurate with the identified risks. For supervision purposes, the IDB will require access to all relevant documents and sites for any project in the FI's financed portfolio.</p>		
<p><b>Standard 9: Climate change</b></p>	<p><b>IDB does not have a stand-alone standard for climate change.</b></p>		
<p>The requirements set out in Standard 9: Climate change are designed to achieve the following objectives:</p> <ul style="list-style-type: none"> <li>● Ensure alignment of IFAD-supported projects with targets and priorities of countries' Nationally Determined Contributions and the goals of the Paris Agreement and other international frameworks;</li> <li>● Ensure that proposed activities are screened and assessed for climate change and disaster risks and impacts both of and on projects;</li> <li>● Apply the SECAP risk mitigation hierarchy principle of applying a hierarchy of risk management measures in project design;</li> </ul>	<p>ESPS 1 stipulates that the "Borrower will consider risks and impacts related to human rights, gender, and natural hazards and climate change throughout the assessment process. Where appropriate, the Borrower will complement its environmental and social assessment with further studies focusing on those specific risks and impacts." Specific requirements and guidance on natural hazards and climate change can be found in ESPS 4 on <i>Community Health, Safety and Security</i> and its Guideline.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● To anticipate and avoid adverse impacts on the</li> </ul>	<p>IDB's objectives and requirements regarding climate change (mitigation and adaptation) are found in different ESPS and also in documents other than the ESPF. IFAD's standard consolidates such requirements and objectives in a single guidance statement and mandates specific analyses. In particular it requires a specific climate risk screening and instruments for their management.</p> <p>It is recommended that adjustments to IDB's instruments are made to satisfy IFADs requirements regarding this standard. This should include:</p> <p>3. Apply climate screening tools.</p>	<p>The IDB does not have a stand-alone environmental and social standard related to climate change. In order to comply with IFADs standard, given the "substantial" risk rating a targeted climate adaptation assessment.</p>

<ul style="list-style-type: none"> <li>Strengthen the climate resilience of communities and their adaptive capacity to address risks of climate change impacts and climate-related disasters;</li> <li>Increase the ability of communities to adapt to the adverse impacts of climate change, and foster climate resilience and low GHG-emitting projects that do not threaten without compromising food production.</li> </ul> <p><b>2. Assess potential risks and impacts</b></p> <ul style="list-style-type: none"> <li>For substantial and high-risk projects, assess direct and indirect adverse climate-related impacts.</li> <li>Produce a vulnerability impact and adaptation assessment for potential high-risk projects.</li> <li>Produce a targeted adaptation assessment for substantial-risk projects.</li> <li>For moderate-risk projects, undertake a literature review of climate assessments and propose adaptive/mitigation measures in the ESCMP.</li> <li>For low-risk projects, no climate assessment is required.</li> <li>Utilize relevant expertise and ensure impacts are assessed at appropriate geographic scale.</li> <li>Ensure that the level of stakeholder engagement is at a scale appropriate to potential risks/impacts.</li> </ul> <p><b>Requirements and instruments:</b>  <b>Climate change risk (impact of climate change on projects):</b> through the climate risk</p>	<p>health and safety of the project-affected people during the project life cycle from both routine and non-routine circumstances.</p> <ul style="list-style-type: none"> <li>To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the project-affected people.</li> <li>To anticipate and avoid adverse impacts on the project itself from natural hazards and climate change during the project life cycle.</li> </ul> <p>A project's vulnerability to natural hazards and climate change and its potential to increase the vulnerability of ecosystems and communities to natural hazards and climate change should dictate the extent of natural hazards and climate change considerations in the Borrower's E&amp;S risks and impacts identification process.</p>	<ol style="list-style-type: none"> <li>Include the climate aspects in the ESMP of the project, since it is a good way to also include adaptation and mitigation measures.</li> <li>If the project has a high or substantial climate risk prepare a Climate Change Impact and Vulnerability Assessment or Target Climate Change Impact Assessment.</li> </ol>	
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<p>screening procedure, IFAD requires that all projects be screened to determine their exposure and sensitivity to climate-related risks (and given ratings of High, Substantial, Moderate or Low Risk). This screening procedure also estimates impacts based on information about historic climate hazard occurrences, current climate trends and future climate change scenarios.</p> <p>In addition, the screening assesses the likelihood of the project increasing the target population's vulnerability to climate hazards (e.g. maladaptation). Borrowers/recipients/partners should analyze physical, social, economic and environmental factors and processes that increase communities' susceptibility and vulnerability to potential climate change impacts and hazards – with a focus on marginalized and disadvantaged people. Specific gender, age and social vulnerabilities – and potential differentiated impacts – should also be considered.</p> <p>The need for clear and robust risk identification and mitigation measures is critically important, especially given the pivotal role of SECAP in supporting targeting during project design (in line with the recently approved Targeting Strategy). As the list of potential project locations and investment options is narrowed down, a more detailed climate analysis should be undertaken. This can not only inform the nature and types of investments, but also their design (e.g. in response to the need for climate-proofing of infrastructure). Such design decisions have cost implications that should be reflected in the project budget.</p>			
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<p><b>IFAD does not have a stand-alone standard on Gender Equality. Nonetheless IFAD has a Policy on Gender Equality and Women’s Empowerment.</b></p>	<p><b>ESPS 9: Gender Equality</b></p>		
<p>IFAD does not have a stand-alone standard on Gender Equality. Nonetheless IFAD has a Policy on Gender Equality and Women’s Empowerment. This cross cutting theme is object of consideration in project’s social analyses and guidance for planning measures to address gender related themes (e.g. inclusion, participation and leadership, benefit sharing, redistribution of the workload ,economic empowerment, gender-based violence) found in the SECAP in different places and standards (e.g. labour, Indigenous peoples). IFAD promotes gender mainstreaming and transformative approaches depending of the context, as well as gender gap analysis as basis for the Gender and Social inclusion strategies. Furthermore, IFAD is committed to track progress through its core gender transformative indicator (WEAI – Women Empowerment in Agriculture Index).</p>	<p>This ESPS aims at identifying potential gender-based risks and impacts and introducing effective measures to avoid, prevent, or mitigate such risks and impacts, thereby eliminating the possibility of reinforcement of pre-existing inequalities or creating new ones. For purposes of this ESPS, affirmative action specifically aimed at closing existing gender gaps, meeting specific gender-based needs, or ensuring the participation of people of all genders in consultations will not constitute discrimination or exclusion.</p> <p><b>Standards objectives:</b></p> <ul style="list-style-type: none"> <li>● To anticipate and prevent adverse risks and impacts based on gender, sexual orientation, and gender identity, and when avoidance is not possible, to mitigate and compensate for such impacts.</li> <li>● To establish actions to prevent or mitigate risks and impacts due to gender throughout the project cycle.</li> <li>● To achieve inclusion in project-derived benefits of people of all genders, sexual orientations, and gender identities.</li> <li>● To prevent SGBV, including sexual harassment,</li> </ul>	<p>IFAD has no specific standard on gender. IDB’s standard is detailed and comprehensive in its objectives and requirements. Nonetheless, in order to comply with IFAD’s commitments this theme’s baseline assessments to measure the WEAI progress should be integrated in the gender analysis and on the project’s risk and impact management instruments.</p>	<p>IFAD’s safeguard standard requirements are adequately met by the IDB studies and proposed safeguard management instruments.</p>

	<p>exploitation and abuse, and when incidents of SGBV occur, to respond promptly.</p> <ul style="list-style-type: none"> <li>● To promote safe and equitable participation in consultation and stakeholder engagement processes regardless of gender, sexual orientation, and/or gender identity.</li> <li>● To meet the requirements of applicable national legislation and international commitments relating to gender equality, including actions to mitigate and prevent gender-related impacts.</li> </ul> <p><b>Requirements and instruments:</b> The Borrower will screen the project for potential gender-based risks and impacts that may disproportionately affect women, girls, and sexual and gender minorities. If potential gender-based risks and impacts are identified, the Borrower will conduct a gender analysis (GA) as part of environmental and social due diligence. The GA will assess how gender relations in the project's area of influence may lead to disproportionate impacts by gender. Disproportionate impacts may be caused directly by project activities, and/or by excluding people from project benefits due to their gender, and what resources they can access to recover from the negative impacts and benefit from the positive ones. The GA must also assess the measures that are best suited to manage gender-based</p>		
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	<p>risks and impacts, per the mitigation hierarchy.</p> <p>If the screening indicates any gender-based risk, the Borrower should carry out a <b>Gender Analysis (GA)</b> to determine the likelihood and severity of those pre-identified risks, and define the appropriate measures to prevent, reduce, mitigate and/or compensate for them. The GA should be carried out within the frame of the project's environmental and social risks and impacts assessment process. The breadth and depth of the GA should be proportional to the nature and scale of the risks and impacts. In most cases, the GA can be integrated into the general Environmental and Social Impact Assessment (EIAS) and Environmental and Social Management Plan (ESMP) of the project. In other cases, and depending on the type of impacts identified, it may be integrated into relevant management plans (e.g., Resettlement Action Plan and/or Livelihood Restoration Plan, Social Cultural Analysis/Indigenous Peoples Plan, Stakeholder Engagement Plan). Finally, projects with significant gender-based risks might require a stand-alone GA.</p> <p>The GA should be an integral component of the project's environmental and social risks and impacts assessment process and its results should be incorporated into its Environmental and Social Management System (ESMS). The GA should include the following elements:</p>		
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	(i) Situation Analysis; (ii) Stakeholder Analysis; (iii) Project's gender-based risks and potential impacts; (iv) Mitigation Measures; (v) Monitoring and Evaluation mechanisms; and (vi) Institutional Capacity.		
<b>IFAD does not have a stand-alone standard on Stakeholder Engagement. Guidance on the theme is found in different places in the SECAP.</b>	<b>ESPS 10: Stakeholder Engagement and Information Disclosure</b>		
<b>IFAD does not have a stand-alone standard on Stakeholder Engagement. Guidance on the theme is found in different places in the SECAP. Nevertheless, IFAD has a Framework for Operational Feedback from Stakeholders: Enhancing Transparency, Governance and Accountability<sup>11</sup> (2019).</b> This framework provides a comprehensive and integrated way to strengthen IFAD's efforts to engage key stakeholders and mobilize their feedback in the country's strategic opportunities programme (COSOPs). More specifically, the objectives of the framework are to: (i) Increase governments' and partners' commitment to engage key stakeholders, especially local and national representatives of IFAD's target groups, and respond to their feedback; (ii) Improve the quality and inclusiveness of stakeholder engagement and feedback processes, particularly at project level; (iii) Improve monitoring and results reporting on stakeholder feedback, particularly from project target groups; and (iv) Strengthen capacities of project target groups and other stakeholders	<p>This ESPS guides the engagement between the Borrower and project stakeholders, especially project-affected people as a means to improve social and environmental sustainability, enhance project acceptance and contribute to smooth project implementation.</p> <p>It must be read in conjunction with ESPS 1 and ESPS 9. Specific requirements regarding engagement with workers are found in ESPS 2. Special provisions on emergency preparedness and response are covered in ESPS 4. In the case of projects involving involuntary resettlement, Indigenous Peoples, or cultural heritage, the Borrower will also apply the specific disclosure and consultation requirements set out in ESPSs 5, 7, and 8, respectively.</p> <p><b>Standard's objectives:</b></p>	IDB's standard is comprehensive and detailed and shares the same principles and goal of IFAD's policy. Therefore its application will also result in compliance with IFAD's requirements.	IFAD's safeguard standard requirements are adequately met by the IDB studies and proposed safeguard management instruments.

<sup>11</sup> <https://webapps.ifad.org/members/eb/128/docs/EB-2019-128-R-13.pdf?attach=1>

<p>to meaningfully and sustainably participate in and manage feedback processes.</p>	<ul style="list-style-type: none"> <li>● To establish a systematic approach to stakeholder engagement that will help the Borrower identify stakeholders, especially project-affected people, and build and maintain a constructive relationship with them.</li> <li>● To assess the level of stakeholder interest in and support for the project and to enable stakeholders' views to be considered in project design and environmental and social performance.</li> <li>● To promote and provide the means for effective and inclusive engagement with project-affected people throughout the project's life cycle on issues that could potentially affect or benefit them from the project.</li> <li>● To ensure that appropriate information on environmental and social risks and impacts of the project is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.</li> <li>● To provide stakeholders with accessible and inclusive means to raise questions, proposals, concerns, and grievances and allow</li> </ul>		
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	<p>Borrowers to respond and manage them appropriately.</p> <p><b>Requirements and instruments:</b></p> <ul style="list-style-type: none"> <li>● The Borrower will engage with stakeholders throughout the project life cycle. It will commence such engagement as early as possible in the project development process and in a timeframe that enables meaningful consultations with stakeholders on project design and development. The nature, scope, and frequency of stakeholder engagement will be proportionate to the nature and scale of the project, its development and implementation timeline, and its potential risks and impacts.</li> <li>● The Borrower will engage in meaningful consultations with stakeholders. It will provide stakeholders with timely, relevant, understandable, and accessible information, and will consult them in a culturally appropriate manner, free of manipulation, interference, coercion, discrimination, and intimidation.</li> <li>● <b>Stakeholder engagement will involve the following steps: (i) stakeholder identification and analysis,</b></li> </ul>		
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	<p>(ii) planning how the engagement with stakeholders will take place, (iii) disclosure of information, (iv) consultation with stakeholders, (v) addressing and responding to grievances, and (vi) reporting to stakeholders.</p> <ul style="list-style-type: none"> <li>• The Borrower will maintain and disclose, as part of the environmental and social assessment, a documented record of stakeholder engagement, including a description of the stakeholders consulted, a summary of the feedback received, and a brief explanation of how the feedback was considered or the reasons why it was not.</li> </ul>		
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### **IFAD environmental and social exclusion list**

IFAD will not knowingly finance, directly or indirectly, projects involving the following:

- (i) Production or activities involving harmful or exploitative forms of forced labour, or practices which prevent employees from lawfully exercising their rights of association and collective bargaining;
- (ii) Production or activities involving harmful or exploitative forms of child labour;
- (iii) Production or activities that impinge on the lands owned, or claimed under adjudication, by Indigenous peoples, without fully documented consent of such peoples;
- (iv) Activities prohibited by host-country legislation or international conventions relating to the protection of biodiversity resources, cultural heritage or other legally protected areas;
- (v) The production, trade in or use of any product or activity deemed illegal under host country (i.e. national) laws or regulations, international conventions and agreements, or subject to international phase-out or bans, such as:
  - (a) Products containing polychlorinated biphenyls (PCBs);
  - (b) Pharmaceuticals, pesticides, herbicides and other hazardous substances subject to international phase-outs or bans;
  - (c) Ozone-depleting substances subject to international phase-outs regulated by the Montreal Protocol;
  - (d) Wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); and
  - (e) Transboundary trade in waste or waste products as defined by the Basel Convention;
- (vi) Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests;
- (vii) Production or trade in wood or other forestry products other than from sustainably managed forests;
- (viii) Production or trade in alcoholic beverages (excluding beer and wine), tobacco or drugs;
- (ix) Marine and coastal fishing practices such as blast fishing, large-scale pelagic drift net fishing using nets in excess of 2.5 km in length or fine mesh net fishing harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats;
- (x) Trade in goods without required export or import licenses or other evidence of authorization of transit from the relevant countries of export, import and, if applicable, transit;
- (xi) Production of, trade in or use of unbounded asbestos fibers;
- (xii) **All mining, mineral processing and extraction activities;**
- (xiii) Production or trade in radioactive materials;
- (xiv) Gambling, casinos and equivalent enterprises, trade related to pornography or prostitution;
- (xv) Contribute to money laundering, terrorism financing, tax avoidance, tax fraud and tax evasion;
- (xvi) **Production and distribution, or investment in media that are racist, antidemocratic or that advocate discrimination against an individual, group or part of the population;**
- (xvii) **Activities prohibited by host country legislation or other legally binding agreements regarding genetically modified organisms (GMOs);**
- (xviii) **Production of or trade in palm oil unless from growers and companies with internationally recognized certification, or undergoing certification.**
- (xix) Production of soy in the Amazon region or trade in soy produced in the Amazon region, unless from growers with internationally recognized certification.



**IDB's list of prohibited activities<sup>12</sup>:** IDB will not knowingly finance, directly, or indirectly through FIs, projects involved in the production, trade, or use of the products, substances, or activities listed below.

### **1. PROHIBITED ACTIVITIES**

a. Activities that are illegal under host country laws, regulations, or ratified international conventions and agreements or subject to international phase out or bans, such as:

- i. Polychlorinated biphenyl compounds (PCBs).
- ii. Pharmaceuticals, pesticides/herbicides, and other hazardous substances subject to international phaseouts or bans.
- iii. Persistent Organic Pollutants (POPs).
- iv. Ozone-depleting substances subject to international phase-out.
- v. Wildlife or wildlife products regulated under Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- vi. Transboundary trade in waste or waste products, except for nonhazardous waste destined for recycling.
- vii. **Lead paint or coatings in the construction of structures and roads.**

b. Activities that are illegal under host country laws, regulations, or ratified international conventions and agreements relating to protecting biodiversity resources or cultural heritage.

### **1. OTHER ACTIVITIES**

a. Activities that, although consistent with a country's legal and/or regulatory framework, may generate particularly significant adverse impacts on people and/or the environment, such as:

- i. Weapons, ammunitions, and other military goods/technology.
- ii. Tobacco.
- iii. Gambling, casinos, and equivalent enterprises.
- iv. Radioactive materials.
- v. Unbonded asbestos fibers or asbestos-containing products.
- vi. Drift net fishing in the marine environment using nets over 2.5 km in length.

b. Activities that are inconsistent with the IDB's commitments to address the challenges of climate change and promote environmental and social sustainability, such as:

- viii. Thermal coal mining or coal-fired power generation and associated facilities.
- ix. Upstream oil exploration and development projects.
- x. Upstream gas exploration and development projects. Under exceptional circumstances and on a case-by-case basis, consideration will be given to financing upstream gas infrastructure where there is a clear benefit in terms of energy access for people experiencing poverty and where GHG emissions are minimized, projects are consistent with national goals on climate change, and risks of stranded assets are properly analyzed.

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<sup>12</sup> Additional exclusions may apply in the context of a specific operation.

## **Reviewed documents**

IFAD - Updated Social, Environmental and Climate Assessment Procedures (SECAP) – volumes 1,2 and 3. 2021.

IDB – Environmental and Social Policy Framework. September 2020.

IDB- Environmental and Social Policy Framework. September –guidelines for the environmental and social performance standards. September 2021.

IDB –Proyecto de Desarrollo Rural Sostenible del Estado de Paraiba (PROCASE II) – BR- L1623. Propuesta de Desarrollo de la Operación.

IDB- Guidance for Assessing and Managing Biodiversity Impacts and Risks in Inter-American Development Bank Supported Operations.

<https://publications.iadb.org/publications/english/document/Guidance-for-Assessing-and-Managing-Biodiversity-Impacts-and-Risks-in-Inter-American-Development-Bank-Supported-Operations.pdf>

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex 6: CI Project Implementation Manual (PIM)**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



**PARAIBA'S SUSTAINABLE RURAL DEVELOPMENT PROJECT**

**PROCASE II**

**PROJECT OPERATIONAL REGULATIONS  
(ROP)**

**João Pessoa - PB**

**June 2024**

## INDEX

Abbreviations and Acronyms .....	iv
Strengthening and diversifying commercialization .....	viii
1    PRESENTATION .....	9
1.1 Purpose of the Regulation .....	9
1.2 B. Organization of the Regulation .....	9
2    CONTEXTUALIZATION .....	11
2.1 Background .....	11
2.1.1 Rural Poverty and Extreme Poverty .....	11
2.1.2 Paraíba's biomes.....	12
2.1.3 Inefficient production systems.....	12
2.1.4 Land structure .....	13
2.1.5 Climate change and environmental degradation.....	13
2.1.6 Inadequate and insufficient TA system .....	14
2.1.7 Mechanization.....	14
2.1.8 The challenge of digital inclusion .....	15
2.1.9 Low participation Specific difficulties for vulnerable groups (women, young people, LGBT people and residents of traditional communities) .....	15
2.1.10 Limited participation in collective organizations .....	15
2.1.11 Family Farming Cooperatives .....	16
2.1.12 Basic Sanitation .....	16
2.2 Project Strategy .....	17
3    PROCASE II (PROJECT) .....	18
3.1 Objectives .....	18
3.1.1 General Objective.....	18
3.1.2 Specific objectives .....	18
3.1.3 Project description .....	18
a) Project Management .....	27
b) Monitoring implementation .....	27
4    Costs and Financing .....	28
4.1 Deadline .....	28
4.2 Direct beneficiaries of PROCASE II .....	29
4.3 Impacts and Expected Results .....	29
5    PROJECT IMPLEMENTATION .....	30

5.1	General Execution Scheme .....	30
5.2	Project Management Unit (PMU).....	31
5.3	State Department of Finance (SEFAZ).....	36
5.4	Paraiba Research, Rural Extension and Land Regularization Company (EMPAER) .....	36
5.5	Community Associations and Producer Cooperatives.....	37
6	PROCUREMENT RULES AND PROCEDURES .....	38
6.1	Introduction.....	38
6.2	Acquisition of Goods and Contracting of Works and Services (except consultancies) .....	38
6.3	Selection and Hiring of Consultants .....	39
6.4	Retroactive Financing with Charge to Financing and Local Counterpart .....	41
7	PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT.....	42
7.1	Management Framework .....	42
7.2	Prohibited activities .....	44
8	BUDGET AND FINANCIAL MANAGEMENT.....	46
8.1	IDB and IFAD disbursement procedures and expense acknowledgments .....	46
8.2	Procedures for transferring resources for implementation.....	46
8.3	Internal and external audits.....	46
8.4	Records, Inspections and Reports.....	47
9	PLANNING, MONITORING AND EVALUATION .....	49
9.1	Project Execution Plan (PEP) .....	49
9.2	Annual Workplan and Budgeting (AWPB) .....	49
9.3	Project Procurement Plan (PP) .....	50
9.4	Results Matrix.....	50
9.5	Monitoring and Evaluation Plan .....	50
9.6	Reports .....	51
9.6.1	Semi-annual Progress Report (RSP).....	51
9.6.2	Progress Monitoring Reports (RMP ) .....	51
9.6.3	Financial Statements Audited .....	52
9.7	Report content.....	52
9.7.1	Progress Reports .....	52
9.8	Mid-term Evaluation Reports and Final .....	53
9.9	Risk Management Matrix (RMM).....	53
9.10	Mid-term evaluation .....	53
9.11	Final evaluation.....	54

10	RISK TO INTEGRITY AND REPUTATIONAL IMPACT .....	55
10.1	Introduction.....	55
10.2	Conflict of Interest Management .....	55
10.2.1	Definition .....	55
10.2.2	Identification .....	55
10.3	Individual bidders, tenderers, contractors or consultants .....	56
10.3.1	Individual consultants .....	56
10.3.2	Companies.....	56
10.3.3	Project Management Unit (PMU).....	57
10.4	Evaluation .....	58
10.5	Mitigation.....	58
10.6	Disclosure .....	59
10.7	Filing.....	59
10.8	Implementation of due diligence measures .....	59
10.9	Definitions of prohibited practices under the IDB's Procurement Policies .....	61
10.10	Report possible prohibited practices.....	62
10.11	Integrity clauses in individual consultancy contracts or contracts awarded by the price comparison method.....	62
10.12	Formation of evaluation committees .....	63
Annex 1	Identification, prioritization and selection of communities.....	65
Annex 2	Implementation of resilient and biodiverse production systems .....	67
Annex 3	Strengthening and diversifying commercialization.....	83
Annex 4	Incentives for Innovation .....	98
Annex 5	Strengthening family farmers' capacities.....	102
Annex 6	Strengthening organizations' commercialization capacities.....	110
Annex 7	Diversity, gender, youth, nutrition and food security.....	114
Annex 8	Land and Environmental Regularization .....	124
Annex 9	Knowledge Management and South-South and Triangular Cooperation.....	129
Annex 10	Eligible, Ineligible and Prohibited Investments .....	133
Annex 11	Environmental and Social Management Framework (ESMF).....	134
Annex 12	Draft Internal Regulations of the Executive Committee for the Management of Productive Investments - CEGIP/CGP .....	139
Annex 13	PROCASE II Implementation Organization Chart .....	147
Annex 14	Terms of Reference Key Functions of the PMU .....	149



## Abbreviations and Acronyms

ABNT	Brazilian Association of Technical Standards
ABC Program	Program to Reduce Greenhouse Gas Emissions in Agriculture
ACL	Local Community Association
ACO	Communication Department
ACR	Rural Community Agent
AGJD	Gender, Youth and Diversity Department
AJU	Legal Department
AL	Agroecological Logbooks
AM&A	Monitoring and Evaluation Department
AMS	Environmental and Social Department
APA	Environmental Protection Area
APP	Permanent Preservation Area
ART	Technical Responsibility Certificate
AWPB	Annual Workplan and Budgeting
Bank	Inter-American Development Bank
BB	Banco do Brasil S/A
BNB	Northeast Bank of Brazil
CADIN	Informative Register of Unpaid Credits of the Federal Public Sector
CAF	Administration and Finance Coordination
CAP	Project Evaluation Committee
CAP	Project Analysis Committee
CAR	Rural Environmental Registry
CAS	Environmental and Social Coordination
CC	Climate Change
CD	Direct Hiring
CECP	Construction Environmental Control Plan
CEFIR	Territory Environmental Certification Certificate
CEGIP	Productive Investment Executive Management Committee
CGE	General Coordinator of the PMU
CGE	General Project Coordination
CGP	Project Management Board
CGT	Project Management Committee
CLI	Tenders Committee
CNIR	National Register of Rural Properties
CO	Ordinary Capital
CO <sub>2</sub>	Carbon dioxide
CODETER	Sustainable Territorial Development Collegiate
CODEVASF	São Francisco and Parnaíba Valley Development Company
COP	Operational Coordination
CP	Price Comparison (Purchases)
CRI	Real Estate Registry Office
CTE	Technical Coordination

DAP	Declaration of Aptitude to Pronaf
DC	Direct Contracting
DFAS	Audited Financial Statements
EA	Executing Agency
EMBRAPA	Brazilian Agricultural Research Corporation
EMPAER	Paraíba Research, Rural Extension and Land Regularization Company
ESA	Environmental and Social Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMT	Environmental and social management team
ET	PMU/CAR Regional Office
FAO	Food and Agriculture Organization of the United Nations
FP	Financial Plan
GdB	Government of Brazil
GdPA	Paraíba State Government
GEF	<i>Global Environment Facility</i>
GHG	<i>Greenhouse Gases</i>
GIS	Geographic Information System
HDI	Human Development Index
IBAMA	Brazilian Institute of Environment and Natural Resources
IDB	Inter-American Development Bank (also <i>Bank</i> )
IFAD	International Fund for Agricultural Development
IICA	Inter-American Institute for Cooperation on Agriculture
iLPF	Crop-Livestock-Forest Integration
IN	Normative Instruction
INCRA	National Agrarian Reform Institute
INMET	National Meteorological Institute
IRR	Internal Rate of Return
LPI	International Public Bidding
LPN	National Public Bidding
M&E	Monitoring and Evaluation
MAPA	Ministry of Agriculture, Livestock and Supply
MCR	Rural Credit Manual
MDA	Ministry of Agrarian Development and Family Farming
MDR	Ministry of Regional Development
MGR	Project Risk Management Matrix
MI	Expression of Interest
MMA	Ministry of the Environment and Climate Change
MR	Results Matrix
NA	Not applicable
NGO	Non-Governmental Organization
NPV	Net Present Value
NTGIR	Technical Standard for Georeferencing Rural Properties
OCB	Organization of Brazilian Cooperatives
OCIP	Civil Society Organization of Public Interest

ODS	Ozone-depleting substances
OE	Executive Agency
OII	Office of Institutional Integrity
PAA	Food Acquisition Program
PCB	Polychlorinated biphenyl compounds
PCDS	Community Sustainable Development Plan
PCR	Project Completion Report
PCT	Traditional Peoples and Communities
PDP	Productive Development Plan
PEP	Multi-year Project Execution Plan
PES	Payment for Environmental Services
PFI	Institutional Strengthening Plan
PFSC	Plan to Strengthen Community Organizations
PGE	State Attorney General's Office
PIR	Resilient Investment Plan
PMA	Monitoring and Evaluation Plan
PMR	Project Monitoring Reports
PMU	Project Management Unit
PN	Business Plan
PNAE	National School Feeding Program
PNCF	National Land Credit Program
POP	Persistent Organic Pollutants
PP	Project Procurement Plan
PRA	Environmental Recovery Plan
PRNA	National Agrarian Reform Program
PROCASE/ PROCASE II	Paraíba Rural Sustainable Development Project
PROJECT	PROCASE II
PRONAF	National Program to Strengthen Family Farming
PRONAMP	National Support Program for the Medium Rural Producer
PRONATEC	National Program for Access to Technical Education and Employment
QBS	Quality-based selection
RL	Legal reserve
RMP	Progress Monitoring Report
ROP	Project Operational Regulations
RPD	Rapid Participatory Diagnosis
RSP	Semi-annual Progress Report
SBMC	Selection Based on Lowest Cost
SBQ	Quality-based selection
SDA	Superintendence of Agrarian Development
SDA	Superintendence of Agrarian Development
SEAFDS	State Secretariat for Family Farming and Semi-Arid Development
SEBRAE	Brazilian Micro and Small Business Support Service
SEDAP	Secretariat for the Development of Agriculture and Fisheries

SEFAZ	State Department of Finance
SEIA	State Environmental and Water Resources Information System
SEMAS-PA	State Secretariat for the Environment and Sustainability
SENAC	National Commercial Learning Service
SENAI	National Industrial Apprenticeship Service
SENAR	National Rural Learning Service
SEPLAN	State Planning Secretariat
SESMP	Strategic Environmental and Social Management Plan
SFB	Brazilian Forest Service
SIAFE-PA	Integrated Financial Administration System
Siater	Computerized Technical Assistance and Extension System
Single Registry (Cadastro Único)	Single Registry (which allows low-income families to participate in government social programs. Created by the Federal Government and operationalized and updated by municipal governments).
SIPRA	Agrarian Reform Project Information System
SISBACEN	Central Bank Information System
SNCR	National Rural Registration System
SNPA	National Agricultural Research System
SOF	Selection based on a fixed budget
SQC	Selection Based on Consultant Qualifications
STA	Specialized technical assistance
SUDEMA	State Environmental Superintendence
SUDENE	Northeast Development Superintendence
TA	Technical Assistance
TCE	State Court of Auditors
TD	Domain Title
TED	Decentralized Execution Terms
ToR	Terms of Reference
TR	Rural Territory
UEPB	Paraíba State University
UFCG	Federal University of Campo Grande
UFPB	Federal University of Paraíba
URGP	Regional Project Management Units
UTR	Rural Territorial Unit

## LIST OF ANNEXES

Annex 1	Identification, prioritization and selection of PROCASE II communities
Annex 2	Implementation of resilient and biodiverse production systems
Annex 3	Strengthening and diversifying commercialization
Annex 4	Incentives for Innovation
Annex 5	Strengthening family farmers' capacities
Annex 6	Strengthening organizations' commercialization capacities
Annex 7	Diversity, gender, youth, nutrition and food security
Annex 8	Land and Environmental Regularization
Annex 9	Knowledge Management and South-South and Triangular Cooperation
Annex 10	Eligible, Ineligible and Prohibited Investments
Annex 11	Environmental and Social Management Framework (ESMF)
Annex 12	Draft Internal Regulations of the Executive Committee for the Management of Productive Investments - CEGIP/CGP
Annex 13	PROCASE II Implementation Organization Chart
Annex 14	Terms of Reference Key Functions of the PMU

# **1 PRESENTATION**

The purpose of this Project Operational Regulation (ROP) is to present and establish the terms, conditions and procedures that will govern the execution of the activities of the Paraíba Sustainable Rural Development Project (PROCASE II). The Project has a total cost of US\$ 105 million, of which US\$ 70.0 million is from a loan from the Inter-American Development Bank (IDB), US\$ 10.0 million from the International Fund for Agricultural Development (IFAD) and US\$ 25.0 million from the state of Paraíba. The executing agency (OE) will be the borrower, through the State Secretariat for Family Farming and Semi-Arid Development (SEAFDS). In turn, SEAFDS will sign a subsidiary agreement with the Paraíba Technical Assistance and Rural Extension Company (EMPAER), which will act as a sub-executing body, specifically in carrying out land and environmental regularization activities and part of the Technical Assistance (TA) for the beneficiaries of the Productive Investment Plans (PIRs, according to the Portuguese acronym). Definitions of responsibilities and the availability of resources will be set out in a Cooperation Agreement and respective Work Plan to be drawn up between the two government bodies.

- 1.1. In the event of a conflict between the provisions of these Operational Regulations (ROP) and the provisions of the Loan Agreements signed by the Government of the State of Paraíba with the IDB (OC-xxxx) and IFAD (FD-xxxx) and their respective Annexes, the provisions of these Agreements and their Annexes shall prevail.

## **1.1 Purpose of the Regulation**

- 1.2. These Regulations are intended to define the rules and procedures for carrying out PROCASE II and must be followed by all those involved in its execution, including employees and managers of public or private entities, organizations and institutions. Any activity or use of resources that is not supported by these Regulations will be considered unauthorized and the resources used will not be counted as eligible expenses for the Project. In addition, the person responsible for such expenditure will be subject to administrative or civil sanctions for non-compliance, fraud or any other offense provided for in current legislation.

## **1.2 B. Organization of the Regulation**

- 1.3. The ROP is organized into eight chapters with the following content:
  - a) The first chapter gives a brief overview of the Operational Regulations (ROP) and their organization.
  - b) The second chapter presents a contextualization of PROCASE II.
  - c) Chapter 3 contains the general and specific objectives of PROCASE II and describes the components, their costs with the financing matrix, the execution timeframe and the results and impacts expected from their implementation.
  - d) The fourth chapter details PROCASE II's management system, describing the institutional arrangement, the procedures for purchasing goods and services to be applied to the use of the Project's resources and retroactive financing for expenses already incurred.

- e) Chapter 5 details the rules that must be followed when purchasing goods and services (not consultancy services), contracting works and consultancy services under PROCASE II.
- f) Chapter 6 defines the environmental and social management procedures to be followed when carrying out PROCASE II-related activities.
- g) Chapter 7 presents the requirements for the budgetary and financial administration of PROCASE II.
- h) Chapter 8 sets out the procedures for planning, monitoring and evaluating PROCASE II, including archiving documents, preparing reports and auditing activities.
- i) Chapter 9 indicates the code of ethics and policies on fraud and corruption, which must be followed by all PROCASE II stakeholders.

## 2 CONTEXTUALIZATION

### 2.1 Background

- 2.1 The Paraíba State Government has applied for a loan to finance a project to invest in multiple projects to promote sustainable development in the rural areas of Paraíba State. The Project will cover all the Planning Regions and the 223 municipalities.
- 2.2 The state of Paraíba is located in the Northeast region of Brazil, the poorest region and with the worst social indicators in the country. However, the state ranks 20th among the 27 Brazilian states in terms of GDP per capita, poverty and extreme poverty have reached the highest rates in the last 10 years: 47.4% of the state's population is in poverty, 15.6% in extreme poverty and 63.9% is food insecure, with 10.6% experiencing severe food insecurity.
- 2.3 Agriculture is the main rural economic activity in the state. The predominant crops in the Project area (cassava, rice, corn, beans) have low productivity. For example, cassava yields less than 50% of its potential. Cocoa, a relevant crop in the Atlantic Forest region since the first half of the 20th century, reaches only 15% of its potential.
- 2.4 Limited access to technical assistance and funding. Family farmers represent around 80% and 33% of the surface area of rural establishments in the Project area. They face difficulties in increasing their productivity due to their limited access to financing and technical assistance (12.4% of producers have access to credit and 6.1% to technical assistance).
- 2.5 Rural Paraíba, the Project's intervention area, faces a series of limiting factors that were taken into account when elaborating this Project's intervention proposal.

#### 2.1.1 Rural Poverty and Extreme Poverty

- 2.6 According to data from the Single Registry (Cadastro Único) from March 2024 (MDS), there are 191,000 families in rural Paraíba classified as being in poverty or extreme poverty (CadÚnico bands 1 and 2). Considering that there are 250,000 households in the rural area of the state, according to IBGE 2010, it can be said that 76% of rural families are in a situation of poverty and extreme poverty<sup>1</sup>. In 2010, 39% of rural households were in poverty (2010), and 20% were considered extremely poor. In the state, only 36% of the population is food secure, while the rest are classified as mild, moderate or severe food insecure (II VIGISAN, 2021).
- 2.7 The HDI in 146 municipalities is considered low (70%), medium in 62 (29%) and high in 2 (1%). According to IBGE 2010, around 28% of the population has some kind of disability (visual, hearing, motor or mental).

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<sup>1</sup> The 2022 Census did not disclose the number of rural households. For this reason, the figure from the 2010 Census was used in this study, considering that there are no significant changes between censuses. It is also considered that one household is equivalent to one family.



### **2.1.2 Paraíba's biomes**

- 2.8 Paraíba is characterized by the presence of two major regions and biomes: (i) the semiarid region, characterized by the Caatinga biome, which includes 193 of the state's 223 municipalities, covering 92% of the area and 62% of the state's population, and (ii) the Mata Paraibana region, characterized by the Atlantic Forest biome, located in the far east, which includes 30 municipalities, representing 8% of the state's surface area and home to 38% of the population.
- 2.9 The semiarid region is a rural region, home to 85% of the state's rural population and with the worst social indicators. The average annual rainfall in the semiarid region ranges from 330 to 900 mm, with rainfall concentrated in a short period that rarely exceeds four months. The caatinga was deforested at a rate of 0.28% per year (2,352 km<sup>2</sup> /year) between 2002 and 2008. Another problem that increases the vulnerability of family farming in the semiarid region is desertification. This is a complex phenomenon whose causes involve interactions between biophysical, socio-economic and demographic variables and which could be accelerated by projected climate change. Depending on the climate scenario considered, areas with high susceptibility to desertification could increase by between 12.3% and 19.6% by 2045.
- 2.10 Rainfall totals are higher in the Atlantic Forest, ranging from 1,300 to 1,800 mm per year. There is also a seasonality to the rainfall in the Atlantic Forest, with the wettest or 'winter' season generally extending from February to August. It is estimated that Paraíba's Atlantic Forest currently occupies only 13.8% of its original area in the region. The technical report "Atlas of Atlantic Forest Remnants - Period 2021-2022", published by the organization SOS Mata Atlântica, shows that deforestation is continuing in this biome (SOS-MATA-ATLÂNTICA, 2023). During this period, 20,075 hectares of this type of vegetation were lost, equivalent to 0.1% of its current area<sup>2</sup>. At the level of the Brazilian Atlantic Forest, current deforestation varies between 11,000 and 25,000 hectares per year, which is equivalent to an annual deforestation rate of between 0.05 and 0.125%. Although this may seem relatively small and is considerably less than that which occurred in the period from 1985 to 2000, it is still a cause for great concern.

### **2.1.3 Inefficient production systems**

- 2.11 According to the 2017 Agricultural Census, there were 163,218 agricultural establishments in the state. Of these, 125,489 (76.9%) were family farms, while 37,729 (23.1%) were non-family or patronal. Approximately 12% of family units belong to Agrarian Reform settlers. Family farming occupies 42% of the state's agricultural area and is responsible for 47.8% of the total value of agricultural production, which is the second highest proportion in the Northeast and the sixth highest nationally. In the Atlantic Forest region, 20.16% of the area is occupied by family farms, while it reaches 50.75% in the Semiarid region of Paraíba.
- 2.12 Agricultural production is the main economic activity of most of the rural population in general and, in particular, of family farming. The 2017 Agricultural Census highlights the

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<sup>2</sup> Currently, there are approximately 20 million hectares of Atlantic Forest in Brazil, according to the SOS Atlantic Forest Atlas 2017. (SOS-MATA-ATLÂNTICA, 2017).

following productions for their contributions to the value of production: i) poultry, cattle, goats and sheep account for 92% of the value of livestock; ii) of the permanent crops, bananas, passion fruit, Paraíba coconut and tangerines are the main productions in terms of value, and iii) pineapple, corn, cassava and sugar cane are the most important temporary crops. Family farming in Paraíba faces very severe and challenging conditions, especially in the semiarid region, which include low income, low productivity in farming activities, difficulties in accessing water for human consumption and production, and high risk related to climatic events. To increase the production, productivity and income of family farming, it is necessary to resolve obstacles related to the lack of access to financing to make the necessary investments, technical assistance and rural extension that supports the learning of new technologies, difficulty in accessing markets and inserting producers into value chains, which in turn is related to the weakness of rural organizations. According to the 2017 Agricultural Census, only 11.7% of agricultural establishments have access to water for irrigation. In addition to the low productivity of agricultural activities that depend on the availability of water, there is the use of unsuitable production techniques. For example, 32% of family farming establishments use pesticides, and 39% do not adopt any conservation practices (IBGE 2017). In the case of mechanization, for every 130 farmers, 1 has the support of a tractor, seed drill, etc (IBGE 2017). Less than 1% of the family farming establishments applied lime or another soil pH corrector (IBGE, 2017). 67.4% of family farming establishments have implemented soil preparation systems.

- 2.13 The data from the 2017 Census shows that the majority (53%) of the producers responsible for the establishments are over 55 years old. Less than 10% are under the age of 35. These figures follow a national trend of a shrinking percentage of young people in rural areas, while the rural population is getting older. This situation highlights the challenges of providing opportunities and prospects for young people and, at the same time, conditions for the older population to maintain an agricultural activity and quality of life. This data, when added to the data on very low mechanization (see data below), can create obstacles to achieving greater productivity.

#### **2.1.4 Land structure**

- 2.14 In the state, 54% of establishments have up to 5 hectares and of these, 13% have less than one hectare, which characterizes extremely small areas for agricultural production, especially when considering the semiarid climate. Furthermore, around 15% of family farming establishments do not have guaranteed access to land (IBGE 2017).

#### **2.1.5 Climate change and environmental degradation**

- 2.15 Climate change is causing significant losses in the productivity of some important crops for family farmers, such as cassava, beans, bananas and corn. Paraíba is among the states most at risk of losses, along with Ceará, Piauí and Pernambuco.
- 2.16 Production systems are largely not adapted to the increasing scarcity of water or to the context of climate change. The combination of expectations of high drought risks, increased desertification and more heat extremes could jeopardize agricultural activities, especially those of family farmers, and disrupt local and regional food markets.

- 2.17 In the Atlantic Forest region, climate risks are more related to extreme rainfall events, such as floods and landslides. Agricultural production will be affected by reduced product quality, crop losses due to increased occurrence of diseases and soil erosion. These problems are compounded by poverty and the target population's limited access to public policies aimed at reducing their vulnerability to climate change.
- 2.18 There is also a major problem of soil degradation, due to the use of unsustainable practices on cultivated land, such as the systematic use of slash and burn, which have resulted in greater exposure of soils to the elements (SOS-MATA-ATLÂNTICA; INPE, 2015). In turn, the intense antropozonization of the environment mentioned here has had a significant impact on the water cycle. Thus, deforestation leads to a decrease in water infiltration and greater erosion. This has reduced the flow of water and led to the silting up of the region's watercourses (BRASIL-MDA-SDT, 2010), reducing the availability of water in the region (SILVA; BRUNO; AGUIAR; SOUSA FILHO *et al.*, 2020). In addition, the combination of the processes mentioned here has a significant negative impact on biodiversity. In a long-term perspective, the sum of these factors (including predicted climate change) is expected to lead to more frequent "extreme" events (e.g. droughts and floods), which could trigger a significant loss of environmental quality. This, in turn, will have a direct effect on the productive potential of agricultural systems and on the population's quality of life.

#### **2.1.6 Inadequate and insufficient TA system**

- 2.19 Only 17% of family farming establishments in Paraíba have access to the TA service (IBGE 2017); 83.4% report that they receive it from the government (federal, state or municipal). In addition to this low coverage rate, there is a lack of preparation and qualification of technicians from the point of view of knowledge of agroecological practices, which allow production systems to adapt to climate change, among other aspects (Information gathered during the field design mission). Without the support of qualified professionals, farmers are prevented from implementing more intensive, sustainable and efficient agricultural practices, as well as adapting to climate change and the challenges of market access and access to finance. It is important to relate this data to the profile of the producers, since in 2017 (IBGE), in 47.4% of the establishments that reported applying pesticides: the person responsible could not read and write and in 80.4% of the cases, the pesticide applications were carried out without any technical guidance. Regarding credit, 17% of family farming establishments reported having had access to it in 2017.

#### **2.1.7 Mechanization**

- 2.20 In the family farming establishments, most agricultural operations are carried out manually. Data from the 2017 Agricultural Census shows that only 0.8% of the farms in Paraíba have at least one type of machinery. The machinery used and implements are not always adequate or used appropriately. This lack of mechanization and the low availability of labour constitute a set of limiting factors for developing more efficient and relevant practices.

### **2.1.8 The challenge of digital inclusion**

- 2.21 Access to rural telephony and, above all, the Internet is scarce in rural areas. According to studies by the Ministry of Agriculture and Livestock (MAPA), currently more than 70% of rural areas nationwide do not have access to the Internet<sup>3</sup>.

### **2.1.9 Low participation Specific difficulties for vulnerable groups (women, young people, LGBT people and residents of traditional communities)**

- 2.22 Data from the latest Agricultural Census of 2017 (IBGE) shows gaps in relation to vulnerable groups:
- 2.23 Of all the family farming (FF) establishments in Paraíba, 76.0% are run by men and only 24.0% by women. Among family farming FF establishments, 64.0% are run by people who say they are black or brown, 11.3% by young people under 35 and 0.9% by indigenous people.
- 2.24 Regarding average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.12 hectares, those run by men have an average of 12.86 hectares. Of the family farming establishments in the Project area that have access to water for irrigation, 6.7% are run by women, while 13% are run by men.
- 2.25 Among female family farmers, 4,486 received TA (14.9% of the total), while 16,637 male family farmers (or 17.4% of the total) received TATA.
- 2.26 In the Single Registry, there are 6,328 indigenous families registered, 73.1% of whom live in poverty or extreme poverty, and there are 4,295 quilombola families registered, 67.9% of whom live in poverty or extreme poverty.
- 2.27 Considering the families of artisanal fishers, 80.7% of them are in extreme poverty or poverty. This is a gap of 12.4% in relation to the poverty/extreme poverty situation of all registered rural families.
- 2.28 Finally, among riverine families, 72.6% are in poverty or extreme poverty, a gap of 6.5% compared to rural families in the Project area.

### **2.1.10 Limited participation in collective organizations**

- 2.29 Only 3.7% of rural producers in the state are members of a cooperative and 29.4% are members of an association (IBGE 2017).
- 2.30 Enterprises for packaging, processing and marketing the products have also encountered many difficulties. There are around 8,700 processing units in the Project area (IBGE 2017). According to MDS 2018, there were 77 enterprises registered in the northeastern region of Brazil and able to offer their products to government buyers. Of these, only 7 are from Paraíba (10%).

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<sup>3</sup> Source: Link - <https://www.gov.br/agricultura/pt-br/assuntos/inovacao/agrohub-brasil/produtores-rurais/internet-no-campo-1/internet-no-campo>.

### 2.1.11 Family Farming Cooperatives

- 2.31 The cooperative-type economic organizations present in the state focus on the collection, processing and marketing of production, with milk (bovine and caprine) and fruit being the main chains involved.
- 2.32 These organizations have weaknesses in terms of the capacities of their management teams, on issues such as i) administrative and financial, including access to sources of working capital funding, ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people, among other weaknesses. These organizations also have important limitations from the point of view of their production infrastructures, which do not always allow them to diversify their products, comply with health and environmental legislation and do not use renewable energy sources in their processes, nor do they carry out adequate waste treatment.
- 2.33 This set of factors ends up limiting these organizations' ability to function and their viability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, intermediaries predominate. Family farmers have limited marketing channels, dependent on local sales. According to FNDE data, Paraíba's PNAE received only 2% of the program's total resources in 2022. In relation to the Northeast, this result puts the state only ahead of Sergipe, Rio Grande do Norte and Alagoas. It is worth noting that the PNAE is an important means of marketing UAF products.

### 2.1.12 Basic Sanitation

- 2.34 Article 3 of Law no. 14.026/2020 considers Basic Sanitation to be a set of public services, infrastructures and operational facilities for: i) drinking water supply, consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the public supply of drinking water, from collection to building connections and their measuring instruments ; ii) sanitary sewage (collection, transportation, treatment and adequate final disposal of sanitary sewage) and iii) urban cleaning and solid waste management (collection, transportation, transshipment, treatment and environmentally appropriate final disposal of household solid waste).
- 2.35 Regarding drinking water supply in the state, the Water and Sanitation Institute reports that in 2019, the rural service rate reached 24.16 % (in Brazil, the rate is 30.77%), through the implementation of systems with a distribution network and simplified chlorine disinfection treatment, guaranteeing the potability of the water. In other situations, fountain-type systems are implemented, without a distribution network, with chlorine disinfection treatment. Finally, when there is no possibility of implementing one of the above solutions, the construction of cisterns for human consumption becomes the only alternative.
- 2.36 As for the sanitary sewage situation, the rural service rate in Paraíba is 18.82% (Instituto Água e Saneamento, 2020), significantly below the national average of 42.54%. It is worth mentioning that this percentage is 1.04% in the costal micro-region, showing the great precariousness of this region of the state. Most of the sewage is covered by septic tanks and/or sinks, but the treatment units have no control over the disposal of sewage effluent, either on the ground or in water bodies, making it yet another polluter of the environment

and contributing to the factors that increase climate change. In addition, some of these septic tanks are of the black tank type, where the sewage is dumped directly under ground. In these areas it is common to find sewage running out into the open and houses without toilets.

- 2.37 This set of vulnerabilities, coupled with climate change, puts the region's production systems in crisis and in a vicious circle, in which the processes of social and environmental degradation fuel the impoverishment of rural families and increased migration to urban areas.

## **2.2 Project Strategy**

- 2.38 Project strategy. The challenges of environmental deterioration and deforestation in Paraíba's Atlantic Forest, the predominance of inadequate and low-productivity agricultural production models, low income, food insecurity and rural families' inadequate access to public services and institutional weaknesses are strongly interlinked. The Project will focus its activities on poor communities, prioritizing women, young people and traditional communities, and will apply a multidimensional approach, promoting the adoption of sustainable production technologies based on agroecology and improving food production, adaptation to climate change, access for families to technical assistance, drinking water services and adequate sanitation and better accessibility for communities, as well as strengthening institutional capacities.

### **3 PROCASE II (PROJECT)**

#### **3.1 Objectives**

##### **3.1.1 General Objective**

- 3.1 The general objective of the Project is to reduce rural poverty levels by improving food security and nutrition and adapting the rural population to climate change.

##### **3.1.2 Specific objectives**

- 3.2 The specific objectives are: (i) to increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change; (ii) to improve the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities; and (iii) to improve the environmental conditions of rural communities and their surroundings.

##### **3.1.3 Project description<sup>4</sup>**

###### **3.1.3.1 COMPONENT I - RESILIENT PRODUCTION SYSTEMS TO REDUCE RURAL POVERTY.**

- 3.3 The purpose of this component is to improve income, food security and nutrition and the adaptation of production systems to climate change, as well as protecting the natural resource base. To achieve the expected results, it will finance plans to improve the production and marketing of beneficiaries, recover environmentally degraded areas and strengthen the capacities of families and their organizations, as well as technical assistance for their preparation and implementation.

###### **a) Subcomponent 1.1 Implementation of resilient and biodiverse production systems**

- 3.4 The subcomponent seeks to strengthen and adapt production systems based on the use of agroecological practices and low GHG, seeking greater resilience and allowing for improved and diversified production of healthy food for self-consumption and the market.
- 3.5 Preparing the PIR begins with choosing the communities (see process in Annex 1) that will be part of the Rural Territories (TR) and carrying out the Rapid Participatory Rapid Diagnosis (RPD) in the selected communities, with the support of TA hired by the PMU. These events should be planned in advance together with the community to facilitate the participation of women, young people, PCTs and other stakeholders at local, municipal, regional and state level who can collaborate with the preparation of the Plan (data, information, etc.) since this document will be the reference for the actions that PROCASE II will implement in the community.

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<sup>4</sup> The communities that will participate in components 1 and 2 of the project will be selected in three stages as detailed in Annex 1

- 3.6 The diagnosis should lead to the preparation of a PIR containing, among other things: (i) a detailed diagnosis of existing natural and human resources; (ii) a diagnosis of productive and social infrastructure (strengths and deficiencies); (iii) a diagnosis of social organization, associations and production and marketing cooperatives; and (iv) strategies and activities proposed to contribute to PROCASE II goals; (v) prioritization of proposed activities and their estimated costs. The PIR finances three areas of intervention: i) Production and commercialization ii) Environmental and iii) Social Technologies.
- 3.7 **Production and commercialization axis:** The aim will be to develop productive systems at the family level, always based on the use of agroecological practices and with a low impact on greenhouse gas emissions, such as: (i) agroforestry systems (AFSs) for diversified production; (ii) agroecological backyard gardens for the production of fruit, vegetables including NUCs and medicinal plants; (iii) beekeeping and meliponiculture; (iv) agroecological consortia for organic production including cotton; (v) goat farming for milk and meat with fodder AFSs; (vi) dairy cattle farming with fodder AFSs; and (vii) free-range poultry farming with fodder AFSs. The list is not exhaustive and other activities may be considered if they are in line with the demands of the beneficiaries and the objectives and criteria of the Project. It is important to mention that in the case of support for cattle breeding, the Project's strategy will be to support dairy production exclusively (it will not be possible to support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, except for the purchase to replace breeding stock. This axis will also strengthen the capacity to market production in the various channels accessible to families (local fairs, PAA, PNAE, local commerce, etc.) and relevant to the beneficiaries.
- 3.8 **Environmental Axis:** Focuses on managing and restoring the environment in the Local Territories, whether or not associated with the activities of the PIR's Production Axis, to encourage the implementation of territorial environmental activities, by financing activities such as: i) Casas de Sementes da Paixão <sup>5</sup> ; ii) setting up nurseries with a focus on the production of native species; iii) reforestation, recovery of permanent preservation areas (such as springs, riparian forests, areas with a slope of more than 45°, etc.); iv) recovery of degraded areas; v) soil protection activities; vi) recycling or composting plans, etc.; vii) environmental education activities and new practices.). The activities of the Environmental Axis may derive from the Environmental and Social Management Plans (ESMP), which will be drawn up at the same time as the diagnosis of each PIR. Synergies and complementarities will be sought with the activities and competencies of SEMAS (Secretariat for the Environment and Sustainability), AESA (Executive Agency for Water Management), the State Environment Superintendence (SUDEMA), the National Semi-

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<sup>5</sup> In Paraíba, several civil society organizations have organized themselves in recent years to support community initiatives around the preservation and dissemination of transgenic-free Creole seeds, known as Sementes da Paixão (Seeds of Passion).



Arid Institute (INSA), Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Empresa Paraibana de Pesquisa, Extensão Rural e Regularização Fundiária (EMPAER), Universidade Federal de Campina Grande (UFCG), Universidade Estadual da Paraíba (UEPB), and Universidade Federal da Paraíba (UFPB), among other institutions.

- 3.9 **Social Technology Axis:** Focuses on implementing social technologies at the family level by financing activities such as: i) second-water cisterns (agricultural production); ii) grey water reuse systems; and iii) trench dams (underground dams); iv) first-water cisterns (human consumption) and other household sanitation solutions; v) evapotranspiration basins; vi) access to energy for more sustainable domestic use, such as biodigesters; and (vii) eco-efficient stoves.
- 3.10 To be eligible for funding, the PIR must demonstrate economic viability<sup>6</sup> (internal rate of return equal to or greater than 12%). It must also demonstrate financial, technical, institutional and environmental viability. Finally, it must identify the Project's risks and the corrective measures to be adopted. Annex 2 details the process of preparing and carrying out the PIR.

#### **b) Subcomponent 1.2: Strengthening and diversifying commercialization**

- 3.11 This subcomponent aims to improve commercialization and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives. To this end, the selected organizations will have to prepare their respective Business Plans (PN) with the support of a Specialized Technical Assistance (STA).
- 3.12 To be eligible, the association or cooperative must be legally constituted and active for at least one year. Members/cooperators must be up to date with their obligations as set out in the organization's (association's/cooperative's) by laws. In addition, the cooperative member/member must: (i) be a rural producer with the profile established by PRONAF; (ii) exploit the land as an owner, squatter, lessee, partner or concessionaire under the National Agrarian Reform Program; (iii) live on the property or nearby; (iv) have an area of no more than 4 fiscal modules (06 fiscal modules in the case of livestock activities); and (v) have family work as the basis for exploiting the establishment.
- 3.13 Preparation of the Plan will begin with a diagnosis of the organization (productive, organizational, financial, human resources, relations with members, etc.). In addition, the *Participatory Rapid Diagnosis* methodology will be applied with the direct participation of rural producers and their representatives, the Project's technical team, the organization's leaders and other local stakeholders. At this event and throughout the activity planning process, SEAFDS will make available a set of systematized secondary information from the Project area on predominant production activities, available infrastructure, projects

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<sup>6</sup> For economic analysis purposes, self-consumption can be considered as a benefit.

underway that can complement the activities, associations and cooperatives operating in the vicinity, existing civil society organizations, quilombola communities, the number of families participating in federal and state social assistance programs and other information relevant to the development of the PN. In this rapid and participatory diagnosis, rural producers working in the community will be identified, looking mainly at: the production activities carried out, ways of organizing production and marketing, whether or not they participate in associations and cooperatives, the geographical area in which they operate, the infrastructure available, technical assistance and support from governmental and non-governmental programs.

- 3.14 The gathered information will serve as input for prioritizing investments. When drawing up the Plan, the weaknesses and strengths of the organization and its members should be taken into account, including aspects such as: existing potential in the region/community and possibilities for using the products identified; problems primarily associated with production (quality and quantity), causes and solutions; predominant production arrangement(s) among members, in the municipality and in the region (number of rural producers involved with a focus on the priority public, organizations, infrastructure and marketing); production activities carried out by women, young people, quilombolas and PCT. The PNs should enable the implementation of competitive mechanisms, geared towards innovative and environmentally sustainable solutions, to strengthen marketing in networks and cooperative centers. Whenever possible, cooperation and alliances with the private sector should be sought.
- 3.15 The Business Plan (PN) can finance: (i) the establishment of producer organizations, including producer associations, cooperatives or cooperative centers based on production chains; (ii) the creation of appropriate skills for structuring primary production to meet market requirements, the physical structuring of processing units; (iii) the construction and/or adaptation of existing physical storage, processing and/or processing structures (fruit processing, honey, cassava processing houses, cocoa processing, slaughterhouses, etc.); (iv) investments to comply with current health and environmental legislation; (v) support for the development of strategies, efficient and transparent management processes and other economic organizations.); (iv) investments to comply with current health and environmental legislation; (v) support for efficient and transparent management processes in cooperatives and other economic organizations; (vi) support for drawing up strategies, marketing plans and their implementation; (vii) strengthening marketing at local and regional level through participation in municipal fairs, mini-markets, etc.(viii) support for strengthening marketing in the municipal and state institutional market; (ix) support for organic and agroecological certification processes, labels of origin, the Atlantic Forest Zone sustainable products label, the Family Farming label, the Brazil Indigenous label and the Quilombola label. Support for the inclusion of young people, women and quilombola

and traditional communities will be a cross-cutting activity and should be considered when preparing Business Plans.

- 3.16 The PN may include, among other things, the purchase of materials, equipment and inputs; the hiring of STA) and/or TA for production, management and sales for up to 3 years; the hiring of specialized consultants on specific topics; small works (up to a maximum of 15% of the total cost of the PN).
- 3.17 To be eligible for funding, the PN must demonstrate economic viability<sup>7</sup> (internal rate of return equal to or greater than 12%). It must also demonstrate financial, technical, institutional and environmental viability. Finally, it must identify the Project's risks and the corrective measures to be adopted. Annex 3 details the process of preparing and implementing the NP.

### **c) Subcomponent 1.3: Incentives for Innovation**

- 3.18 The Subcomponent will finance innovation initiatives developed specifically for family farming systems, such as tools for agroecological practices, machinery for small-scale agro-industries, biotechnologies aligned with the concept of resilient or low-carbon production systems, etc.
- 3.19 PROCASE will fund the development of initiatives (which could be small 'backyard' companies, research groups, experimenting farmers, among others) aimed at creating products and technologies tailored to the local context, such as machinery adapted to small producers and equipment for processing and adding value (priority themes). The Project will also fund innovations in secondary themes, such as products derived from native/traditional species, bio-inputs (soil nutrition, bio-insecticides), efficient water management technologies, solid waste treatment, etc.
- 3.20 The choice of innovation initiatives should take into account a number of factors such as:
  - i) Social Criteria: The innovation should seek to have a positive social and environmental impact, for example by aiming for low prices for farmers and fair pay for workers;
  - ii) Right to repair: Machinery, implements and equipment must be designed in such a way that they are easily repairable using accessible technologies and with easy replacement of parts, thus preventing the user from being forced to buy a new copy;
  - iii) Economic Sustainability: The entity must prove that there is a demand for its service/product in the long term;
  - iv) Environmental Sustainability: The entity must show that its product/service does not generate significant environmental impacts (GHG emissions, waste, etc.);
  - v) Local Impact: Team members come from the Project regions;
  - vi) Traditional/Ancestral Knowledge: Valuing and integrating indigenous and traditional/ancestral knowledge and technologies;

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<sup>7</sup> For economic analysis purposes, self-consumption can be considered as a benefit.

and vii) Focus on young people and women: 50% quotas for women and 50% quotas for young people are suggested, with 50% of youth places reserved for women.

- 3.21 The selected projects will receive: i) non-reimbursable funding of up to US\$ 50,000 (R\$ 300,000); ii) technical assistance; iii) business and market-oriented mentoring; iv) development of business plans; v) support with Design and Visual Communication; and vi) networking and partnership opportunities. Annex 4 details the preparation and execution process for the subcomponent Incentives for innovation .

### **3.1.3.2 COMPONENT 2: ORGANIZATIONAL STRENGTHENING, CAPACITY BUILDING AND KNOWLEDGE MANAGEMENT**

- 3.22 The purpose of this Component is to strengthen the individual and collective capacities of family farmers and their organizations, necessary to increase the adoption of agricultural technologies that promote greater resilience in their systems, to improve productive and social inclusion, as well as the environmental and land conditions of rural communities and their surroundings.

#### **a) Subcomponent 2.1 - Strengthening family farmers' capacities**

- 3.23 The component is focused on strengthening the capacities of beneficiary families and community organizations, considering the weaknesses identified in various areas, with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations.
- 3.24 It will finance the hiring of agroecological technical assistance services (TA) to carry out activities aimed at increasing the beneficiary families' access to adequate, quality information. The main themes to be addressed by TA will be the development of more profitable, diversified and resilient agricultural production, the protection and recovery of environmental resources and the improvement of organizational management. It will also seek to integrate them more closely into different value chains in the region, with initiatives to support processing and marketing. And finally, the subcomponent will seek to strengthen the TA teams contracted to ensure the good quality of this service.
- 3.25 **Provision of agroecological TA services in the communities.** With a focus on strengthening family units and communities, this will be done by providing agroecological TA services in the communities selected to benefit from the Project. All PIR beneficiary families and the corresponding organizations will receive TA services. At the same time, the TA teams will have to assist the families on access to public policies, starting with access to the CAF (National Family Farming Register)<sup>8</sup> , which is the basic instrument without which farming families cannot access any public policy intended for them, and

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<sup>8</sup> The CAF replaces the previous equivalent document, the old DAP (Declaration of Aptitude to PRONAF).

access to or regularization of the Single Registry, which is also the entry point for other complementary public policies. They will also have to support the registration regularization needed to access other programs such as PNAE and PAA. The communities/families will be encouraged to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the work plans and business plans it supports. The process described will also seek to create opportunities for cooperation with the private sector, the S System<sup>9</sup>, the third sector and municipalities.

- 3.26 **Complementary training/exchange events for farmers, including association leaders.** Funds the organization of training events that are complementary to the capacity-building work carried out by TA entities in the communities. In particular, it will be essential to hold a series of training events on management, with an emphasis on the management of collaboration or development agreements, for the management teams of community associations, with the aim of ensuring that these agreements are properly executed and accounted for. There will also be training events in environmental education, focused on reinforcing agroecological practices, climate resilience, community management of natural resources and sustainable use of conservation areas, as well as knowledge exchange activities between farmers from the communities benefiting from the Project.
- 3.27 **Events to improve TA teams.** This includes the training of existing TA providers, which will need to be addressed<sup>10</sup>. Thus, all the technical teams contracted under PROCASE II will have to undergo training throughout the implementation of the Project to ensure that they have the necessary knowledge to achieve the desired objectives.
- 3.28 **Training family farmers in public policies.** The main instrument of this line of action will be 400 training events in the different territories of the state. These events will deal with the main existing public policies for Family Farming, including PRONAF, Low Carbon Agriculture and Crop Insurance, rural worker documentation and civil birth registration programs, public procurement programs such as PNAE, PAA, PAA Milk, land access programs for young people (PNCF), access to water (P1MC and P1+2), the Rural Development program and state programs, such as the State Seed Distribution Program.

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<sup>9</sup> The S System is a group of 9 Brazilian private companies (all of which start with S) that provide services in the public interest related to the main sectors of the economy.

<sup>10</sup> We will highlight the shortcomings identified in the following areas: i) in the methodological dimension, it will be necessary to improve the participatory approach in the planning and implementation of investment plans and in the processes of acquiring new knowledge on the part of the families served; ii) in the technical dimension, improving the knowledge of TA entities and teams about innovations designed under the agroecological approach to improve production performance, environmental sustainability and adaptability to climate change of the production systems of families in the different regions of the state; iii) in the economic sphere, expanding knowledge about markets and the processes for accessing them; iv) in operational terms, in general the teams need to develop greater mastery of and use of digital tools in the practice of ATER, with an emphasis on carrying out the tasks of monitoring and evaluating the work carried out.

These events will provide more detailed information on the characteristics of each of these policies, including aspects such as eligibility rules and access mechanisms and, where relevant, the accountability process. In addition, specific events will be held to facilitate access to public policies, such as documentation drives, updating the Single Register, etc. Local teams from town halls, NGOs, public rural extension agencies, rural workers' unions and other social movements, etc. will also be trained. Annex 5 details the process of preparing and implementing this Subcomponent.

**b) Subcomponent 2.2 - Strengthening organizations' commercialization capacities**

3.29 The focus of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) served by the Project. Groups/organizations of farmers will also be worked with to create or strengthen local fairs and small marketing centers. In the context of improving marketing conditions, the Project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories / 'consortia of municipalities'.

3.30 To achieve these objectives, the subcomponent will use the following main instruments: (i) the provision of STA, focused mainly on preparing and monitoring the implementation of Business Plans; (ii) various types of training events will be organized (workshops, training courses, technical visits, exchanges, etc.) which will strengthen the capacities of the organizations in areas such as management (including Project management), good production, marketing and commercialization practices, environmental compliance and other topics. Work will also be organized to encourage access to short marketing chains (street markets, Solidarity Economy Centers) and another to strengthen organizations on the subject of creating and/or strengthening health inspection services. Annex 6 details the preparation and implementation process for this Subcomponent 2.2.

**c) Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security**

3.31 This sub-component will focus on promoting the empowerment of women, young people, PCTs, LGBTQIABP+ and Persons with Disabilities, as well as improving the nutrition and food security of beneficiary families. The activities will work with the Project's cross-cutting themes, strengthening and supporting the integration of these themes in all the components.

3.32 It will fund activities aimed at transforming unequal power relations shaped by patriarchal and exclusionary structures, norms and practices, as well as empowering women, Afro-descendants and PCTs, the LGBTQIAPN+ community and persons with disabilities. The following transformation paths will be followed: i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development, ii) address the issue of women's overload due to domestic and care work by promoting a fairer division of the workload between men and women, iii) empower target groups to have a greater voice and decision-making power in rural institutions and

organizations, iv) promoting advocacy in policies for women, youth and PCTs, v) preventing gender-based violence, v) valuing traditional knowledge, practices and ways of life in production, food and natural resource management and vi) promoting the inclusion of the LGBTQIAPN+ community and people with disabilities, seeking to strengthen them, promote their leadership and respect for their rights. Annex 7 details the preparation and implementation process for this Subcomponent 2.3.

**d) Subcomponent 2.4 - Land and Environmental Regularization**

- 3.33 This subcomponent focuses on land and environmental regularization of rural properties to mitigate the scenario of legal insecurity and the possibility of state sanctions or difficulties in accessing productive inputs due to non-compliance with legislation.
- 3.34 This sub-component will be carried out by the Paraiba Research, Rural Extension and Land Regularization Company (EMPAER). It will finance all the costs associated with regularization, such as aerophotogrammetry, surveying and measuring services, notary fees, etc. Annex 8 details the process of preparing and implementing the Land and Environmental Regularization Subcomponent.

**e) Subcomponent 2.5 - Knowledge Management and South-South and Triangular Cooperation**

- 3.35 The sub-component focuses on developing and implementing a knowledge management process capable of generating, recording, sharing and using the knowledge generated in the Project. It will also seek to feed the Project implementation process with relevant information and knowledge. To this end, the following activities will be financed:
- 3.36 **Systematization of experiences, good practices and results and studies of interest to the Project on specialized topics:** The Project's interventions will be subject to participatory and qualitative evaluations of their results and those with a proven impact will be selected to be systematized, with the appropriate methodology for this process, and will be disseminated as a reference for good practices. Systematization can lead to different products such as written documents, videos, podcasts and others. In addition to systematization, specialized studies will be commissioned.
- 3.37 **Communication and Dissemination in Knowledge Management.** The dissemination of accumulated knowledge is the central idea of KM. Communication activities are a means of ensuring ownership of the activities, results and knowledge generated in the implementation of the project among stakeholders and can even lead to the creation of new knowledge. The dissemination of knowledge products allows innovative practices, lessons learned, etc., to be accessed by the public.
- 3.38 **South-South and Triangular Cooperation Actions (SSTC):** Ten SSTC events will be organized, which may cover topics such as technical exchanges and policy dialogues. One or more of these events may take the form of SSTC learning routes, so that partners can

learn about the experiences and lessons learned from the implementation of the Project, and so that beneficiaries, technicians and project managers can learn from good practices implemented in other countries or in other regions of Brazil. The Project will maintain a close relationship with the IFAD Center for Knowledge and South-South and Triangular Cooperation, located in Brasilia and with a regional mandate for Latin America and the Caribbean, which will be able to support knowledge exchanges with other IFAD initiatives in Brazil and Latin America through SSTC activities. Annex 9 details the preparation and implementation process for Subcomponent 2.4.

### **3.1.3.3 PROJECT MANAGEMENT, MONITORING AND EVALUATIONS**

#### **a) Project Management**

- 3.39 It will finance equipment, consultancies and other expenses for (i) project administration and management, (ii) monitoring and evaluation (M&E) activities and (iii) audits.
- 3.40 The Project will finance the management, monitoring, evaluation and auditing costs incurred in carrying out the Project.
- i) Project execution management. This includes the costs of administration, management and supervision of Project execution incurred by the PMU and the Project's Regional Units in the territories. It also includes hiring consultants to make up the PMU and other non-consultancy services, payment of per diems and travel, rental of vehicles and premises, among others.
  - ii) Project Management Support. It is planned to hire IICA to provide contracting and administration services for the human resources allocated to the PMU, as well as to carry out some contracting of services and acquisitions related to Project management.
  - iii) Materials and Equipment. This covers the cost of purchasing materials, equipment, vehicles, furniture and computer systems (software and hardware) and contracting small office fit-out works to accommodate the teams working on the project.

#### **b) Monitoring implementation**

- 3.41 This includes the cost of hiring a company to provide IT services to improve the SIGMA system currently used by SEPLAN.

#### **c) Auditing**

- 3.42 Project audit. Considering that the audit of the Project execution would be carried out by the Court of Auditors of the State of Paraíba (TCE), as in other projects, no funds were allocated for the hiring of an auditing firm required by the Financing Organizations. In the event that the TCE is not acceptable to the Bank (after assessing its capacity), the PMU will have to hire a consultancy firm in accordance with the Bank's standards and will be paid from the Project's management support resources.



## 4 Costs and Financing

3.43 The total cost of PROCASE will be US\$ 105 million, of which US\$ 70 million will be financed by an IDB Ordinary Capital (OC) loan, US\$ 10 million by an IFAD loan and the remaining US\$ 25 million will come from local contributions. Table 2 below shows the PROCASE II financing matrix by Component and Subcomponent.

**Table 2**  
**Project Budget by Component (US\$ 000)**

<b>Project Cost by Component</b>					
<b>(Values in thousand dollars)</b>					
Component/Subcomponent	IDB	IFAD	LOCAL	Total	(%)
1. Resilient production systems to reduce rural poverty	42 277.3	6 039.6	15 099.1	63 416.0	60.4%
1.1: Implementation of resilient and biodiverse production systems	37 610.7	5 373.0	13 432.3	56 416.0	53.7%
1.2: Strengthening and diversifying commercialization	4 000.0	571.4	1 428.6	6 000.0	5.7%
1.3: Incentives for innovation	666.6	95.2	238.2	1 000.0	1.0%
2. Organizational strengthening, capacity building and knowledge management	20 868.6	2 981.2	7 453.0	31 302.8	29.8%
2.1: Strengthening family farmers' capacities	13 501.9	1 928.8	4 822.1	20 252.8	19.3%
2.2: Strengthening organizations' commercialization capacities	1 553.3	221.9	554.8	2 330.0	2.2%
2.3: Diversity, gender, youth, nutrition and food security	3 066.7	438.1	1 095.2	4 600.0	4.4%
2.4: Land and environmental regularization	1 333.3	190.5	476.2	2 000.0	1.9%
2.5: Knowledge Management (KM), South-South and Triangular Cooperation (SSTC)	1 413.3	201.9	504.8	2 120.0	2.0%
3: Project management, monitoring and evaluation	6 854.1	979.2	2 447.9	10 281.2	9.8%
3.1: Project management unit	5 987.4	855.4	2 138.4	8 981.2	8.6%
3.2: Monitoring and Evaluation	866.7	123.8	309.5	1 300.0	1.2%
<b>TOTAL</b>	<b>70 000.0</b>	<b>10 000.0</b>	<b>25 000.0</b>	<b>105 000.0</b>	<b>100.0%</b>
(%)	66.7%	9.5%	23.8%	100.0%	

### 4.1 Deadline

3.44 The execution period (last disbursement) for PROCASE will be six years from the signing of the Loan Agreement with the IDB and IFAD. To meet this deadline, the resources earmarked for subcomponents 1.1.2 (PIR), 1.2.2 (PN) and 2.1.2 (TA) must be committed within the first 3 years of the Loan Agreement. This deadline must be met so that the

families benefiting from the **PIR, PN** and TA can complete the relevant works and have at least 3 years of TA support. The deadline for financial closure of the operation will be 90 days from the date of the last disbursement. On this date, the final accounts must be submitted and/or the loan funds disbursed and not justified must be returned. The deadline for submitting the final audit report will be 120 days from the date of the last disbursement.

#### **4.2 Direct beneficiaries of PROCASE II**

- 3.45 The Project's beneficiaries will be approximately 60,000 families (210,000 people) living in rural communities (24% of the total in the Project area), especially in municipalities with a lower Human Development Index (HDI) and greater deprivation. This number includes: i) 18,000 families benefiting from Resilient Investment Plans (PIR); ii) 5,000 families who are members of cooperatives and other economic organizations benefiting from Business Plans (PN); iii) 5,000 families benefiting from land and environmental regularization of their properties; and iv) more than 32,000 people with greater capacity to access public policies and programs. More than 30,000 women, 12,000 young people and 1,300 PCTs will be strengthened. It is expected that women-headed families will make up at least 50% of the beneficiaries in the PIR and PN.

#### **4.3 Impacts and Expected Results**

- 3.46 In the long term, the Project foresees: (i) a 20% reduction in the incidence of poverty or extreme poverty among the direct beneficiaries; (ii) a 20% increase in the minimum dietary diversity of the direct beneficiaries; (iii) the preservation of biodiversity in an area of 547 hectares. It also provides for a reduction of 749,637 tCO<sub>2</sub>-eq (tons of greenhouse gas emissions) over 20 years. The impacts, results and expected products are detailed in the Results Matrix (Annex xx) of this ROP.

## 5 PROJECT IMPLEMENTATION

### 5.1 General Execution Scheme

- 4.1 The State of Paraíba will be the Borrower of the loans to be taken out with the IDB (Contract No. xxxxx/OC-BR) and IFAD (Contract No. xxxxxx) for the purpose of financing the Paraíba Rural Sustainable Development Project (PROCASE II). The Federative Republic of Brazil will be the guarantor of both financial obligations contracted by the State of Paraíba (Borrower). The Executing Agency (EA) will be the Borrower, through the State Secretariat for Family Farming and Semiarid Development (SEAFDS). The Paraíba Research, Rural Extension and Land Regularization Company (EMPAER) will act as sub-executor, specifically in carrying out the land and environmental regularization activities of Subcomponent 2.4. SEAFDS will be responsible for the technical and fiduciary management of the Project through a Project Management Unit (PMU) to be created within its organizational structure by means of an Ordinance. The PMU will have a central office in João Pessoa and five territorial offices. The execution of PROCASE will be governed by the respective Loan Agreements (IDB and IFAD) and the Project Operational Regulations (ROP).
- 4.2 The PMU will receive the support of a specialized agency to carry out the hiring and administration of human resources and other services required to manage the Project. The Inter-American Institute for Cooperation on Agriculture (IICA) will be contracted for this purpose, in accordance with the IDB's procurement and contracting policy. This agency has supported the state executing other similar projects. SEAFDS will establish development agreements, cooperation agreements or other appropriate legal mechanisms with municipalities, Paraíba state agencies and other partners participating in the execution of the Project. Annex 13 shows the Project's organizational chart.
- 4.3 PROCASE will have a Management Committee (CGT) whose function will be carried out by the Productive Investment Executive Management Committee (CEGIP) in accordance with its Internal Regulations (See Annex XXX). The CEGIP will, among other things, be responsible for strategic planning, reviewing annual reports and approving the AWPB, approving Business Plans (PN) and Resilient Investment Plans (PIR) previously approved by the PMU's Project Analysis Committee (CAP). In addition, PROCASE will have Sustainable Territorial Development Committees (CODETER) in each Project territory, which will be a local body for the participation and local coordination of government actions with the participation of government and civil society organizations. They will fulfill an advisory role, serving as spaces for communicating the actions carried out by the Project and coordinating with other public or private sector actions taking place in the respective territories.

#### 4.4 Responsibility Matrix of the PROCASE II Implementation Bodies

##### **5.2 Project Management Unit (PMU)**

The PMU will be responsible for the general management and coordination of PROCASE II and will ensure faithful compliance with the Loan Agreements (BIDxxx and IFADxx) and the ROP. Among other things, the PMU will have the following responsibilities within the scope of Project execution:

- i. To be the sole interlocutor in formal communications with the Bank and IFAD;
- ii. Submit requests for disbursement and accountability (IDB and IFAD);
- iii. Present the Bank and IFAD with the Project's consolidated operational planning - Multi-Year Project Execution Plan (PEP), Annual Workplan and Budgeting (AWPB) and Financial Plan (FP);
- iv. Submit Progress Reports to the funders by the required deadlines;
- v. Carrying out supervision and monitoring and evaluation activities;
- vi. Monitor budget execution and obtain the necessary documents for financial records and proper accountability to the Bank and IFAD;
- vii. Ensure that the Project Operational Regulations (ROP) are fully applied;
- viii. Coordinate, manage and supervise the Project execution;
- ix. Ensure compliance with the conditions and agreements contained in the Project document and in the IDB Loan Agreement No. XXX and IFAD Loan Agreement No. XXXX and its Annexes, which finance part of the Project;
- x. Ensure compliance with the targets for gender equity, cultural diversity and inclusion of young people, PCTs and persons with disabilities, agreed with the Project's funders;
- xi. Guide and support beneficiary cooperatives and community associations in the implementation of their projects and plans (support for tenders, accountability, etc.)
- xii. Promote the Project in the area in which it operates;
- xiii. Having the planned Project activities carried out efficiently;
- xiv. Administering development agreements, contracts and similar instruments;
- xv. Drawing up the Project's Annual Workplan and Budgeting (AWPB) and submitting it to the CEGIP for approval; as well as the evaluation work and the submission of reports and reports required and
- xvi. Draw up the Project Procurement Plan (PP) and keep it permanently updated on the PMU website;
- xvii. Before starting the procurement process, ensure that it is included in the PP;
- xviii. Coordinating the preparation of the Project's annual budget proposal and following up on the approval process;

- xix. Collect and keep up-to-date physical, accounting, financial and internal control information related to the management of Project resources;
- xx. Keep adequate financial and accounting records to enable proper control of Project funding and counterpart funds and their use;
- xxi. Carry out all the necessary and sufficient activities for the procurement involved in the execution of the Project, applying the relevant IDB/IFAD and/or Public Administration policies and standards;
- xxii. Carry out, together with SEFAZ, all the activities necessary and sufficient to carry out the disbursement requests, applying the relevant IDB/IFAD and/or Public Administration policies and standards.
- xxiii. Monitor compliance with service contracts to identify any occurrences that may cause delays or distortions in the physical and financial progress of the Project and take or have taken the appropriate measures to correct the problems identified, within the scope of its competence;
- xxiv. Monitor and ensure the implementation of the socio-environmental measures included in the Project's Environmental and Social Management Plan (ESMP).
- xxv. Reporting to internal and external auditors;
- xxvi. Receiving, coordinating, monitoring and advising on external audit missions;
- xxvii. Identify problems, opportunities and corrective actions or improvements that ensure the efficient use of Project resources, the effective achievement of planned results and the effective attainment of expected impacts;
- xxviii. Prepare and submit all the required reports set out in this ROP (Chapter VI) by the deadlines set;
- xxix. Promote the participation of stakeholders in the evaluation of the partial results of the projects and progress during implementation;
- xxx. Always follow or enforce the procedures and policies agreed with the IDB and IFAD regarding procurement and others that may apply.
- xxxi. Hold regular quarterly meetings with the CEGIP to update them on the progress of PROCASE II. The PMU or a member of the CEGIP may request extraordinary meetings.
- xxxii. Analyze and approve the PIRs and PNs through the Project Analysis Committee (CAP); and
- xxxiii. Other activities linked to the general administration of the Project.

4.5 **Organizational structure of the PMU.** To fulfill its functions, the PMU will have a General Project Coordination (**CGE**), with two Coordination Offices: (i) Administration and Finance Coordination (**CAF**) for issues related to financial administration, preparation and signing of agreements or other legal instruments with the various stakeholders, procurement and contracting, accounting, information technology, general administration

and human resources; (ii) Technical Coordination (**CTE**) on issues related to the technical execution of the Project, including planning, supervision and monitoring; (iii) Operational Coordination 1 (**COP1**); (iii) Operational Coordination 2 (**COP2**). The Technical Coordination Office (**CTE**) will include: Legal Department (**AJU**); Environmental and Social Department (**AMS**); Gender, Youth and Diversity Department (**AGJD**); Communications Department (**ACO**); and Monitoring and Evaluation Department (**AM&A**). The PMU will also have 5 Territorial Units (**UTR**), located in the territories where the Project will be developed. The State Department of Finance (SEFAZ) will be in charge of issues related to loan disbursements (see organization chart in Annex xxx).

- 4.6 The **General Coordination of the PMU (CGE)** will be responsible for all the PMU's activities, including directing, organizing, supervising, monitoring, harmonizing the work of the various coordination bodies, seeking support from the SEAFDS structure when required, controlling management information and representing other state bodies and PROCASE stakeholders. It will be the Borrower's sole interlocutor with the IDB and IFAD on issues related to project execution.
- 4.7 The **Technical Coordination Office (CTE)** will be responsible for coordinating planning, including drafting/consolidating the AWPB proposals and updating the Procurement Plan (PP), supervising the works, monitoring and evaluating the Project and preparing periodic reports to be submitted to the Bank. In addition to these specific activities, the CTE will be responsible for providing specialized technical assistance to the participating entities and institutions; advising on missions from national and international entities or bodies; advising on inter-institutional issues and other matters necessary for the implementation of the Project. It will also be responsible for monitoring implementation and controlling the achievement of results based on the AWPB and the Results Matrix and for carrying out periodic evaluations, as well as evaluating the economic, social and environmental results and recording and making available to the public the successful and innovative experiences of the Project. In addition, it will be responsible for monitoring gender equity, cultural diversity and the inclusion of young people, quilombolas and traditional peoples carried out in the Project.
- 4.8 The Environmental and Social Coordination (CAS) will be responsible for monitoring and complying with environmental and social safeguards issues and organizing and reporting on PROCASE's environmental and social plans. The multidisciplinary team must ensure that technicians are trained, and that the project's Environmental and Social Management Framework (ESMF) is implemented.
- 4.9 **The Gender, Youth and Diversity Office (AGJD):** responsible for: drawing up a Gender and Diversity strategy and action plan; ensuring a gender and diversity approach in all areas

of the development of Project activities; training Project teams and others involved in gender and diversity issues; and strengthening an environment for debate in communities on the role of men and women in agriculture, among other things.

- 4.10 **Communications Office (ACO):** responsible for defining, together with the managers of each component, the strategic goals and objectives for the communication areas; formulating the integrated communication management plan with special attention to the aspects of sustainability, visibility, dissemination and scaling of successful actions; training the Project team to ensure the correct sharing of knowledge and good practices; planning and coordinating the layout and dissemination of studies and publications, with special attention to results, impacts and strategic partnerships; leading the preparation (content and design) of communication materials, such as press releases, blogs, booklets, infographics and content for social networks; maintaining an up-to-date calendar of events and formulating dissemination materials, etc.
- 4.11 **Monitoring and Evaluation Department (AM&A):** responsible for planning and monitoring the design and implementation of a system for managing information on execution; monitoring the implementation of the AWPB and the progress of the indicators in the Results Matrix; coordinating the execution of evaluations (baseline, mid-term and final); preparing Progress Monitoring Reports (PMR) and the Project Completion Report (PCR), among others
- 4.12 **Legal Advisory Office (AJU):** responsible for providing legal support for the Project implementation, including: drafting ordinances, decrees, agreements and other normative documents; liaising with other government bodies (PGE, CGE, TCE) to resolve legal doubts; drafting legal opinions, etc.
- 4.13 The **Administration and Finance Coordination Office (CAF)** will be responsible, among other things, for: (i) managing financial, budgetary and administrative resources; (ii) maintaining personnel records; (iii) identifying the needs for materials and transportation services and others; (iv) carrying out accounting in accordance with the standards of the Financiers; (v) carrying out bidding and contract administration; (vi) controlling the release of amounts and rendering of accounts; (vii) making payments for eligible expenses, previously approved by the CTE; (viii) releasing funds to the executing organizations, according to the previously agreed disbursement schedule and with the prior approval of the CTE; (ix) maintaining the bank accounts; (x) drawing up financial and accountability reports for the Project. It will also be responsible for submitting the Audited Financial Statements (DFAS) to the IDB in accordance with the deadlines established in the Loan Agreements.

- 4.14 **Minimum PMU team:** The PMU must maintain a minimum team consisting of: (i) a general Project coordinator; (ii) a technical coordinator; (iii) a financial administrative coordinator; (iv) a component 1 operational coordinator; (v) a component 2 operational coordinator; (vi) a gender and diversity specialist; (vii) a specialist in traditional peoples and communities (PCT); (viii) a youth specialist; (ix) a specialist in nutrition; (x) a specialist in knowledge management, SSTC and communication; (xi) a specialist in social and environmental safeguards; (xii) a specialist in procurement and contracts; (xiii) a financial specialist; (xiv) a specialist in Monitoring and Evaluation (M&E); and (xv) a legal advisor (lawyer). As PROCASE progresses, some of these specialists may be replaced or removed, always with the IDB's non-objection. Annex 14 indicates the Terms of Reference of the personnel who will occupy key posts in the PMU.
- 4.15 At the decentralized level, the Sustainable Territorial Development Collective (**CODETER**) located in the 5 PROCASE territories will be equipped with physical space, equipment, mobility and competent personnel to support the central unit in carrying out the Project's management activities. It should have 3 professionals: an agricultural specialist, a socio-environmental specialist and an administrative-financial specialist. This composition may vary according to the specificities of each territory.
- 4.16 **Project Management Committee (CGP).** The Executive Committee for the Management of Productive Investments (CEGIP) is already up and running in the state. Within the scope of PROCASE II, it will perform the functions of the Project Management Committee (CEGIP). This Executive Committee, created by SEAFDS Ordinance, is organized as follows: i) Presidency, exercised by the secretary of SEAFDS, who will be responsible, among other things, for calling Committee meetings, presiding over Meetings and the work of the Committee; signing minutes, resolutions, recommendations and other acts and proceedings of the Committee; ii) A collegiate body made up of representatives of the state secretariats and other participating organizations, who will be responsible for, among other things, participating in and voting at Committee meetings; proposing or requesting steps and clarifications that may be useful to them to better judge the matters on the meeting agenda; iii) Secretariat, carried out by the general coordinator of the PMU. preparing the meeting agendas; acting as secretary for the Committee meetings, taking the respective minutes; sending the members the call for meetings with the respective agenda; carrying out all the administrative services that are relevant to them; publicizing the Committee's resolutions and implementing them; and carrying out other activities assigned to them by the President.
- 4.17 The CGP/CEGIP will hold ordinary meetings every four months and extraordinary meetings, when necessary, at the extraordinary call of the Chair or Alternate of the



Committee, or the Coordination of the PROCASE Management Unit (PMU), or at the request of at least one third of the members. The meeting agenda and supporting material must be distributed by the CGP/CEGIP secretariat at least five (5) working days in advance.

- 4.18 The main functions of the CGP/CEGIP are, among others: i) define strategic and institutional guidelines for the Project implementation; ii) facilitate coordination between different units of the Government of Paraíba and other partners in Project planning and execution actions; iii) approve the Annual Workplan and Budgeting (AWPB) and Progress Reports, prior to their submission to the Bank and IFAD; (iv) monitor the progress of the execution of the AWPB and compliance with the contractual conditions of the loans, including the targets agreed (Results Matrix) with the Financing Organizations; (v) monitor and evaluate the actions of the PMU and other Project stakeholders; (vi) approve the Resilient Investment Plans (PIR) analyzed by the CAP and the Business Plans (PN).
- 4.19 **Project Analysis Committee (CAP).** The CAP, set up by order of SEAFDS and made up of an interdisciplinary team involving various areas of the PMU, will be responsible for analyzing and recommending whether or not to approve the Business Plans and Productive Development Plans to be implemented by cooperatives and community organizations, as well as other projects under PROCASE II.
- 4.20 **Ombudsman's Office.** The Ombudsman's Office is responsible for (i) receiving and examining complaints from citizens via the State Ombudsman's Office, through requests for information, suggestions, complaints and denunciations relating to the activities carried out by SEAFDS within the scope of PROCASE II, identifying them and sending them to the responsible Coordination for analysis, investigation and response; (ii) respond to interested parties, within the legal deadlines, about the complaints, claims, suggestions, opinions, questions, compliments, information and clarifications requested and monitor the process until the final solution; (iii) prepare and submit periodic consolidated reports of SEAFDS/Project manifestations.

### **5.3 State Department of Finance (SEFAZ)**

- 4.21 The **State Secretariat for Finance (SEFAZ)**. SEFAZ will be responsible for (i) including the Project in SIAFE, (ii) managing the Project's single bank accounts (Project/IDB and Project/IFAD).

### **5.4 Paraíba Research, Rural Extension and Land Regularization Company (EMPAER)**

- 4.22 EMPAER is a special direct administration body linked to the structure of the State Secretariat for the Development of Agriculture and Fisheries (SEDAP) and will act as sub-

executor of sub-component 2.4 - Land and Environmental Regularization. EMPAER will conduct the entire process and follow the flow of the necessary steps until the definitive title of ownership and recognition of domains is issued (see Annex 8). EMPAER will have to sign a specific Technical Cooperation Agreement with INCRA, without transferring funds, to receive the georeferenced areas, carry out the inspection and approval of the technical documents necessary for the regularization process of quilombola communities and federal land of agrarian reform settlements. EMPAER will have to open a specific account to handle PROCASE funds and follow the ROP for purchasing, contracting, rendering accounts, etc.

## **5.5 Community Associations and Producer Cooperatives**

4.22 Community associations and producer cooperatives will have the following responsibilities:

- a) Participate in the diagnosis and preparation of their respective plans;
- b) Sign an Agreement with PMU/SEAFDS for the implementation of their respective Plans;
- c) Open and administer specific PROCASE II accounts to manage IDB and IFAD resources;
- d) With the support of TA contracted by PMU/ SEAFDS:
  - Draw up the Investment Plan (PN or PIR) in a participatory manner;
  - Prepare and keep up to date the AWPB and the corresponding Procurement Plan;
  - Actively carry out your Plan;
  - Carry out the Plan's purchases in accordance with good practices on the subject and in accordance with IDB standards and the regulations of this ROP;
  - Request an advance on funds;
  - Justify the use of resources and request their replacement;
  - Prepare and send the periodic reports according to the model and deadlines indicated by the PMU/SEAFDS;
  - Make any corrections to the execution at the request of the PMU/ SEAFDS;
  - Provide all the information requested by the PMU/ SEAFDS.
- e) Facilitate all the information required by the PMU/ SEAFDS to carry out the Plan's mid-term and final evaluations and any audits;
- f) Actively participate in the Evaluation of the Plan.

## **6 PROCUREMENT RULES AND PROCEDURES**

### **6.1 Introduction**

- 5.1 By mutual agreement between the parties, the IDB's Procurement Rules and Procedures will be adopted in the execution of PROCASE II.
- 5.2 Funds from the Bank's and IFAD's loan instrument may only be used for the purchase of goods, and the contracting of works, services and consultancy services from companies or individuals from countries that are members of the Bank. The following will be ineligible for contracts financed in whole or in part with Bank and IFAD loans: (i) individuals or companies from and other countries that are not members of the Bank; and (ii) individuals or companies included in the IDB's Ineligible Register; and (iii) individuals or companies included in Ineligible/Exclusion Lists managed by multilateral organizations linked to the United Nations (UN) system.
- 5.3 Procurement and contracting will be carried out in accordance with the provisions of Loan Agreement # and #####. To prevent prohibited practices, the Executing Agency will verify that the suppliers of services and goods related to the activities included in the execution of these components are not on the list of companies and individuals sanctioned by the IDB and multilateral organizations linked to the UN system. PROCASE II suppliers will sign the declaration of integrity included in the Annex to this ROP, undertaking to comply with it in its entirety.
- 5.4 All purchases and contracts to be carried out under PROCASE II must be included in the Project's Annual Workplan and Budgeting (AWPB) and Procurement Plan (PP), previously approved by the Bank. If they are not included in the Project's AWPB and PP, they may be included subject to the Bank's non-objection.
- 5.5 All contracts and similar instruments entered into within the scope of the Project must be registered in IFAD's Contract Monitoring System (CMT/ICP). Without excluding other contract management systems, the execution of contracts must also be monitored through the CMT. The Project must periodically update the contractual data registered in the system, observing a maximum interval of two months between updates.

### **6.2 Acquisition of Goods and Contracting of Works and Services (except consultancies)**

- 5.6 The procurement of goods and contracting of works and services (except consultancy) will follow the provisions set out in the IDB's policies contained in document GN - 2349-15 - Policies for the procurement of goods and contracting of works financed by the IDB, dated January 2020. Available at: <https://projectprocurement.iadb.org/pt/politicas>.
- 5.7 Table 3 summarizes the procurement methods envisaged for goods and services (except consultancies) and the cost limits for selecting the procurement method.

<b>Table 3 - Procurement Methods for Goods and Contracting Works and Services (Except Consultancies) According to Procurement/Contract ValuesPENDING CATEGORY</b>	<b>HIRING METHOD</b>	<b>VALUE (USD)</b>	<b>ADVERTISING</b>	<b>DOCUMENT TO BE USED</b>
<b>WORKS</b>	LPI	Over 25.0 million	UNDP, National Newspaper	IDB Standard Tender
	LPN	From 0.5 to 25.0 million	National newspaper	National Bidding Document agreed with the IDB
	CP - 3 valid and comparable proposals	Up to 0.5 million or up to USD 25 million for simple works	Publication is not mandatory	IDB model document
<b>GOODS AND SERVICES</b>	LPI	Above 5.0 million	UNDP, National Newspaper	IDB Standard Tender
	LPN	From 100 thousand to 5.0 million	National newspaper	National Bidding Document agreed with the IDB
	CP - 3 Valid and comparable proposals, Or electronic auction	Up to 100,000 or up to 5 million US dollars for simple goods	Publication is not mandatory	IDB model document

### 6.3 Selection and Hiring of Consultants

- 5.8 The consulting services to which these Policies apply are those of an intellectual and advisory nature. The selection and hiring of consultants will be carried out in accordance with the provisions established in document - GN2350-15 Policies for the Selection and Hiring of Consultants Financed by the Inter-American Development Bank, dated January 2020. The document is available on the website: <https://projectprocurement.iadb.org/en/policies>.
- 5.9 Table4 summarizes the methods for selecting and contracting consultancy services.

**Table 4 - Methods for Selecting and Hiring Consultants.**

NATURE OF EXPENDITURE	METHOD FOR SELECTING AND HIRING CONSULTANTS
<b>CONSULTING</b>	<p><b><u>Quality-Based Selection (QBS)</u></b></p> <p>Complex, highly specialized or difficult to specify services, with a scope defined in the Terms of Reference (TOR);</p> <p>Services with a major impact on the future, with the need to have the best specialists;</p> <p>Services that can be carried out with a defined objective, but can be executed in substantially different ways, thus making it impossible to compare proposals based on the combination of quality and price.</p>
	<p><b><u>Selection Based on a Fixed Budget (SOF)</u></b></p> <p>Only for simple services that can be defined precisely and for which the budget is reliable.</p>
	<p><b><u>Selection Based on Lowest Cost (SBMC)</u></b></p> <p>Standard" services, with conventional methodologies.</p>
	<p><b><u>Selection Based on Consultant Qualifications (SOC)</u></b></p> <p>Services with an estimated cost of less than the equivalent of USD200,000 for which the preparation and evaluation of competitive bids is not justified.</p>
	<p><b><u>Direct Contracting (DC)</u></b></p> <p>(a) for services involving the continuation of previous work already carried out by the same company; (b) in emergencies, such as: to respond to situations arising from disasters and for consultancy services required during the period immediately following the emergency; (c) for services up to US\$ x00,000 or (d) when only one company proves to be qualified or has experience of exceptional value for carrying out the service.</p>
	<p><b><u>Individual Consultant Selection</u></b></p> <p>Services involving a single discipline or requiring specialist work, to be developed in the short term.</p>

5.10 Table 5 below shows the methods of selecting and contracting consultancy services according to the value of the contract.

**Table 5- Methods for Selecting and Hiring Consultants**  
**Second Contract Value**

SPENDING CATEGORY	HIRING METHOD	VALUE (USD)	ADVERTISING	DOCUMENT TO BE USED
<b>CONSULTING</b>	SBQC <sup>11</sup> , SBQ, SOF, SBMC	Above 1.0 million	UNDP, National Newspaper	IDB Standard Tender
	SBQC, SBQ, SOF, SBMC	From 200 to 1.0 million	UNDP, National Newspaper	IDB Standard Tender
	SQC	Up to 200 thousand	National newspaper	IDB Standard Tender

**6.4 Retroactive Financing with Charge to Financing and Local Counterpart**

5.11 The Bank may recognize, as part of the Local Counterpart resources, expenses that have been incurred between xxxxxxxxxxxxxxxxxxxx and \_xxxxxxxxxxxxxxxxxxxxx\_ (date of approval of the Loan Proposal) with consultancies and services other than consultancy, equipment and materials up to the equivalent of US\$ 2,500,000.00), which result from conditions substantially similar to those established in the IDB xxxxxx/OC-BR Contract.

5.12 In no case will expenses incurred more than 18 months before the date of approval of the Loan by the Bank's Board of Executive Directors be included. Eligible expenses for the purposes of retroactive financing and recognition of expenses include consultancy services (for carrying out studies and diagnoses, as well as for PMU staff), services and equipment necessary for Project management, and works that make up the representative sample of PROCASE II.

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<sup>11</sup>Selection Based on Cost and Quality (SBCQ), Selection Based on Quality (SBQ), Selection Based on Fixed Budget (SOF), Selection Based on Lowest Cost (SBMC), Selection Based on Consultant Qualifications (SQC) and Direct Contracting (DC).

## 7 PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT

### 7.1 Management Framework

- 6.1 These Operational Regulations include an Environmental and Social Management Framework (ESMF) that includes the environmental control and socio-environmental impact mitigation programs for the interventions envisaged in the PROCASE II components (Annex XXX), arising from the impacts identified during the preparation of the Strategic Environmental and Social Assessment (ESA) for the Project.
- 6.2 To ensure the environmental quality of the interventions through the implementation of socio-environmental programs, the ESMF has the following specific objectives:
- (i) ensure that the planned impact control and mitigation measures are implemented;
  - (ii) monitoring interventions and the implementation of environmental control programs;
  - (iii) systematize information on socio-environmental issues in the periodic reports sent to the IDB and IFAD;
  - (iv) setting up and operating construction sites in an environmentally appropriate manner;
  - (v) ensure that the labor used does not contribute to environmental degradation;
  - (vi) ensure that the activities of construction sites and workers interfere as little as possible with the daily lives of local communities;
  - (vii) avoid, minimize, control or mitigate potential significant impacts during the implementation period;
  - (viii) ensure the health and safety of workers on the Project's construction sites; and
  - (ix) ensure continued compliance with the country's environmental and labor legislation and the IDB's Environmental and Safeguards Compliance Policy (OP-703).
- 6.3 To guarantee the implementation of the social and environmental programs defined in the ESMF, the PMU will have an environmental and social management team (ESMT) made up of environmental and social action specialists from its own staff or those hired externally, working under the coordination of the PMU. The ESMT will have the following specific responsibilities:
- (i) coordinate, manage and execute, directly or with the support of third parties, the work related to the implementation of the actions of the ESMP programs;
  - (ii) provide technical support in the initial planning of the socio-environmental actions planned for the projects and in the periodic evaluation of the Project's environmental and social performance;
  - (iii) ensure that socio-environmental specifications are included in the Project description;
  - (iv) prepare the environmental eligibility criteria to be included in the bidding documents for the interventions;
  - (v) adopt procedures and monitor the granting of the environmental licenses required for the implementation of the interventions;

- (vi) identify and recommend actions and procedures for interventions to avoid, minimize, control or mitigate potential negative impacts or disaster risks;
- (vii) carry out periodic visits to the works and other activities of the Project, to verify and certify that all activities relating to socio-environmental issues are being carried out within the recommended quality standards and in accordance with the conditions of the environmental authorizations and licenses and the Regulatory Standards of the Ministry of Labor;
- (viii) approve the measurement of services related to environmental conservation and recovery, as well as activities related to interventions that may cause environmental damage;
- (ix) periodically present to the PMU Coordination the performance evaluation of the implementation of socio-environmental projects related to the planned physical interventions and the necessary adjustments;
- (x) recommend to the PMU penalties for construction contractors in the event of non-compliance with socio-environmental requirements and specifications, i.e. in the event of significant non-conformities that are not resolved during construction planning meetings; and
- (xi) maintain documentation of compliance with social and environmental management plans and records of compliance with indicators. These requirements must be presented in the half-yearly reports sent to the IDB and IFAD.
- (xii) The PMU's environmental and social action specialists must liaise with the various institutions directly and indirectly involved in the Project, as well as the contracted companies. Their work must ensure:
  - a. the adoption of concepts of sustainability, conservation and rural environmental management in the preparation or review of PROCASE's projects;
  - b. the environmental planning of physical interventions.
- (xiii) liaising with environmental control bodies in the search for solutions regarding environmental licensing processes during the implementation and operation phases of the Project's interventions;
- (xiv) prior assessment and approval, within the PMU, of the interventions proposed for the areas covered by the Project, ensuring that the environmental dimension is included in Project decision-making;
- (xv) the adoption of administrative measures that guarantee the implementation of social communication actions related to coexistence with the works, duly articulated with their planning;
- (xvi) the monitoring of environmental recovery and requalification works and services in the area where the projects are being implemented;
- (xvii) recommending actions and construction procedures to avoid, minimize, control or mitigate potential impacts;



- (xviii) periodic evaluation of the efficiency of socio-environmental programs and indication of the necessary adjustments;
  - (xix) the approval, together with the PMU, of penalties for construction companies in the event of non-compliance with environmental requirements;
  - (xx) the approval, together with the PMU, the intervention stops in the case of actions that have significant environmental impacts, so as to enable the adoption of corrective measures in good time;
  - (xxi) preparing and submitting periodic environmental supervision reports to the PMU Coordination Office and to the IDB and IFAD; and
  - (xxii) responding to questions from civil society, including NGOs and other parties interested in the interventions and socio-environmental programs consolidated in the ESMF.
- 6.4 For effective environmental management and control of the interventions, the socio-environmental programs must follow the same schedule as these interventions. Their costs should be incorporated into the intervention costs, with the exception of Environmental Management, which should be the responsibility of the PMU. The contracts for carrying out the interventions must include clauses requiring the company to comply with all the environmental, social and worker health and safety measures set out in the ESMP and in the legislation. This obligation should be made explicit through mechanisms for measuring and paying for activities related to quality and social and environmental control.
- 6.5 In the case of construction work (**honey houses, sales outlets, etc.**), a Construction Environmental Control Plan (CECP) will be drawn up. The CECP must be a contractual obligation of the construction company and must be approved by the PMU before work begins. The construction company must hire a socio-environmental specialist who will be responsible for managing the environmental quality of the work and the related ESMP programs. All the socio-environmental activities planned must be included in the same cost spreadsheet as the engineering and construction activities.
- 6.6 The ESMP programs presented below were developed on the basis of the activities required to control the environment and mitigate the socio-environmental impacts of the PROCASE II interventions.
- 6.7 The environmental and social procedures are detailed in the Environmental and Social Management Plan (Annex 11). The following is a summary of the most relevant regulations, including activities prohibited for financing by PROCASE II.

## 7.2 Prohibited activities

- 6.8 **Activities that are illegal according to laws**, regulations or ratified international conventions and agreements, or subject to international interruptions or prohibitions, such as: (i) Polychlorinated biphenyl compounds (PCBs), (ii) Pharmaceuticals, pesticides/herbicides and other hazardous substances subject to international interruptions or bans<sup>13</sup>; (iii) Persistent Organic Pollutants (POPs); (iv) Ozone-depleting substances subject to international elimination; (v) Wildlife or wildlife products regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora; (vi)

Transboundary trade in waste or waste products<sup>1</sup>, except non-hazardous waste destined for recycling; and (vii) Lead-based paints or coatings in the construction of structures and roads.

- 6.9 Activities illegal according to the country's laws and regulations, or ratified international conventions and agreements, related to the protection of biodiversity resources or cultural heritage.
- 6.10 **Other prohibited activities:** The reference documents are: Council Regulation EEC No. 2455/92 of July 23, 1992 concerning the export and import of certain dangerous chemicals, as amended from time to time; United Nations Consolidated List of products whose consumption and/or sale have been banned, withdrawn from the market, have had their circulation "severely restricted" or have not been approved by government bodies; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Pesticides and Hazardous Chemicals in International Trade (Rotterdam Convention); Stockholm Convention on Persistent Organic Pollutants; World Health Organization's Recommended Classification of Pesticides by Risk; World Health Organization's Restrictions on the Use and Availability of Medicines; Stockholm Convention on Persistent Organic Pollutants, as amended in 2009. Ozone-depleting substances (ODSs) are chemical compounds that react with and destroy the stratospheric ozone layer, resulting in the so-called "holes in the ozone layer". The Montreal Protocol lists ODSs and their reduction and elimination target dates. The chemical compounds regulated by the Montreal Protocol include aerosols, refrigerants, blowing agents in the manufacture of foams, solvents and fire protection agents (<https://ozone.unep.org/treaties/montreal-protocol/>)/www.cites.org. According to the Basel Convention ([www.basel.int](http://www.basel.int)), paints and coatings with a total lead concentration greater than 90ppm or the limit concentration determined by the host country, whichever is lower.
- 6.11 **Activities that, although consistent with the country's legal and/or regulatory framework, may generate particularly significant adverse impacts on people and/or the environment,** such as: (i) Weapons, ammunition and other military goods/technologies; (ii) Tobacco; (iii) Gambling, casinos and equivalent businesses; (iv) Radioactive materials; (v) Unbound asbestos fibers or products containing asbestos; (vi) Fishing nets drifting in the marine environment, using nets of more than 2.5 km in length.
- 6.12 **Activities incompatible with IDB and IFAD commitments to address the challenges of climate change and promote environmental and social sustainability,** such as: (i) Coal mining and coal-fired power plants and associated facilities; (ii) Upstream oil exploration and development projects; and (iii) Upstream gas exploration and development projects. In exceptional circumstances and on a case-by-case basis, financing of upstream gas structures will be considered where there is a clear benefit in terms of access to energy for the poor and reduction of greenhouse gas (GHG) emissions, projects consistent with national climate change objectives, and where the risks of retained assets are adequately analyzed.

## **8 BUDGET AND FINANCIAL MANAGEMENT**

### **8.1 IDB and IFAD disbursement procedures and expense acknowledgments**

- 7.1 Disbursements will be made in US dollars, mainly under the advance payment method, and may also use the method of reimbursement of payments to the executor, in agreement with the Bank. The advance on the financing will be determined based on a financial projection of up to 180 days. For advances after the first disbursement, at least 60% of the accumulated balance of the unjustified advance will have to be accounted for.
- 7.2 The Executing Agency will request disbursements of Loan resources from the Bank and/or IFAD using the standard Disbursement *Request* form, via the Electronic System - Online Disbursement (OD), in accordance with the delegation of authorized signatures communicated to the IDB and IFAD.
- 7.3 The financing resources disbursed by the Bank and IFAD will be deposited in the respective bank accounts in dollars (US\$). These accounts will be administered by SEFAZ-PB and used exclusively to receive and manage the funds from the IDB and IFAD loans, respectively. In addition, a bank account in reais (R\$) will be opened, also for the exclusive use of loan funds, where the funds received in dollars will be internalized, according to the Project's financial flow needs, with the aim of minimizing the loss due to exchange rate differentials.
- 7.4 For the disbursement of advances subsequent to the first, the Bank and IFAD will require justification of at least 60% of the accumulated balance of the unjustified advance.
- 7.5 For the purposes of justifying expenses, the exchange rate used to convert expenses incurred in reais (R\$) into dollars (US\$) will be the exchange rate effective on the date of conversion of the currency of disbursement into the local currency (internalization rate).
- 7.6 For the purposes of determining the equivalence of expenses incurred in local currency as a debit to the local counterpart or for the purposes of reimbursing expenses as a debit to the Loan(s), the agreed exchange rate shall be the buying exchange rate established by the Central Bank of Brazil on the day prior to the date of submission of the disbursement request by the Borrower to the Bank and/or IFAD.

### **8.2 Procedures for transferring resources for implementation**

- 7.7 Resources will be transferred to community organizations and cooperatives that will carry out the PIRs and PNs. These organizations will have to open specific accounts to handle the resources from the IDB and IFAD. The transfers will be authorized by the PMU and will not exceed 20% of the value of the respective plans. Reimbursements to these organizations will be made as the expenses are justified and approved by the PMU. All transfers of resources, reimbursements and payment of invoices related to the execution of the Project will be carried out by the PMU.

### **8.3 Internal and external audits**

- 7.8 During the Project execution period, the Borrower must submit audited financial statements to the IDB and IFAD within 120 days of the end of each fiscal year. The fiscal period of the

Project comprises January 1 and December 31 of each year. The Final Audited Financial Statements for the Project must be submitted to the IDB and IFAD no later than 120 days after the date of the last disbursement, or extensions thereof.

- 7.9 The external audit of the Project will be carried out by the Court of Auditors of the State of Paraíba (TCE), provided it has the non-objection of the IDB, or by an independent audit firm acceptable to the IDB and contracted in accordance with IDB Standards.
- 7.10 The audit will be carried out in accordance with the terms of reference, to be previously approved by the IDB, and in accordance with the procedures established with the Audited Financial Reports and External Audit Management Instruction.
- 7.11 The final financial statements will include an analysis of the possible differences between the actual costs of the components and the disbursements by results realized.

#### **8.4 Records, Inspections and Reports.**

- 7.12 Regarding internal control and registration, it is established that:
  - 1. The PMU must maintain an adequate system of internal accounting and administrative controls;
  - 2. The accounting system must be organized in such a way as to provide the necessary documentation to verify transactions, with IDB, IFAD and Counterpart resources, and to facilitate the timely preparation of financial statements and reports;
  - 3. Project records must be kept for a minimum period of three (3) years from the date of the last disbursement of the Loan, so as to:
    - a. Allow the identification of the amounts received from the different sources;
    - b. Consign, in accordance with the Project accounts register;
    - c. Contain the details necessary to identify the goods purchased and the services contracted, as well as the use of said goods and services;
    - d. Include the documentation related to the bidding process and execution of the contracts financed by the Project, which includes, but is not limited to, bid notices, bid packages, summaries, bid evaluations, contracts, correspondence, work products and drafts and invoices, including documents related to the payment of commissions and payments to representatives, consultants and contractors; and
    - e. Demonstrate the cost of investments in each category and the progress of acquisitions.
- 7.13 The IDB and/or IFAD will be able to inspect the execution of the Project in accordance with the provisions of the IDB Loan Agreement and the *Financial Management Guide for Projects Financed by the IDB* - OP-273-12 (according to the Cooperation Agreement signed, IFAD will follow the IDB's procedures on the matter). SEAFDS and COPAIR shall cooperate fully in the supervision process that the IDB and/or IFAD deem necessary during the term of the IDB xxx IFAD xxx Loan Agreements. Cooperation includes access to documentation by the Project Financiers, their representatives, consultants or designated

auditors, subject to legal requirements, giving full access to facilities and personnel, including consultants, related to the Project. The executing agency shall also ensure that bidders and contractors cooperate fully with any inspection or audit by the IDB and/or IFAD.

## 9 PLANNING, MONITORING AND EVALUATION

- 8.1 To carry out the Project, the PMU will use a series of planning, monitoring and evaluation instruments provided for in the Loan Agreement and the Bank's operational manuals.
- 8.2 The PMU will carry out planning, monitoring and evaluation activities and present them to the Bank, in the form and at the intervals established in this ROP.
- 8.3 The PMU must implement and maintain an adequate and reliable information system on the management of the Project in all its aspects, including technical, administrative, financial and socio-environmental aspects, to facilitate the monitoring of Project execution and the fulfillment of all procedures and the collection of Project data and information necessary for the preparation or updating of the various instruments described below.

### 9.1 Project Execution Plan (PEP)

- 8.4 This instrument sets out all the investments planned for the duration of the Project, breaking down the costs by components, sub-components, products, activities and source of funds. It should also include the physical and financial timetable for each product/activity and the overall budget.
- 8.5 The PEP will serve as the basis for the other planning instruments and will not need to be modified during the Project. However, the Annual Workplan and Budgeting (AWPB) and Procurement Plan (PP) derived from this instrument must be updated periodically, as indicated in this ROP.

### 9.2 Annual Workplan and Budgeting (AWPB)

- 8.6 The AWPB is the planning instrument that aims to draw up a proposed plan for implementing the Project each year. The AWPB consolidates all the activities that will be carried out during a given period of execution, per funded project, and its physical and financial timetable.
- 8.7 The AWPB includes: the execution schedule; the detailed budget; the expected products and their respective targets; the expected results with their respective indicators; the terms of reference for contracting consultancy services, specifications for acquiring goods and basic/executive projects and bidding documents.
- 8.8 The first AWPB covers a period of 12 months from the Project start.
- 8.9 The subsequent AWPB will cover the period immediately following the first review, until December 31st of the respective year. Thereafter, an AWPB will be presented for each calendar year (January 1 to December 31).
- 8.10 To this end, the PMU will prepare the AWPB in a participatory manner to obtain input from the various actors involved in the Project execution, including the Sub-executing Unit. The AWPB must be submitted for the IDB's non-objection by **November 30th of each calendar year** prior to its entry into force.

### 9.3 Project Procurement Plan (PP)

- 8.11 The Procurement Plan (PP) is the instrument whose purpose is to make public the details of all the procurement and contracting that will be carried out during a given period of Project execution. These must comply with the provisions of Loan Agreement xxxx/OC-BR and its Annexes.
- 8.12 All areas involved in the execution of the Project, including the Sub-executing Unit, must support the PMU in the preparation of the PP, using the IDB's own form (<http://iadbccccc>), which includes information such as categories of expenditure (works, goods, consultancy, non-consultancy services, etc.), the modality to be used for procurement (LPI, LPN, CP, SBQC, Electronic Bidding, etc.), the sources of funding, and the Bank's review procedures (ex-ante or ex-post). The PP must cover all procurement of goods and contracting of works, consultancy services and non-consultancy services planned for the next 18 months of execution. The PP must be updated annually, covering the period from January 1 to December 31 of each calendar year, and must be submitted to the IDB by **November 30 of each calendar year**, for its No Objection.
- 8.13 The PP must be updated at any time when it becomes apparent that the execution of the Project presents important changes that are reflected in this planning instrument. Whenever there are any changes, the PP must be sent to the Bank for its no objection before any purchase is made. The IDB's submission and non-objection to the Procurement Plan for the first 18 months of Project execution will be a precondition for the first disbursement of Loans.

### 9.4 Results Matrix

- 8.14 The Results Matrix is the tool used to design interventions, facilitating their planning, execution and impact assessment. It involves identifying the strategic elements (inputs, outputs, outcomes and results), their causal relationships, the indicators to measure these elements and the assumptions or risks that may influence the success or failure of the Project. This Matrix sets out PROCASE II's general objective, the intervention logic and the product and result indicators, with a baseline (year zero of the Project) and annual targets (intermediate targets) and final targets, in accordance with the estimated timetable for the Project's implementation.

### 9.5 Monitoring and Evaluation Plan

- 8.15 Plan on the management, monitoring and evaluation of PROCASE II as well as the system to be implemented for this are described in the Monitoring and Evaluation System (see separate annex, M&E Plan).
- 8.16 This planning document defines the parameters for monitoring and evaluating the Project, including the methodologies to be used, inspection visits, the budget for carrying out the activities and those responsible for carrying them out, and the periodicity of reporting.
- 8.17 The aim of management is to provide the necessary tools and procedures for planning and executing the Project's actions, based on the objectives and targets set, and enabling decisions to be taken in good time. This management also includes the financial management of PROCASE II implementation.

- 8.18 The purpose of monitoring is to track the performance of the execution process in terms of: (i) carrying out the programmed activities; and (ii) the physical and financial execution of the products.
- 8.19 The purpose of the evaluation is to report on the achievement of the annual results targets, measured by the respective indicators, which have been defined in the Results Matrix. The evaluation also reports on the behavior of the risks identified in the risk management system
- 8.20 The management, monitoring and evaluation system is based on the output, outcome and impact indicators in the Results Matrix.
- 8.21 The PMU will be responsible for collecting statistical information and other data for measuring these indicators, using the execution databases, through checks, according to the Results Matrix.
- 8.22 The PMU is also responsible for keeping all Project documentation on file, at the disposal of the IDB, IFAD and auditors.
- 8.23 To monitor and control the Project implementation, two basic strategies are planned: Project Management, Monitoring and Evaluation System, and Dissemination of Results.

## **9.6 Reports**

### **9.6.1 Semi-annual Progress Report (RSP)**

- 8.24 The purpose of this report is to present to the IDB and IFAD the results achieved by the Borrower in the execution of the AWPB and the PP, as well as the expenses incurred and the request for and release of
- 8.25 The Progress Report for the second half of the calendar year should summarize the results achieved by Component and Subcomponent (partial and total, where applicable), and analyze the risks identified. It should also present a consolidated view of the difficulties and lessons learned, as well as conclusions and recommendations aimed at feeding back into the project. These reports will be drawn up in a format agreed with the Bank and must be submitted no later than 60 days after the end of the corresponding six-month period.

### **9.6.2 Progress Monitoring Reports (RMP )**

- 8.26 The RMP is the main instrument used by the IDB to monitor Project performance.
- 8.27 Based on the time forecasts for spending and meeting the physical targets established in the planning (Results Matrix), the RMP makes it possible to identify delays or other implementation difficulties and thus take the appropriate corrective measures.
- 8.28 The initial RMP, built during Project preparation, will be updated twice a year. The update should reflect the status of the project's execution.
- 8.29 This type of report will be the basis for the portfolio evaluation, an event held twice a year in the presence of the Executing Agency, the Bank's Representation and Management and IFAD.
- 8.30 The IDB will be responsible for feeding the RMP. However, the PMU must submit the necessary inputs as part of the Half-Yearly Progress Report.



### **9.6.3 Financial Statements Audited**

- 8.31 SEAFDS/PMU will submit the following reports to the Bank by the deadlines set for each of them:
1. Within 60 (sixty) days of the end of each calendar year, reports on the execution of the Project, prepared in accordance with the rules agreed with the Bank;
  2. Such other reports as the Bank may reasonably request in relation to the investments made, the use of the assets acquired with the respective amounts, and the performance of the execution of the Project; and
  3. Financial statements corresponding to the Project, at the close of the fiscal year, accompanied by other related supplementary information. The financial statements will be presented during the years in which the Project is being carried out, within 120 (one hundred and twenty) days following the end of each fiscal year (January 1 to December 31). The first statement will be the one corresponding to the fiscal year in which the execution of the Project began.
- 8.32 The financial statements and documents described above must be prepared in accordance with the Financial Management Guide for IDB-financed projects - OP-273-12 and the Audited Financial Reports and External Audit Management Instruction.
- 8.33 Regarding the compilation of data and the "ex-post" evaluation report, the PMU will make available to the Bank, at the end of the second year, counting from the date of the last disbursement of the financing, the data, indicators and parameters relating to the Project performance, as well as all the documentation corresponding to the baseline data, necessary for the future realization of the "ex-post" evaluation to be carried out by the Lenders, if they deem it necessary.
- 8.34 Annual and final reports issued by the PMU and audited by the TCE-PB or an independent auditing firm should contain: (i) Cash Flow Statement; (ii) Statement of Accumulated Investments; (iii) Notes to the Program's Financial Reports; (iv) Program's Internal Control Report. In accordance with the Instruction on Audited Financial Reports and External Audit Management.

## **9.7 Report content**

### **9.7.1 Progress Reports**

- 8.35 These reports must contain at least the following information:
1. Presentation (or Introduction);
  2. Semester progress (by component and sub-components);
  3. Progress in meeting development goals;
  4. Analysis of the product and result indicators contained in the results framework;
  5. Evolution of assumptions;
  6. Purchases of goods and services;
  7. Information on financial execution;

8. Operation plan for the next six-month period, including the operation and maintenance plan for works and equipment financed with the loan funds;
9. Management successes or problems, lessons learned, and corrective measures taken;
10. Actions to follow and other issues;
11. Annexes.

### **9.8 Mid-term Evaluation Reports and Final**

8.36 Both the mid-term and the final reports must contain:

1. Detailed indication of the financial execution of the Project, by component, sub-component and regions;
2. Analysis, in relation to the baseline, of the results, products and impacts of the Project, according to the indicators of the Results Matrix and the Project's logical framework;
3. The institutional organization and its capacity to carry out the Project;
4. Summary of the results of monitoring impacts and risks;
5. Summary of the results of the audits on the financial statements, procurement process, disbursement requirements.

8.37 Once accepted by SEAFDS, the reports will be published by the PMU on the Project's Internet Portal.

8.38 Both the database and the supporting documentation used to prepare the reports must be available, after the end of the Operation and for a period of 5 years, for any ex-post consultation by the Bank, with SEAFDS being responsible for the safekeeping of all relevant documentation

### **9.9 Risk Management Matrix (RMM)**

8.39 Information on risk management is detailed in the Annex. This instrument classifies the risks identified for the execution of the Project over a given period (usually annually), and defines the mitigation measures for each of them, establishing actions and the resources that will have to be deployed to implement them, as well as the risk monitoring indicators.

8.40 The RMM will be drawn up at the Project Risk Management Seminars, an event attended by the main players involved in the Project, the Bank and IFAD.

8.41 The PMU must report to the Bank on the implementation of the mitigating measures within the agreed deadlines.

8.42 This instrument may be updated by holding a new Seminar, when circumstances require and in agreement with the Bank.

### **9.10 Mid-term evaluation**

8.43 After three years (36 months) from the entry into force of the Loan Agreement or when 50% (fifty percent) of the Loan amount has been disbursed and justified, whichever comes first, the PMU and the Bank will carry out a mid-term evaluation of the Project with the

aim of: (i) verifying the results achieved; (ii) estimating whether the expected results, not yet achieved, can be achieved; and (iii) reviewing whether the process, methodology, and person responsible for collecting information for the evaluation is still relevant, and adjusting it if necessary.

- 8.44 Based on this evaluation, and if necessary, corrective measures to improve the Project implementation can be agreed between the Bank, IFAD and the Executing Agency.
- 8.45 Prior to carrying out this mission, an independent consultancy will be hired under Terms of Reference previously agreed with the IDB. The report must cover, among other things: the relevance of the Project's activities and products to achieving the established objectives; progress in carrying out the activities (physical and financial progress) and achieving the previously established targets; the main problems encountered and proposed mitigation measures; the role of community organizations in carrying out and maintaining the infrastructure built and their weaknesses and strengths, the functional and operational capacity of the Executing Agency to carry out the administration and execution of the Project. The Terms of Reference for this consultancy will be prepared by the IDB.

### **9.11 Final evaluation**

- 8.46 The final evaluation of the Project will be contracted when 95% of the funds have been spent or 90 (ninety) days remain before the last disbursement date, whichever comes first.
- 8.47 The Final Evaluation Report will be prepared by an independent consultancy, hired under Terms of Reference previously agreed between the PMU, the Bank and IFAD.
- 8.48 The report should contain, among other things: the degree to which the Project specific objectives were met; the goals achieved at the component, product and activity level; the difficulties and positive points of the Project's design and execution; lessons learned that could benefit future projects/programs. It will be submitted to the IDB within 30 days of the justification of expenditure of the last disbursement of loan funds.

## **10 RISK TO INTEGRITY AND REPUTATIONAL IMPACT**

### **10.1 Introduction**

- 9.1 The purpose of this section is to provide guidance to the Executing Agency on the actions and measures it can put in place to manage the risks to integrity during the implementation of the programs under its responsibility in the areas of conflict of interest management, due diligence for integrity and the formation of evaluation committees. The Office of Institutional Integrity (OII) suggests that all the mechanisms described below be considered and incorporated into the operational regulations of the programs to be financed by the IDB.

### **10.2 Conflict of Interest Management**

- 9.2 This section describes the process for managing conflicts of interest in activities financed with IDB funds. The aim is to guide program participants on how to proceed in such situations.
- 9.3 The steps described below do not replace national legislation on the subject. The procedure for identifying, managing and mitigating integrity risks comprises five stages: identification, assessment, mitigation, disclosure and archiving.

#### **10.2.1 Definition**

- 9.4 For the purposes of the Project, a conflict of interest arises when private interests (of whatever nature) run counter to the interests of the programs, as agreed between the Borrower and the Bank.
- 9.5 The private interests referred to include personal, pecuniary or financial interests that may generate a direct or indirect personal benefit (not necessarily economic). Family and personal relationships, personal and political affiliations/associations, and previous and subsequent employment can generate a conflict of interest when they unduly influence the decisions and/or actions of the parties responsible for the programs or for carrying out the activities financed by the Bank.
- 9.6 A conflict of interest can arise at any stage of the Project cycle, from the preparation of the contract to its execution. Conflicts can arise both on the side of the bidder/contractor and on the side of the members of the team in charge of implementing and managing the Project within the Executing Agency, including the Evaluation Committees.
- 9.7 At all times when a possible conflict of interest arises, the interests of the program must take precedence over private interests. Moreover, an apparent conflict of interest can be just as serious as a real one.

#### **10.2.2 Identification**

- 9.8 The following are some situations which, in the absence of mitigation measures, could constitute a conflict of interest for a bidder, candidate, consultant, contractor or PMU official. The following list is not exhaustive, and it is recommended to be aware of all possible circumstances that could generate a real or apparent conflict of interest.

- 9.10 In accordance with the Bank's Procurement Policies, the parties involved in an activity financed by the Bank are obliged to disclose situations that could generate a conflict of interest. Therefore, when a bidder, candidate, consultant or contractor is faced with this type of situation, they must officially notify the PMU. In the case of a PMU member, the PMU director must be notified of any potential conflict of interest. In the case of the PMU Director, he or she must report this situation directly to the Project Team Leader. Disclosed conflicts of interest must be reported to the Bank so that it can be determined whether they have been resolved to its satisfaction.

### **10.3 Individual bidders, tenderers, contractors or consultants**

- 9.11 Individual consultants, bidders and contractors must disclose situations that may present a conflict of interest during all stages of the procurement process, from the submission of bids or proposals to execution and evaluation.
- 9.12 Individual consultants must complete the Bank's Eligibility and Integrity Certification. This declaration must be updated if a conflict of interest (real or apparent) arises at any stage during the execution of the contract.

#### **10.3.1 Individual consultants<sup>12</sup>**

- 9.13 A consultant or candidate consultant will have a real or apparent conflict of interest if:
- a. Simultaneously maintains more than one contract financed with different sources of program funding (for example, resources from the Bank, from a program contractor, from the Executing Unit).
  - b. Has participated or will participate directly in an operation linked to the contracting of the consultancy services that are the subject of the contract.
  - c. You have a professional or family relationship with a member of the staff of the PMU; the staff of the Borrower; the Project Executing Agency or the beneficiary of a technical cooperation who is directly or indirectly involved in any way with (i) the drafting of the terms of reference of the contract; (ii) the selection process under the contract or (iii) the supervision of the contract.

#### **10.3.2 Companies**

- 9.14 Companies awarded a contract for the execution of works, supply of goods or provision of services will have a real or apparent conflict of interest if:
- a. They, their affiliates or the key personnel indicated have provided consultancy services for the preparation of the Project in question or their object is directly related to the consultancy services for the preparation.
  - b. Have been consulted during the diagnosis and identification of needs phase for the preparation of the technical specifications and other documents used in the bidding documents.
  - c. Some of its majority shareholders, employees in key positions or staff indicated in the proposal have a family relationship with PMU, Executive Agency or Borrower staff.

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<sup>12</sup> If the consultant has been employed by the Bank in the four years prior to the date of the consultancy in question, the Project Team Leader should be informed to consult the Bank's Ethics Office and check whether the consultancy could result in a conflict of interest.

- d. Are or have been associated with a company or any of its affiliates that has been contracted by the PMU, the Executing Agency, the Borrower or the Bank to provide consultancy services related to the preparation of the design, technical specifications and other documents to be used in the tender for the acquisition of the goods that are the subject of the tender, or submit more than one bid in the said tender process.
- e. Have majority shareholders in common and/or the same legal representative as other participants in the bidding process, receive or have received any direct or indirect subsidy from any of the other bidders, or have a mutual relationship, directly or through third parties in common, that allows them to have access to information about another bidder's proposal.
- f. Are or have been associated, directly or indirectly, with a company or any of its affiliates that has been contracted by the Employer to provide consultancy services for the preparation of the design, specifications and other documents to be used in the bidding process for the contracting of the works that are the subject of the invitations to tender.
- g. Could influence the bidding process in question or the Employer's decisions with respect to that bidding process.
- h. Participate in more than one tender in the bidding process.
- i. Have been affiliated with a company or entity that the Contractor or the Borrower has engaged or has proposed to engage as an engineer or supervisor under the contract.
- j. Subsequently, they will participate as a bidder for goods, works or services resulting from or directly related to the contract in question.
- k. Subsequently, they plan to hire a PMU member in any capacity.
- l. In the case of a contract for services other than consultancy or goods, any of its majority shareholders, key employees or personnel indicated in the proposal has a family relationship with any direct beneficiary of those goods or services.

### **10.3.3 Project Management Unit (PMU)**

- 9.15 An PMU member, including members of the Evaluation Committees, has a real or apparent conflict of interest if:
  - a. You have or have had a family, personal, work or financial relationship with a bidder, one of its majority shareholders or one of its key personnel who is competing in a given bidding process.
  - b. Have or have had a family, personal, work or financial relationship with a contractor, one of its majority partners or one of its key personnel who is executing a project financed with program resources.
  - c. Have a working, close personal or family relationship with any other PMU staff member, Project Executing Agency or Borrower staff member who has influence over program decisions.
  - d. Have a family relationship with a direct beneficiary of the goods, works or services other than consultancy that are the subject of a contract financed with program funds.
  - e. After becoming a member of the PMU, you are hired by a company that receives funding from the program.
- 9.16 It is important to mention that deliberately lying, misrepresenting or concealing a situation that could generate a conflict of interest may constitute a prohibited practice (i.e. fraud), as

defined in the Bank's Procurement Policies, and may be subject to sanction by the IDB Group's Sanctions System.

#### **10.4 Evaluation**

- 9.17 At this stage, it must be determined whether the situation revealed may adversely affect the quality of the works, goods or services financed with program resources or adversely affect the principle of competition established in the Bank's Procurement Policies.
- 9.18 The assessment of the situation should be carried out by a group of people to be convened for this purpose. Ideally, the PMU Coordinator, the Financial Specialist and the Procurement Specialist should participate. If one of these is the person in a potential conflict situation, the group can be formed to include staff from the Implementing Body unrelated to the circumstances.
- 9.19 The group should assess the impact that the situation revealed may have on the programs and consider the effects that the conflict of interest may have on the decision to hire a consultant or contractor, decisions involving changes to the contract in question, the approval of payments, the certification of the delivery of goods or the progress or completion of works, the selection of beneficiaries, among others.
- 9.20 In carrying out this analysis, the group may, in addition to using its professional judgment, be guided by the provisions of Section 1.11 of the [Policies for the Selection and Hiring of Consultants Financed by the Inter-American Development Bank](#) and the [standard bidding documents](#) approved by the Bank.
- 9.21 When doing the analysis, it can be useful to ask yourself the following questions: What is the purpose of the contract? Did the company or consultant have access to information that is not available to all bidders or candidates? Would their personal relationship affect the impartiality of their evaluation of the proposal/offer? Would the type of supervision of the company be affected by their relationship with person X? Does this consultant have an advantage over other candidates because they are related to X? Are these beneficiaries more likely to have access to the good or receive the service because they are related to PMU staff? Would company X receive a more favorable report if it were audited by a relative of the majority shareholder? Is there a likelihood that if a contractor financed by the Program offers a job to PMU official X, he/she will receive preferential treatment during the execution of the contract?
- 9.22 When assessing the situation, it is important to consider the specific details and timing/duration of the events giving rise to the conflict of interest. For example, the PMU technical expert had been an employee of company X for 15 years compared to having worked for that company until two years ago.

#### **10.5 Mitigation**

- 9.23 In most situations, the risk to integrity and the impact on reputation arising from a conflict of interest can be mitigated by recusal of the parties involved or, sometimes, by the sale of assets. However, it is important to ensure that this recusal or the sale of assets has the necessary effect in practice.
- 9.24 In the event of the refusal of an PMU member, the employee's supervisor and/or the members of the Evaluation Committee must ensure that the employee who has refused to participate in the process has restricted access to any information from the decision-making

process during the award and supervision of the contract. In the case of a sale of assets or transfer of decision-making power in a company, it is necessary to ensure that the controlling interest or command of the company is transferred to an independent person or entity.

- 9.25 In some cases, such as the participation of a company in the drafting of the terms of reference or in the generation of employment or business opportunities in the future, it is not possible to mitigate the conflict and therefore the company will not be able to participate in the bidding process.

## **10.6 Disclosure**

- 9.26 The nature of the conflicts of interest revealed, as well as their assessment and mitigation, must be communicated to the Bank so that it can determine whether they have been resolved to its satisfaction.

## **10.7 Filing**

- 9.27 Declarations and resolutions on conflicts of interest must be made in writing and kept as part of the respective contract file so that they can be consulted when necessary.

## **10.8 Implementation of due diligence measures**

- 9.28 Integrity due diligence is understood as the process of gathering information to confirm the technical and financial capacity of the bidder or tenderer and to monitor the warning signs related to the contractor to reduce the likelihood of a prohibited practice occurring, as well as to reduce the impact on the achievement of program development objectives or on the reputation of the Bank or program.
- 9.29 Before recommending the award of a contract, the members of the Evaluation Committee must confirm that the bidder does indeed have the technical and financial capacity indicated in its bid, by verifying its experience and the validity of the bid documents and/or guarantees. These measures will allow the PMU to get to know and monitor the potential contractor with the aim of reducing the likelihood of prohibited practices occurring during the performance of the contract.
- 9.30 The Evaluation Committee should also check the [Inter-American Development Bank's List of Sanctioned Companies and Individuals](#) to verify that the company or consultant recommended for award, as well as its legal representatives, directors and key personnel, is not sanctioned by the Bank or by other multilateral development banks.<sup>13</sup> Information on sanctioned companies and individuals, as well as all the guidelines on how to report a possible prohibited practice, can be found at <https://www.iadb.org/pt/sobre-o-bid/departamentos/oii>.
- 9.31 Any irregularity detected during the due diligence procedure must be reported to the Project Team so that measures to mitigate and manage the risk to integrity can be discussed. In

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<sup>13</sup> If the company or individual does not appear as sanctioned on the IDB's list, but on that of another multilateral development bank, this sanction should be taken as a risk factor for integrity that should be analyzed, but does not constitute a cause for ineligibility.



addition, the process must be documented to facilitate accountability, respond to possible challenges and ensure the Bank's audit and inspection rights.

9.32 Below are some examples of information that should be checked before recommending the award of works, goods or consultancy contracts to a company, especially if these contracts are complex or of high value.

- Check the **company's website** for their logos, address, telephone numbers, management team and general information about their background and/or experience;
- Check the information and history of the entity or individual **in the state's register of suppliers** and assess whether any past non-compliance or disqualification represents a risk factor for the proper execution of the contract;
- If the company has already been contracted by the Executing Agency or any public institution, it is advisable to **check the available records and compare the information presented** for other similar processes, in terms of experience and financial information, to confirm the consistency of the information presented;
- **Confirm the deposit or guarantee of the bid** with the financial institution that issued it by telephone or other rapid means of communication;
- In the case of the purchase of goods, if the bidder is not the manufacturer of the goods, **confirm with the manufacturer** that the bidder is an authorized distributor.
- If the company is new to the market and comes from another country, check **its experience and financial certifications with one of the issuers of these certifications**. In addition, it is a good idea to do an internet search on the company's history in its country of origin and in other markets where it operates, checking for possible disqualifications and disputes and consulting the press to assess possible risk indicators for the award and execution of the contract;
- **Search the name of the company or individual with keywords** [corruption, additional costs, irregularities, fraud, delays, penalties] using online search engines to obtain information on possible investigations, ties to senior government officials or contracting authority, recent changes in legislation that may benefit the company in relation to the contract, sanctions or fines that may have an impact on the execution of the contract or the reputation of the Bank and the Executing Agency.
- In the case of selection processes for consultancy firms, **it is advisable to check directly with key personnel** their availability to work for the duration of the contract;
- **Check that there are no conflicts of interest** between the potential contractor and the staff of the Executing Unit who participate or will participate in decision-making about this contract. This verification can be done through the information provided by both parties in their respective conflict of interest declaration certifications;
- If the **beneficial ownership form** is used, check that the final beneficiary is not on the Bank's list of sanctioned parties and that this company or individual has no conflict of interest with the staff of the executing agency.
- Specifically in the case of **verifying financial information**, **it is recommended** that the following procedures be adopted, especially in the case of essential purchases for the program:

- i. **Do a vertical analysis of the balance sheet and income statement** to check their consistency. For example, present the components of the balance sheet and/or income statement as percentages (the sum must be 100%).
- ii. If the bidder is required to prove its technical experience through invoicing, ask the bidder to present the invoicing **for each completed year** (not including future invoicing) and that the bidder duly considers **revenue recognition policies**;
- iii. Check that the financial statements correspond to the **accounting periods already completed and audited**. Financial statements for partial periods should not be accepted;
- iv. Check that the financial position reflects **the situation of the bidder** and not that of a subsidiary or parent company;
- v. Check that there is **a tender guarantee and a guarantee issued by a commercial bank**. In other words, the bidder must duly indicate its available sources of financing to meet its cash needs (liquidity) to carry out the work or supply the goods. For example, liquid assets (cash and bank), assets not subject to any reservation of title, credit lines;
- vi. Check/calculate that the **financial ratios** are compatible with the financial information presented;
- vii. The Evaluation Committees can call on the Financial Expert if they need support in the financial evaluation of the proposals.

## 10.9 Definitions of prohibited practices under the IDB's Procurement Policies

9.33 The definitions of prohibited practices under the Bank's Procurement Policies are set out below:

- i) A "corrupt practice" consists of offering, giving, receiving or soliciting, directly or indirectly, anything of value to unduly influence the actions of another party;
- ii) A "fraudulent practice" is any act or omission, including the misrepresentation of facts or circumstances, that deliberately or recklessly deceives or attempts to deceive a party to obtain a financial or other benefit or to avoid an obligation;
- iii.) A "collusive practice" is an agreement made between two or more parties to achieve an improper purpose, including inappropriately influencing the actions of another party;
- i) A "coercive practice" consists of harming or causing harm or threatening to harm or cause harm, directly or indirectly, to any party or its property to unduly influence the actions of a party;
- ii) An "obstructive practice" consists of (i) destroying, falsifying, altering or concealing evidence significant to an IDB Group investigation or making false statements to investigators for the purpose of obstructing an IDB Group investigation; (ii) threatening, harassing or intimidating any party to prevent the disclosure of its knowledge of matters that are material to an IDB Group investigation or the continuation of the investigation or (iii) any act intended to materially impede the exercise of the IDB Group's contractual audit and inspection rights or its rights of access to information;

- iii) "Misappropriation" is the use of IDB Group funds or resources for an improper purpose or for an unauthorized purpose, committed intentionally or through gross negligence.

#### **10.10 Report possible prohibited practices**

- 9.34 The Bank requires that the highest ethical standards be observed by all Borrowers, executing agencies and contracting agencies, as well as by all companies, entities or individuals that act as bidders to participate or are participating in activities financed by the Bank, including, but not limited to, applicants, bidders, contractors, consulting firms and individual consultants, employees, subcontractors, subconsultants, suppliers of goods and service providers (including their respective officers, employees and representatives, whether their duties are express or implied).
- 9.35 The staff of the Project Management Unit have an obligation to report to the Bank any act that they suspect may constitute a prohibited practice of which they become aware, i.e. informed during the process of selection, negotiation or execution of a contract. It is important that the staff of the PMU also communicate to their internal and external control bodies the importance of notifying the Bank if they become aware of a report of a prohibited practice related to the programs.
- 9.36 All information related to a possible occurrence of prohibited practices in the programs must be communicated as soon as possible to the OII by e-mail ([ooi-reportfraud@iadb.org](mailto:ooi-reportfraud@iadb.org)) or via the Internet (<https://cuentame.iadb.org>). Other communication channels can be found on the IDB's website ([www.iadb.org/integridad](http://www.iadb.org/integridad)).

#### **10.11 Integrity clauses in individual consultancy contracts or contracts awarded by the price comparison method**

- 9.37 The Procurement Specialist of the PMU must ensure that all contracts, including those for individual consultancy or awarded by the price comparison method, contain the Bank's integrity clauses.
- 9.38 Requests for quotations must refer at least to the fact that the process is being financed with the resources of the loan agreement signed with the IDB and that the Bank's Procurement Policies will be applied.
- 9.39 Contracts signed as a result of price comparisons or that do not use the documents previously agreed with the IDB<sup>14</sup> must contain the following information:
  - i) The contractor/consultant agrees to abide by the Bank's rules and policies regarding prohibited practices as defined under Article 1.16, item "a", of the Policies for the Procurement of Goods and Contracting of Works Financed by the Inter-American Development Bank (document GN-2349-15) (or, as the case may be, Article 1.23, item "a" in document GN-2350-15, Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank).

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<sup>14</sup> The Bank's standard documents and the contracts agreed between the Executing Agency and the Bank refer to the prohibited practices clauses.

- ii) The contractor/consultant undertakes to observe the highest ethical standards and to report to the Bank any act suspected of constituting a prohibited practice of which he/she becomes aware or is informed during the process of selection, negotiation or execution of the contract.
- iii) The contractor/consultant declares to be aware that the Bank may sanction the party that has engaged in a prohibited practice (any company, entity or individual acting as a bidder or participating in an activity financed by the Bank, including, but not limited to, applicants, bidders, suppliers of goods, in accordance with the stipulations of Article 1.16, item "e", of the Policies for the Procurement of Goods and Contracting of Works Financed by the Inter-American Development Bank (document GN-2349-15) (or Article 1.23, item "e" in document - GN23509-, Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank).
- iv) The contractor/consultant, including members of its key staff and subcontractors, declares that it does not have a conflict of interest with any member of the staff of the PMU who has a connection with the contract.

#### **10.12 Formation of evaluation committees**

- 9.40 The members of the Evaluation Committee who represent the technical side must be fully aware of the process being evaluated. To prove their ability, the person appointed to the Committee must present their CV to demonstrate that they meet the minimum profile required.
- 9.41 Persons will not be allowed to participate in the Evaluation Committee who have a conflict of interest with any of the bidders to be evaluated. All members of the Evaluation Committee must sign a declaration stating that they have no conflict of interest at the time of starting the evaluation and that they undertake to disclose and manage any conflict of interest that may arise during the evaluation process, as stipulated in the chapter on Conflicts of Interest in these Regulations.
- 9.42 The members of the Evaluation Committee must also sign a declaration of confidentiality of the evaluation process which ensures that all information relating to the tender evaluation process will be kept confidential until the publication of the contract award.
- 9.43 It is recommended that the members of the Evaluation Committee document their deliberations in minutes to form part of the archive. These minutes must be signed by all the members of the Evaluation Committee and filed with the documents in the file.
- 9.44 The PMU Procurement Specialist shall train all members of the Evaluation Committee on the applicability of the Bank's Procurement Policies and on how these policies should be reflected in the drafting of the PMU Procurement Policy.
- 9.45 The Evaluation Committees may refer to the Procurement Specialist and/or the PMU Financial Specialist if doubts arise in the evaluation process regarding the applicability of the Bank's policies.
- 9.46 In the case of the procurement and selection processes for individual consultants who will be part of the PMU staff, it is recommended to include an independent observer from civil society who will not have voting rights, but will be able to make observations on the process which should be recorded in the minutes of the Committee's deliberations. Participants

taking part as observers must also sign a declaration of confidentiality of the evaluation process.

## ANNEX 1

### Identification, prioritization and selection of communities

#### A. Identifying communities

- 1.1 To identify and select the communities, a field survey will be carried out by a state agency, coordinated and supervised by the PMU and with the support of the Regional Project Management Units (RPMU), to survey the characteristics of the communities based on a list of criteria and the methodology defined in the ROP.

#### B. Eligibility criteria for communities

- 1.2 To be eligible, communities must meet the following criteria:
- i) Be rural communities of family farmers who develop agricultural or non-agricultural activities aligned with the productive activities of the Project;
  - ii) High percentage of families registered in the Single Registry (**CadÚnico**);
- 1.3 Based on this survey, a list of communities with the profile and characteristics to receive investment and support from the two components will be drawn up in each Rural Territory<sup>15</sup>.

#### C. Prioritizing and selecting communities

- 1.4 Based on this list of identified communities, the Project team will visit the communities (some between five and ten per municipality) to validate the data provided during the identification.
- a) Criteria for prioritizing communities:
    - i) Being a traditional and original community (quilombola, Indigenous, artisanal fishersfishermen, others);
    - ii) High rate of families registered in the Single Registry (**CadÚnico**);
    - iii) Higher proportion of families needing a cistern for drinking water and sanitation;
    - iv) Prioritize families that have not benefited from other projects to finance activities like those that the PIR will finance;
    - v) A higher proportion of families represented by women and young people and families with persons with disabilities;
    - vi) Evidence of environmental degradation (using the appropriate platform); and
    - vii) No or low level of access to TA services.

- 1.5 Once the field assessment has been completed, the PMU team will draw up a prioritized list of communities by Rural Territory, which will be presented at a plenary meeting in

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<sup>15</sup> Rural Territory: Paraíba is divided into rural territories, which choose their priority demands, working on common policies between the municipalities in each territory and forwarding them to the state government. The aim is for public policies for family farming to reach the rural population more effectively.

each Territorial Council, to be validated and thus guarantee the legitimacy of the selection process in the eyes of other local actors.

- 1.6 The entire process of identifying, prioritizing and selecting communities will be carried out under the supervision of the PMU team during the first few months of implementation, and can preferably be prepared and started before the start of implementation (valuing the possibility of retroactive financing) to avoid possible delays in the initial phase of the Project.
- 1.7 At this stage's end, all the communities where the Project will do some activity will be selected. It has been estimated that the Project will be able to work in approximately 600 communities.
- 1.8 For reasons related to implementation, the work of TA, the ADLs and the creation of local dynamics and synergies, these 600 communities will be organized into small groups of up to three surrounding communities (or the equivalent of approximately 100 families), thus constituting a Local Territory (TL). As part of the Project design process, three communities were considered per TL, thus reaching around 200 Local Territories, and consequently 200 PIRs. This form of organization in TLs has been used in other projects (particularly in Bahia with the Gente de Valor and Pró-semiárido projects), with very positive results both from the point of view of implementation and strengthening the beneficiaries' organizational dynamics.
- 1.9 Each PIR will be prepared and implemented with an existing community association that is able to make this commitment to the Project. This formalized association will represent all the communities that make up the Local Territory and will be selected based on its organizational capacity and experience.

## ANNEX 2

### Implementation of resilient and biodiverse production systems

#### A. General aspects of PIRs

- 1.1 During the implementation of the PIRs, in addition to close and permanent synergy with TA actions (including specialized TA where justified), strengthening community organizations and supporting innovation, complementarities will be established with other Component 2 activities, such as: land and environmental regularization; actions related to diversity, gender, youth, PCT and families with persons with disabilities.
- 1.2 The PIR will benefit groups of families, prioritizing women, young people, traditional communities and the persons with disabilities, and will finance inputs, tools, equipment and other investments needed to enable the adoption of technologies to improve productivity, adapt to climate change, and improve food and nutritional security.
- 1.3 In all cases, the activities selected will come from the Rapid Participatory Diagnosis (RPD), which will identify not only the demands, but also the problems, priorities and potential demands of the beneficiary communities and families. These activities must meet the eligibility criteria that will be detailed in the Project Operational Regulations (ROP) and: i) be highly consistent with the production methods characteristic of the biome, region and community, ii) allow for production intensification based on the principles of agroecology, as well as adaptation to climate change, and iii) have the full agreement of the families involved.
- 1.4 The same PIR can support more than one productive activity or environmental axis and include the implementation of various types of Social Technologies, thus seeking coherence with the reality of family farming to meet the demands of the communities in a diversified way and can guarantee the inclusion of various profiles of beneficiaries, particularly women and young people. In these cases, the beneficiaries will be organized into interest groups around the activities selected to make up the PIRs.
- 1.5 During the process of drawing up the PIRs, the integration of new members and partners into existing organizations will be encouraged, giving priority to women, young people and families with Persons with Disabilities.

#### B. Provision of Agroecological Technical Assistance and Rural Extension (ATER) services

- 1.6 All PIR beneficiaries and their organizations will receive agroecological TA services for a period of three and a half years (Annex "Promoting Agroecological Transitions in Brazilian IFAD Projects"<sup>16</sup>), contracted by the PMU through a competitive process that meets IDB/IFAD standards. These services will be financed by Subcomponent 2.1, in which they are presented in detail. They will strengthen the capacities and advise the beneficiaries to design, implement, monitor the operation of and complete the PIRs. This includes advice on production from an agroecological perspective and adaptation to climate change, management, organization, access to public policies and marketing, ensuring compliance with current health and environmental legislation. The support provided by the TA entities

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<sup>16</sup> The annex describes how the concept of agroecology is applied in IFAD projects in Brazil, and specifically in the PROCASE II project.



should include support for the beneficiaries to carry out the procurement and accountability processes related to the implementation of the PIRs, considering that the financial resources will be transferred to the beneficiary associations through a procedure defined in the ROP. In the selection of TA services, criteria will be applied that allow for the inclusion of women technicians in the teams, with a view to being as adherent as possible to the specific needs of women and to proposing more appropriate solutions for the women beneficiaries of the Project's actions. For example, it will be a selection criterion for TA organizations to have a minimum percentage of 30% women on their teams.

- 1.7 In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, and which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of the Social Technologies and training beneficiaries to apply good use and maintenance practices.

**C. Process for drawing up Resilient Investment Plans (PIRs)**

- 1.8 In each selected community, the TA entity will draw up the PIR together with the communities, taking as its starting point the carrying out of a Participatory Rapid Diagnosis (PRD), with a view to characterizing the problems and obstacles (productive, environmental and social) affecting the communities and rural families, identifying the investments needed to solve them, and gathering all the data and information needed to draw up all the actions that the Project will implement through the PIRs.

- 1.9 The first stage of drawing up the PIR consists of carrying out a detailed diagnosis using the DRP methodology with a focus on:

- i. Assess the characteristics of the community from the point of view of the productive activities to be supported (availability of natural resources, potential adaptation to climate change, viability, etc.);
- ii. Gather technical data on production capacity and market access, identifying potential and related risks;
- iii. Analyze the state of conservation of vegetation cover, biodiversity, soil and water resources and the ways in which these natural resources are used for productive purposes;
- iv. Survey the social characteristics of the beneficiaries, their previous experiences and forms of organization, collective management capacity and level of social organization;
- v. To collect data on obtaining DAP and registering families in the Rural Environmental Registry (CAR);
- vi. Identify the needs of the families and the association from the point of view of TA, to strengthen capacities relating to productive issues, adaptation to climate change, organizational capacities, management and governance;
- vii. Identify the characteristics and socio-productive needs of each group, and in particular the priority groups - PCT, women, young people and families with persons with disabilities;
- viii. Identify the needs, relevance and modalities for carrying out environmental recovery actions;

- ix. Identify the demand from the point of view of access to water for production (52,000-liter cisterns and reuse of grey water);
  - x. Identify the need for and situation regarding access to other social technologies for collecting, storing and reusing water, sanitation, improving energy consumption, such as biodigesters, access to renewable energies and waste management;
  - xi. Identify the connectivity situation in terms of internet access;
  - xii. Identify the land ownership situation of the association's members;
  - xiii. Identify access to public policies;
  - xiv. Identify the environmental and social risks of the production activities supported, in accordance with social and environmental safeguards;
  - xv. In the case of traditional communities, the specific forms of organization (collective work and production, for example) and management of natural resources, characteristics of socio-cultural habits, will be surveyed; and
  - xvi. The potential for coordination with other local players will also be assessed.
- 1.10 Drawing up the diagnosis will be a participatory process, with consultations carried out through successive collective meetings with all the members of the association and specific meetings with women and young people, thus enabling demands to be identified. These consultations will be supplemented by visits to the farms and production areas. It is estimated that it will take a maximum of two months to prepare the diagnosis.
- 1.11 The diagnosis should point to the activities that could be carried out in the community and will therefore be the basis for drawing up the PIR, as well as gender, diversity and youth activities and land and environmental regularization.
- 1.12 Once the diagnosis has been drawn up (within a maximum of 2 months), it will be validated by all the beneficiaries in a collective meeting.
- D. Drawing up PIRs**
- 1.13 Once the diagnosis has been completed, the PIRs will be drawn up. This process will be participatory and conducted by TA entities previously contracted and trained by the PMU to draw up and implement the PIRs (see details in subcomponent 2.1 on capacity building). Throughout the drafting process, the RPMUs will play an important support and quality control role. Each PIR will be drawn up and implemented with technical support from the same TA organization, thus ensuring greater commitment, quality and continuity throughout the process.
- 1.14 The scope of the PIR is the territory(ies) of the selected community(ies) that make up the Local Territory and the group of families in these communities. During the preparation process, the integration of new families into the associations will be encouraged, particularly those represented by young women and families with Persons with Disabilities, to expand the scale of work and encourage the integration of this public.
- 1.15 For the design of the Project, it was estimated that each PIR will cover an average of 90 families from the Project's target groups, selected according to the criteria presented above and detailed in the ROP. The PIR will support productive activities in the community (new or consolidating existing activities) with potential for commercialization, incorporating concepts of sustainability and agroecology, good production practices and environmental resilience, nutritional education and food and nutritional security for families, encouraging

- nutritious and diversified diets, expanding agri-food diversity, as well as ensuring integration with social technologies.
- 1.16 Agricultural activities with the region's main production systems and non-agricultural activities (such as handicrafts, community-based rural tourism, etc.) can be supported. The same PIR may support more than one productive activity, provided it is justified and has the potential to be viable. In these cases, the beneficiaries will be organized into interest groups around each activity, and the same beneficiary may not participate in more than one group. The Project's methodology will be based on strengthening and establishing synergies and complementarities with existing dynamics developed with other actors and projects present in the Rural Territories (COOPERAR Project, Dom Helder III Project and Sertão Vivo Project).
  - 1.17 The PIR (see attached roadmap) will be drawn up based on the data collected during the diagnosis. The same TA technical team that carried out the diagnosis will conduct this work, following the methodology defined in the ROP, (with reference to the methodology of the System for Financial Analysis of Productive Projects<sup>17</sup> (SAF-PP) developed by IFAD/Semear project and applied in various projects). The SAF-PP used in other IDB/IFAD-funded projects, such as in Piauí, and currently under the tutelage of the Federal University of Viçosa (UFV), could be acquired by PROCASE II and customized to suit its characteristics.
  - 1.18 The PIR should describe the initial situation of the families, the investments to be made and the expected results for the three axes (productive, environmental and social technologies). Investments should always consider the integration of innovative practices for the sustainable use and management of natural resources appropriate to the local context, conservation practices for each biome and other low GHG emission agricultural techniques that maximize the provision of ecosystem services.
  - 1.19 The PIR will be able to finance, for example, inputs, tools, small livestock (it will not be possible to finance cattle livestock), equipment and small machinery, and include investments in renewable energy and rural connectivity.
  - 1.20 The PIR's strategy and methodology will be based on agroecological practices, combining sustainable production intensification with the conservation of natural resources and promoting a paradigm shift to transform current practices into adaptive and resilient models, increasing diversity (biological and productive) and resulting in an improvement in the quality of life of beneficiary families. The Project will not be able to finance the purchase of pesticides and other synthetic inputs, but only inputs aligned with the principles of agroecology.
  - 1.21 Due to the importance of supporting marketing, the PIRs will define and support market access strategies and may also allow for the purchase of the necessary material (stalls for fairs, scales, boxes for transporting products, visual identity material, etc.). In these marketing strategies, access to the PNAE and PAA will be considered. Given the importance of valuing access to markets for agroecological products and those produced in traditional communities, courses and workshops will be held by TA entities for the beneficiaries, to present the conditions for obtaining the Quilombos and Family Farming

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<sup>17</sup> The system allows you to enter all the information relating to the investments made and the projections of costs and results, in order to calculate the main economic and financial evaluation indicators.

seals, among other possibilities. With the participation of representatives of the beneficiaries and the TA teams, these courses should help to structure the productive activities of the PIRs, contributing to their economic viability. The PIRs' market access actions should be linked to the actions envisaged under subcomponent 2.2 - strengthening the organizations' marketing capacities.

1.22 When drawing up the PIRs, prioritization criteria will be applied so that women, young people and persons with disabilities can be involved and be direct beneficiaries of the Project's actions, particularly in the processing processes, access to markets and the use of new technologies, including virtual commerce and other digital solutions.

1.23 A feasibility and financial profitability study will be carried out using the SAF-PP system by TA (who will have received training for this) on a realistic projection basis, assessing the expected increase in income per family and considering self-consumption of production. The PIRs selected must demonstrate technical, economic, financial and environmental viability and sustainability.

**E. Parameters for drawing up PIRs**

1.24 The PIRs will be drawn up considering the following parameters:

- i) Number of families: a PIR can serve no fewer than 30 families and no more than 120;
- ii) The name and CPF of each representative member of the beneficiary family will be attached to the PIR;
- iii) The amount of funding from the project cannot exceed: USD 1,900 per family for the productive axis, USD 100 per family for the environmental axis and USD 786/ family for the Social Technologies axis, totaling USD 2,786/family as the maximum investment;
- iv) The minimum amount of Project resources per PIR is USD 83,580 and the ceiling is USD 334,320;
- v) The funds from the Project will be non-reimbursable. The beneficiaries must provide a counterpart of at least 10% of the amount financed by the PIR, which can be either financial or economic, such as labor, goods and services directly related to the implementation of the PIR;
- vi) Priority will be given to PIRs for associations and/or interest groups in which more than 50% of the beneficiaries are women, or which are led by women;
- vii) Priority will be given to PIRs for associations and/or interest groups with at least 20% young beneficiaries of the activities funded;
- viii) Priority will be given to PIRs for associations and/or interest groups with at least 5% of PCT beneficiaries;
- ix) The funds allocated to the PIR can finance goods for collective use (e.g. a milk cooling tank or a forage motorcycle) or for family use (setting up a forage production field or pruning tools, etc.);
- x) The PIR should define the rules for the use, maintenance and management of collective assets;
- xi) The forms and modalities of access to the market for production from the PIR and the connection with processing units, in particular those financed by the Project;

- xii) The needs and points of attention in terms of TA and strengthening the capacities of the association and its members;
  - xiii) To highlight the investments and activities carried out with a view to adapting production systems and organizations to climate change, as climate investments;
  - xiv) Beneficiaries who have not registered with the CAR at the drafting stage must undertake to do so with the support of TA and the PMU team during the initial phase of implementing the PIR.
  - xv) The community must be represented by an entity that has been legally constituted for at least two years;
  - xvi) Entities must be in good standing with the Federal, State and Municipal Revenue Service.
- 1.25 The preparation of the PIR and the definition of productive activities should be carried out in accordance with the guidelines of the Strategic Environmental and Social Analysis (SEESA).
- 1.26 In the case of PIRs drawn up with traditional communities, it will be necessary to meet the requirements of the Informed Consultation and Participation (ICP) process.
- 1.27 To prepare the Project, four PIRs were drawn up to form a sample for the Economic and Financial Assessment. Based on field visits and analysis of secondary data, the following production activities were selected: i) Improving bovine milk production by implementing SAF, ii) Improving goat milk production by implementing SAF, iii) Implementing irrigated backyard gardens for fruit and vegetable production and iv) raising poultry for egg and meat production. As mentioned, these activities were selected because they have strong potential, present good integration in the socio-economic and agri-environmental context and can be in individual or collective areas. It is important to mention that during implementation, based on the demands identified, other agricultural and non-agricultural productions can be developed through PIRs, provided they meet the Project's criteria and objectives. The same PIR can support more than one productive activity.
- 1.28 It is important to note that the 04 PIRs that were drawn up as a sample during the design of the Project will have to be updated (mainly in the financial part, to take account of changes in procurement costs, and to update the list of intended beneficiaries, which may change between the design and the start of implementation).
- 1.29 The conditions under which this sample was drawn up during the design phase meant that it was not possible to draw up PIRs for a group of communities organized in a Local Territory, as will be the case during implementation. For this reason, the PIRs drawn up during the Project design phase as a sample only include one community.
- F. Investments eligible for PIR funding:**
- 1.30 PROCASE will finance the investments needed to make the PIRs viable. These investments can be classified into three groups. The extended list of eligible investments is available in the ROP:
- i) **Group 1 - Non-Consulting Services.** This group includes investments associated with hiring technical-operational services, such as transportation, application of inputs, installation of equipment, vehicle rental, technical assistance and rural extension (ATER) to producers, among others;

- ii) **Group 3 - Assets.** This group includes investments associated with the purchase of inputs, such as seedlings or seeds, and equipment for the production, processing, marketing and distribution of the products of the PIR to be promoted;
- iii) **Group 4 - Works.** This group includes investments associated with the provision or renovation of productive structures and/or economic infrastructure, such as drilling wells and processing units, with a maximum of 20% of the value of each PIR. If this percentage is exceeded, a no-objection request must be made to the IDB and IFAD, which will analyze each specific case.

**a) Types of Climate Adaptation investments that can be financed by investments in the PIRs:**

- Implementation of good ecological fertilization practices (such as biocaldas and green manures) in areas vulnerable to climate change;
- Implementation of erosion and soil loss management technologies in areas vulnerable to climate change,
- Implementation of crop protection technologies in critical areas, with SBN concepts, nature-based solutions;
- Implementation of technologies to recover soils degraded by salinization in areas vulnerable to climate change. The use of correctors such as organic matter and the insertion of microorganisms to accelerate processes will be supported;
- Productive diversification in crops and livestock in areas most vulnerable to climate change. Avoid monoculture and invasive exotic species (particularly in SAFs). Encourage crop rotation, permanent vegetation cordons, among other techniques;
- Integrated pest and disease management in areas most vulnerable to climate change, considering restrictions on the use of pesticides and genetic manipulation (transgenics);
- Management of natural pastures to guarantee animal feed and reduce vulnerability to climate change. The ESMP will consider monitoring to prevent undue deforestation to establish pastures;
- Improvement and transfer of genetic resources in plantations and genetic improvement to increase their resilience to climate change;
- In situ and ex situ conservation of biodiversity to increase resilience to climate change;
- Added value of agricultural products in value chains vulnerable to climate change;
- Irrigation or use of water in the agricultural sector, considering the source of the resource (wells, for example) and the restrictions or conditions to be respected;
- Improving existing water reservoirs for agricultural use;
- Implementation of "seeding" and water harvesting interventions;
- Implementation of intra-property infrastructure for the conduction, distribution and application of irrigation water;
- Implementation of irrigation systems with water-efficient technologies;
- Technical assistance for the sustainable use of water;

- Conservation and recovery of natural infrastructure in basins vulnerable to climate change;
- Implementation of early warning systems for floods, droughts and alluvial floods in basins vulnerable to climate change;
- Implementation of water quality monitoring systems in basins vulnerable to climate change.

**b) Types of Climate Mitigation Investments that can be financed by investments in PIRs**

**(i) Agricultural production**

- Improving the industrial energy efficiency of projects in operation (e.g. photovoltaic systems);
- Reduced energy consumption in operations;
- Agricultural projects that contribute to increasing soil carbon stocks or preventing soil carbon loss through erosion control measures;
- Reduction of GHG emissions from low-carbon agricultural practices or technologies;
- Projects that reduce methane or other GHG emissions;
- Projects that improve carbon sequestration through land management;
- Forestry or agroforestry projects that sequester carbon through sustainable forest management, avoid deforestation or prevent land degradation;
- Projects that reduce food loss or waste or promote low-carbon diets;
- Projects that contribute to the reduction of GHG emissions through the production of biomaterials / bioenergy from biomass; and
- Improving the energy efficiency of existing irrigation system projects, implementing technologies or equipment with low energy consumption, promoting good control practices, or reducing water losses (drip irrigation).

**(ii) Solid Waste and Effluent Management in Processing and Marketing Units**

- Anaerobic digestion of bio-waste collected separately;
- Composting bio-waste collected separately;
- Other types of bio-waste recovery;
- Mechanical or biological treatment of mixed waste;
- Care and handling in operation, use of PPE and accident response systems; and
- Effluent treatment systems.

**(iii) Buildings in the agricultural sector**

- Measures that reduce energy consumption, resource consumption or CO2 emissions and or increase carbon sinks by using vegetation in new and existing buildings and associated land;
- Measures that reduce energy consumption, resource consumption or CO2 emissions and, or measures that increase carbon sinks by using vegetation in new or refurbished buildings and associated land, thus meeting certification standards;
- Measures that reduce energy consumption, resource consumption or CO2 emissions and or increase carbon sinks using vegetation in public areas or facilities; and
- New or low-consumption appliances or equipment;
- Pilot experiments to introduce renewable energy sources, such as biogas or solar energy.

**(iv) Investments not eligible for PIR funding:**

- 1.31 Some types of investment will not be financed by the Project. Among other things, they cannot be financed:
- i) Purchase of real estate of any kind;
  - ii) Spending on land and environmental regularization;
  - iii) Current expenses (salaries and social charges for existing staff, water, electricity, internet, telephone);
  - iv) Operating and maintenance costs, construction, expansion, modernization, renovation and construction of civil or water works on real estate that does not have title to the land, but can present a declaration of ownership, a declaration of purchase and sale or a loan agreement;
  - v) Purchase of bovine matrices;
  - vi) Purchase of agrochemicals such as herbicides, fungicides and insecticides;
  - vii) Construction or refurbishment of processing plants that use firewood as a source of energy, in whole or in part.
- 1.32 In addition, **below is as** list of investments that cannot be financed and are prohibited from being financed under PROCASE.
- G. PIR approval process:**
- 1.33 Throughout its preparation, the PIR will be entered into the Project's management system, to make the information accessible and available for wide consultation.
- 1.34 During the preparation process, the teams from the RPMUs will make an important contribution to validating and verifying the information in the PIR. Once finalized, the PIR will be submitted to an evaluation by CEGIP (Executive Committee for the Management of Productive Investments), made up of the PMU and representatives of Paraíba state agencies (detailed composition is in the ROP). CEGIP will draw up an opinion covering the technical, economic, social and environmental areas.
- H. Criteria for evaluating and prioritizing PIRs**
- 1.35 The evaluation will follow the criteria defined in the ROP, including:



- i) Proof of economic and financial viability
- ii) Integration of technological innovations with environmental benefits (on water, biodiversity, soils, native vegetation, riparian forests, recovery of springs, etc.);
- iii) Prove the ability to integrate and adopt techniques for the recovery and protection of environmental resources;
- iv) Proof of the adoption of technological proposals based on the principles of agroecology;
- v) Proof of technical, economic and financial viability and sustainability;
- vi) Potential for strengthening family capacities and community organization;
- vii) Prove the integration and relevance of the use of social technologies;
- viii) Achieving the required 10% match, whether monetary or non-monetary;
- ix) Representation of groups of women, young people and families with persons with disabilities;
- x) Belong to traditional communities and socially vulnerable family farming communities.

1.36 The criteria mentioned in the table below have been drawn up with a view to transparency and will be used to analyze and prioritize the PIRs.

Table 01: Criteria for prioritizing and evaluating PIRs

	VARIABLE (K)	MEASUREMENT (1-10)	WEIGHTING (1-5)	SCORE
	Analysis of the contextualization (Reference Framework) of the Project (Points from 1 to 5)	1 a 5	5	25
	Analysis of the Results Matrix (feasibility, level of risks) Notes from 1 to 5	1 a 5	3	15
P R O P O S A L	Profitability (%) of PIR: classes ( $X \leq 5$ = 3 points; $(5.1 \leq X \leq 10) = 5$ ; $(10.1 \leq X \leq 20) = 7$ ; $(X \geq 21) = 10$ )	10	2	20
	Economic internal rate of return (EIRR)(%) of the PIR (classes $(12 \leq X \leq 17) = 3$ points; $(17.1 \leq X \leq 25) = 5$ ; $(X \geq 25.1) = 10$ ).	10	5	50
	Lowest cost per beneficiary, (USD1.00/producer) (classes $(X \leq 2,000) = 10$ points; $(2,001 \leq X \leq 2,500) = 7$ ;	10	5	50

(2,501≤X≤3,000) =5; (3,001≤X≤4,000) =3; (X>4,000) = 0).			
Percentage of women direct beneficiaries, (women direct beneficiaries/total beneficiaries) (classes (X≤10% = 0 points; (10%≤X≤50%) =3; (50≤X≤75%) =7; (X≥75%) = 10).	10	5	50
Percentage of PCT direct beneficiaries, (PCT direct beneficiaries/total beneficiaries) (classes (X=0% = 0 points; (1%≤X≤25%) =3; (25≤X≤65%) =5; (X≥65%) = 10).	10	5	50
Expectation of annual growth in production activity (< 10%=1 point, 10.1% to 20%= 2 points, > 20.1%= 3 points)	3	3	9
Percentage of young people (up to 35 years old) who are direct beneficiaries, (young direct beneficiaries/total beneficiaries) (classes (X≤10% = 0 points; (10%≤X≤50%) =3; (50≤X≤75%) =7; (X≥75%) = 10).	10	5	50
Expected increase in income for beneficiary producers (up to 20% = 1 point, > 20% = 2 points)	2	5	10
Market risks <sup>(3)</sup> (None or NA=10; Small= 8; Medium= 5; Large- 2; Uncertain= 1)	10	3	30
Counterpart mobilized (from 10.1 to 20 %=1, > 20.1 % =2 points)	2	3	6
Proportion of resources allocated to environmental adaptation including social technologies (< 20% = 2 points; from 20.1% to 50% = 5 points; from 50.1% to 80% = 7 points; > 80% = 10 points)	10	5	50
Technical capacity to generate water security compatible with the Project	10	5	10
Ability to guarantee food security for beneficiary families.	10	5	10

TOTAL TENDER	
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- 1.37 Once the Committee's no-objection has been received, a Memorandum of Understanding based on the PIR will be signed by the president and one other representative of the proposing association and SEAFDS, thus allowing the transfer of funds and the start of the PIR's implementation.
- 1.38 The Project includes a compulsory social inclusion measure and must guarantee that 50% of the resources from all PIRs benefit women, 20% benefit young people, 5% benefit PCTs and 2% benefit families with persons with disabilities. The PMU must monitor and enable the achievement of this target throughout the process of evaluating and validating PIR proposals.
- I. Running arrangement**
- 1.39 SEAFDS, through the PMU, will be the executor of this subcomponent and will contract through a competitive process, in accordance with the IDB's procurement policies, civil society organizations and service cooperatives to provide TA in the selected communities. The teams from the Regional Offices will be mobilized to supervise the implementation of the PIRs and to establish synergies and complementarities between the Project and other interventions.
- 1.40 The implementation of the investments defined in the PIRs will be carried out through the Terms of Development, signed with SEAFDS and an association representing the Local Territory that drew up and submitted the PIR for approval.
- 1.41 As Local Territories are generally made up of several communities (up to three communities), there may be more than one association in the Territory that can sign a Development Agreement with PROCASE II/SEAFDS. In these circumstances, it will be necessary to choose the one that will sign the Agreement (Termo de Fomento), which will be defined at a general assembly of the communities that make up the Local Territory. At this assembly, the various criteria that are relevant to making this choice are discussed (such as the existence of a legally constituted association in good fiscal standing, openness to incorporating new members, previous experience of managing resources, and others).
- 1.42 The beneficiary organizations that have signed the Agreement will be responsible, through the training process to strengthen them and with the support of TA (cf. Subcomponent 2.1), for purchasing goods and services with the funds received through the Terms of Agreement and then for accounting for these funds.
- 1.43 The state of Paraíba requested this methodology of making beneficiary organizations accountable through the transfer of funds to associations, based on the good results obtained during the implementation of PROCASE I, among other projects monitored by the IDB and IFAD in other states. Other projects supported by the IDB, such as PDSA II in the state of Acre, have also achieved good results, both in terms of implementing activities and strengthening beneficiaries' capacities to collectively manage resources to implement activities. This strengthening contributes to sustainability and the ability to replicate the activities once the projects have been completed.
- 1.44 The funds will be passed on to the Community Association, which will have to open a specific account to manage the PROCASE funds. Disbursements will be made according to the execution schedule and may not exceed 20% of the total cost of the PIR. To receive

additional amounts, the Community Association must justify at least 60% of the advance received.

- 1.45 The aspects and modalities that will have to be applied for financial implementation, the procurement processes and the accounting of the beneficiaries' counterparts will be detailed in the ROP.
- 1.46 Based on these aspects, there will be a training process led by the PMU to create the necessary capacities to manage the implementation of the PIR. The TA entity responsible for drafting and monitoring its implementation will train the heads of the associations involved and provide the necessary support to the beneficiaries to comply with the rules defined.
- 1.47 For the implementation of the PIR and with the support of TA, the partner associations will organize thematic committees (such as procurement, accountability and transparency) to support management, in which the participation of women and young people will be a composition criterion. The participation of young people will be encouraged, in particular to develop the use of digital technology, for the implementation and monitoring of the PIRs.

**J. Costs and outreach**

- 1.48 The Project will work in up to 600 communities, through 200 Resilient Investment Plans, considering that each PIR will be drawn up by around 3 communities, thus constituting a Local Territory. The PIR of a Local Territory will be equivalent to the accumulation of 3 community PIRs, such as the models drawn up in the design (sample for the Economic and Financial Assessment), considering that it was not possible to draw up a PIR for a Local Territory during this phase.

Costs and scope of Subcomponent 1.1

Discrimination	Unit	Qty.	Costs (US\$)		Reach
			Unit	Total	
Resilient Investment Plan (PIR)	PIR	200	281 080	56 216 000	18 000 Families

**c) Achievement of targets**

- 1.49 The PIRs will benefit approximately 18,000 families, of which 50% should be represented by women, 20% by young people and 5% by Traditional Peoples and Communities and 2% for families with persons with disabilities.

**K. Timetable for the 6 years of implementation**

6-year timetable for the implementation of Subcomponent 1.1

Stages	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Action 1: Resilient Investment Plans drawn up					█	█	█	█	█	█	█	█													
Action 2: Resilient Investment Plans executed (>75%)									█	█	█	█	█	█	█	█	█	█	█	█					

## **Appendix 1:**

### **(Suggested) content roadmap for the PIR**

1. **SUMMARY OF THE PLAN.**
  - 1.1 General Data.
  - 1.2 Beneficiaries.
  - 1.3 Type of community.
2. **PRESENTATION.**
  - 2.1 Local context and characterization of the municipality and region.
  - 2.2 Characterization of the community.
    - 2.2.1 Organizational and social aspects.
    - 2.2.2 Basic and productive infrastructures.
    - 2.2.3 Environmental and economic aspects.
    - 2.2.4 Access to public policies.
3. **PLAN PROPOSAL.**
  - 3.1 Justification.
  - 3.2 General Objective.
  - 3.3 Specific Objectives.
  - 3.4 Targets, costs and timetable
  - 3.5. **STRUCTURAL ELEMENTS OF THE PROJECT.**
    - 3.5.1 Environmental aspects.
    - 3.5.2 Technical aspects.
    - 3.5.3 Support through social technologies.
    - 3.5.4 Technical Assistance.
    - 3.5.5 Access to public policies.
    - 3.5.6 Economic and financial aspects.
  - 3.6. **INVESTMENTS**
    - 3.6.2 Revenue projections.
    - 3.6.3 Statement of production costs.
    - 3.6.4 Statement of fixed costs and expenses.
    - 3.6.5 Investment viability.
    - 3.6.6 Outcome Measures and Feasibility Indicators: IRR, NPV
  - 3.7. Organizational, administrative and managerial aspects.

3.8. Environmental and social protection.

3.9 **FEASIBILITY**

3.9.1 Technical

3.9.2 Economic (Cost-Benefit)

3.9.3 Financial

3.9.4 Socio-environmental

3.9.5 Institutional

3.10 **PROJECT RISKS**

4. **ANNEXES.**

4.1 Nominal list of beneficiaries.

4.2 Environmental and social verification form.

4.3 Plans of the infrastructure to be implemented.

4.4 List of equipment and their respective prices

4.4 Breakdown of investments by product and schedule.

## ANNEX 3

### Strengthening and Diversifying Commercialization

#### A. Objective

- 1.1 This sub-component aims to improve marketing and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives.

#### B. Strategic orientation and methodology

- 1.2 It aims to strengthen cooperatives by means of a Business Plan (PN), with a view to consolidating their management capacities, adding value, diversifying their commercial offer and accessing markets under better conditions. Rather than seeking to create new cooperatives, priority will be given to existing cooperatives to improve their management capacities and those with operational weaknesses.
- 1.3 The elaboration of these PNs will consider the strengthening of production carried out in subcomponent 1.1 through the PIRs, with the aim of integrating producers into these cooperatives to access the market.
- 1.4 The development of the PN will seek to diversify the markets accessed. In addition to institutional markets, such as PNAE and PAA, other players will be sought, mainly from the private sector. The Project will seek to include the organizations in the Regional Information System for Family Farming in the Northeast (SIRAF), created by the Northeast consortium and which has been offering a new channel for establishing contact between producers and buyers.
- 1.5 Business Plans (PNs) will be the main instrument for implementing the subcomponent and will be drawn up with producers' economic organizations, usually cooperatives. The PNs should make it possible to finance structuring investments that could benefit family farmers, including the producers benefiting from the PIRs. Specialized Technical Assistance (STA) Services specially dedicated to the PNs and to strengthening the capacities of the beneficiary organizations will also be financed by the PNs.
- 1.6 The PNs should allow for the implementation of competitive mechanisms, geared towards innovative and environmentally sustainable solutions, to strengthen network marketing and cooperative centers.
- 1.7 Investments will be focused on existing organizations that have weaknesses in their management processes, that are unable to achieve sufficient levels of commercialization, that find it difficult to comply with environmental and health legislation, or that operate below their capacity. In these cases, the Project will strengthen the capacities of the management teams, support the improvement and modernization of equipment and facilities, improving the processing and diversification of products, with a focus on adapting and/or expanding the physical infrastructure (such as processing and storage areas), with the aim of also meeting the health and environmental standards for obtaining certifications (SIF, organic certification, distinctive collective seals, valuing sustainable products from the Caatinga and Atlantic Forest biomes, etc.). Where relevant, the development of participatory guarantee systems (PGS) geared towards certification processes will also be supported.



Subcomponent 2.2 will make an important contribution to these activities and complementarities will be built.

- 1.8 In exceptional cases, the Project's support may be aimed at structuring the productive capacity of a cooperative, operating within the supported production chains. These cases will be specific and subject to prior feasibility analysis, considering in particular the existence of other similar ventures in the Project area.
- 1.9 Strengthening the capacities of the cooperatives' teams will be a key point of the PNs, which will address the issue of best processing practices and others, such as administrative and financial management. In this case, courses are planned on good management practices and the organization of production, processing, adding value, financial management, institutional strengthening, marketing strategies, etc. The management teams of these enterprises will be the main beneficiaries. These courses will mainly be carried out through specialized consultancies (such as individual consultants, EMPAER, EMBRAPA, SEBRAE, SENAR, etc.).
- 1.10 Preparing the Business Plans will include a diagnosis of the organization's situation, clearly identifying the most important problems and difficulties encountered and the opportunities that can be seized. The PNs may include agricultural activities of primary production, processing and marketing of this production. Other economic initiatives can also be included, such as handicrafts and community-based tourism, among others, provided they have the potential to generate income in a sustainable way. As the object of these Plans will be 'business' related, involving production and market issues, it is necessary to include more detailed information such as a 'map' of the production chain identifying flows and actors, an analysis of the products demanded by the market and their trends (volumes, prices), an analysis of the competition, a strategy for operating in the market, a sales plan and an investment management strategy. The Business Plan will identify the material investments that will have to be made (construction/refurbishment, machinery, equipment, etc.). In addition, it should point out the training needs (which may cover production, marketing, administrative and financial management, or other dimensions) that the implementation of the Business Plan will require.

### **C. Provision of Specialized Technical Assistance (STA) services**

- 1.11 Considering the capacities found in the organizations in the region served by the Project, it will be necessary to contract STA services for the preparation and implementation of all the Plans. These services will be contracted by the PMU, through a competitive process that meets IDB/IFAD standards, with funds provided in the budget for Subcomponent 2.2. However, in certain cases and when the beneficiary organization shows experience and capacity, it could take on the responsibility of contracting the STA directly.
- 1.12 Individuals or legal entities may be contracted to provide these services. The criteria for selecting providers will include: i) experience in providing consultancy services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.

- 1.13 STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and also to meet demands not included in the business plans it supports. Opportunities for cooperation and alliances with the private sector will also be sought whenever possible.

#### **D. Identification and selection of beneficiary organizations**

- 1.14 Considering the heterogeneity between the cooperatives in the Project area in terms of structure, capacities and experience, the process of selecting and drawing up the PNs will be different depending on the size of the organizations.
- 1.15 **For small organizations**, with an annual turnover of up to USD 100,000 (average of the last 3 years), which are generally inexperienced organizations with more limited capacities in particular for drawing up a PN, the Project team will carry out a direct survey of these organizations in the area of operation and conduct a selection process. Once the organization has been selected, the PMU will contract the services of a specialized technical assistance (STA), either an individual or a legal entity, to begin drafting the PN and its subsequent implementation.
- 1.16 For larger organizations with annual turnover of over USD 100,000 (average of the last 3 years), which generally have greater capacity, the identification and selection process will be done through publishing calls for proposals. In the first years of implementation, a broad dissemination and information process will be carried out by the PMU to ensure that interested organizations are aware of this selection procedure. Proposals (Expressions of Interest, presenting a project proposal) will be drawn up directly by the proposing organizations and sent to the PMU, which will be evaluated by the Evaluation Committee.
- 1.17 In both cases (small organizations and larger organizations), proposals will be selected based on the following criteria: i) Productive activity with the potential for technical, economic, financial and environmental viability; ii) Not having received benefits from other grant projects for similar items; iii) Inclusion of new members in the cooperative through the investment, with priority given to women, young people and persons with disabilities; iv) Ability to provide a counterpart (monetary and non-monetary) above the floor of 20% of the NP's value; v) Making innovative environmental investments and climate adaptation and mitigation.
- 1.18 To provide STA, the Project could seek partnerships with experienced organizations, such as SEBRAE, so that an integrated technical consultancy plan can be drawn up.

#### **E. Preparation of the PNs**

- 1.19 Once the PN proposals have been selected (criteria defined in the ROP), the drafting process will begin, which will be identical in format for both modalities (small and large organizations), being adapted to the level of complexity of each organization.
- 1.20 The first stage of the preparation will be to carry out a diagnosis (within a maximum of 3 months), focusing on:
  - i. Validate the organization's demand from the point of view of the processing process and market access to be supported;
  - ii. Evaluate the organization's capacity to manage the requested PN and assess its experience in similar areas to carry out procurement, production, commercial and accounting management, etc.;

- iii. Carrying out specific and pragmatic studies to provide information on the characteristics, bottlenecks and potential of each product and identifying innovative and differentiated markets that can add value to the sustainable production initiatives supported by the Project;
- iv. Carry out local demand studies (inputs and production for sale) detailing key factors such as volumes sold, prices, quality, ease of access, competition, weaknesses and deficiencies;
  - v. A survey of the availability of raw materials, considering, among other factors, the production planning of the PIRs supported by the Project, to guarantee the operation of these units and the disposal of the production of the families benefiting from the PIRs;
  - vi. Gather technical data on the evolution of production and marketing capacity, identifying potentials and risks;
  - vii. Identify the main competition and other similar units in the region;
- viii. Gather information and lessons learned about previous support received to strengthen the organization;
- ix. Survey the social characteristics of the members, the capacity for collective management and the level of social organization, which will include the participation of women and young people in decision-making processes;
- x. Compliance with aspects related to environmental and health management and in accordance with the relevant legislation;
- xi. Identify the needs from the STA's point of view to strengthen capacities relating to the production process, marketing, management and governance;
- xii. Identify the need for adaptations for persons with disabilities;
- xiii. Identify technical proposals with a view to introducing technologies such as biodigesters, solar energy and internet access;
- xiv. Identify the points of attention related to social and environmental safeguards;
- xv. Identifying the ability to access public policies;
- xvi. Articulate with other local actors and in particular with COOPERAR, which has developed similar actions;
- xvii. Complying with aspects related to Health and Safety at Work in accordance with the relevant legislation.

1.21 Based on the diagnosis, the PN will define the resources needed to invest in infrastructure, equipment and goods, as well as to finance ETC services to implement and strengthen management capacities (considering that the resources to finance ETC are allocated to Component 2).

1.22 The main items that can be financed by the PN are:

- i. Adapting and/or expanding existing processing units and adjusting comply with health and environmental legislation, as well as ensuring accessibility for the disabled;
- ii. The investments made should enable cooperatives to adapt to climate change, such as the use of solar energy, water collection and reuse systems, etc. These investments could include social technologies such as production cisterns or grey water reuse systems;
- iii. Support from STA for the development of marketing strategies, including the definition of strategies for reaching the municipal and state institutional market, as well as access to the private market. This could include the development of printed material or electronic media (website, Instagram, etc.) for the dissemination of information and e-commerce;
- iv. Support for obtaining organic and agroecological certifications and seals of origin;
- v. Construction, adaptation or renovation of processing units with producer organizations in compliance with environmental and health legislation;
- vi. Improvement of management processes (through technical support, acquisition of a program/system to improve process management, etc.) with a focus on efficiency and transparency;
- vii. Investment in the installation of renewable energy and rural connectivity, investment in product development and packaging;
- viii. Investments that enable greater participation by young people, women and the disabled.

1.23 All the activities financed in the PNs will be in accordance with the Environmental and Social Management Plan (ESMP) for each one and with the Project's Strategic Environmental and Social Management Plan (ESMP).

1.24 During the process of drawing up the PN, the following criteria should be considered:

- i. NP for small cooperatives: The minimum amount per PN (without counterpart from the beneficiary organization) is USD 40,000 and the ceiling amount will be up to USD 80,000. PNs with fewer than 30 members cannot be financed. The amount of funding from PROCASE II cannot exceed USD 700 per cooperative member to finance investments;
- ii. NP for medium and large cooperatives: The minimum amount per PN (without counterpart from the beneficiary organization) is USD 120,000 and the ceiling amount will be up to USD 250,000. PNs with fewer than 80 members cannot be financed. The amount of funding from PROCASE II cannot exceed USD 800 per cooperative member to finance investments;
- iii. The funds from the Project will be non-reimbursable. A counterpart contribution must be made by the beneficiary organization, equivalent to at least 20% of the amount financed by the Project, and may be monetary or proven in goods and services related to the implementation of the PN;

- iv. There must be a commitment for organizations to increase the number of new members, especially women and young people;
- v. The resources allocated to the PN should make it possible to finance goods for collective use (such as processing equipment);
- vi. Planning proposed within the framework of marketing to include additional production from the PN (and related PIRs);
- vii. Definition of the STA services that will be carried out for the main themes such as management, governance, good practices in production and marketing processes, environmental and social management;
- viii. Evidence of investments in activities carried out with a view to adapting processes and adhering to climate change (which can be described as climate investments);
- ix. Facilitate dialogues with financial institutions to access PRONAF and other sources of credit;
- x. The list of fundable and non-fundable items is shown below and is detailed in the ROP.

#### **F. Investments eligible for funding**

1.25 PROCASE II will finance the investments needed to make the PNs viable. These investments can be classified into three groups:

- i) **Group 1 - Non-Consulting Services.** This group includes investments associated with hiring technical-operational services, such as transportation, application of inputs, financing of working capital for the first year of operation, installation of equipment, rental of vehicles, among others;
- ii) **Group 2 - Assets.** This group includes investments associated with the purchase of inputs for the cooperative, such as seedlings or seeds, and equipment for the production, processing, marketing and distribution of the products of the NP to be promoted;
- iii) **Group 3 - Works.** This group includes investments associated with the provision or renovation of production structures and/or economic infrastructure, such as road rehabilitation, well drilling and processing units, with a maximum of 20% of the value of each business plan.

#### **G: Types of Climate Adaptation investments that can be financed by investments in the PNs:**

- i. Implementing good agroecological fertilization practices in areas vulnerable to climate change;
- ii. Implementation of erosion and soil loss management technologies in areas vulnerable to climate change;
- iii. Implementation of crop protection technologies in critical areas;
- iv. Implementation of technologies to recover soils degraded by salinization in areas vulnerable to climate change;
- v. Productive diversification in crops and livestock in areas most vulnerable to climate change;
- vi. Integrated pest and disease management in areas most vulnerable to climate change;

- vii. Management of natural pastures to guarantee food for young animals and reduce vulnerability to climate change;
- viii. Improvement and transfer of genetic resources in plantations and genetic improvement to increase their resilience to climate change;
- ix. In situ and ex situ conservation of biodiversity to increase resilience to climate change;
- x. Strengthening risk transfer systems in the event of adverse climatic events;
- xi. Implementation of strategic agro-climatic information services to adapt to the effects of climate change;
- xii. Implementation of adaptive technological innovation services in the face of climate change in agricultural value chains;
- xiii. Added value of agricultural products in value chains vulnerable to climate change;
- xiv. Irrigation or water use in the agricultural sector;
- xv. Improving existing water reservoirs for agricultural use;
- xvi. Implementation of "seeding" and water harvesting interventions;
- xvii. Implementation of intra-property infrastructure for the conduction, distribution and application of irrigation water;
- xviii. Implementation of irrigation systems with water-efficient technologies;
- xix. Technical assistance for the sustainable use of water;
- xx. Conservation and recovery of natural infrastructure in basins vulnerable to climate change;
- xxi. Implementation of early warning systems for floods, droughts and alluvial floods in basins vulnerable to climate change;
- xxii. Implementation of water quality monitoring systems in basins vulnerable to climate change; and
- xxiii. Implementation of information systems to improve the planning and management of water resources in basins vulnerable to climate change.

## **H: Types of Climate Mitigation Investments that can be financed by investments in the PNs**

### a) Agricultural production

- i. Improving the industrial energy efficiency of projects in operation;
- ii. Reduced energy consumption in operations;
- iii. Agricultural projects that contribute to increasing soil carbon stocks or preventing soil carbon loss through erosion control measures;
- iv. Reduction of GHG emissions and low-carbon agricultural practices or technologies;
- v. Projects that reduce methane or other GHG emissions;
- vi. Projects that improve carbon sequestration through land management;
- vii. Forestry or agroforestry projects that sequester carbon through sustainable forest management, avoid deforestation or prevent land degradation;
- viii. Projects that reduce food loss or waste or promote low-carbon diets;
- ix. Projects that contribute to the reduction of GHG emissions through the production of biomaterials / bioenergy from biomass; and

- x. Improving the energy efficiency of existing irrigation system projects, implementing technologies or equipment with low energy consumption, promoting good control practices, or reducing water losses (drip irrigation).
- b) Solid waste and effluent management in processing and marketing units
  - i. Anaerobic digestion of bio-waste collected separately;
  - ii. Composting bio-waste collected separately;
  - iii. Other types of recovery and recovery of bio-waste; and
  - iv. Mechanical or biological treatment of mixed waste.
- c) Buildings in the agricultural sector
  - i. Measures that reduce energy consumption, resource consumption or CO<sub>2</sub>e emissions, or increase carbon sinks by using vegetation in new and existing buildings and associated land;
  - ii. Measures that reduce energy consumption, resource consumption or CO<sub>2</sub>e emissions, or measures that increase carbon sinks by using vegetation in new or refurbished buildings and associated land, thus meeting certification standards;
  - iii. Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions and or increase carbon sinks using vegetation in public areas or facilities; and
  - iv. New or low-consumption appliances or equipment;
  - v. Pilot trials of processing plants using renewable energy sources, such as biogas or solar energy.

### **I: Investments Not Eligible for Financing**

- 1.26 Some types of investment will not be financed by the Project, even if they are necessary to make the PNs viable. Among other things, they cannot be financed:
- i) Purchase of real estate of any kind, spending on land regularization;
  - ii) Current expenses (salaries and social charges for existing staff, water, electricity, internet, telephone);
  - iii) Operating and maintenance costs, construction, expansion, modernization, renovation and construction of civil or water works in properties with a lending agreement;
  - iv) Activities related to raising cattle for meat production;
  - v) Purchase of agrochemicals such as herbicides, fungicides, insecticides and synthetic fertilizer;
  - vi) Construction or renovation of flour mills and other processing units that use firewood as a source of energy.
- 1.27 In addition, there is a list of investments that are prohibited from being financed under PROCASE (see Annex XXXX). During the process of drawing up the PNs, the Project and

ETC teams will be responsible for checking that the type of investment complies with these conditions.

**J: Criteria for evaluating and prioritizing PNs**

- 1.28 Once the ROP has been drawn up, it will be presented to the Council of Territories for consultation and then submitted for evaluation by CEGIP (Executive Committee for Productive Investment Management), made up of the PMU and representatives of Paraíba state bodies. The evaluation will follow the criteria defined in the ROP. These include:
- i. Potential for adding value;
  - ii. Technical, economic, financial and environmental feasibility;
  - iii. Achieving the required counterpart level;
  - iv. Percentage of the PN earmarked for financing environmental investments;
  - v. Proof of the adoption of technological proposals based on the principles of agroecology;
  - vi. Integration of new members into cooperatives, particularly women, young people and families with Persons with Disabilities;
  - vii. Participation of women and young people as members and in positions of responsibility on the board of the beneficiary organization;
  - viii. Creation of new jobs;
  - ix. Absorption capacity of production from PIRs financed by Subcomponent 1.1;
  - x. Ability to contribute to accessing new markets;
  - xi. Ability to help integrate new producers as raw material suppliers.
- 1.29 The Project includes a mandatory social inclusion measure and must guarantee that 50% of the resources from all the PNs benefit women and 20% benefit young people, 5% benefit PCTs and 2% benefit families with persons with disabilities. The Project Committee must monitor and enable the achievement of this target throughout the process of evaluating and validating the proposals for the PNs.
- 1.30 The criteria mentioned in the table below have been drawn up with a view to transparency and will be used as a reference during the evaluation process.

**Table 04: PN evaluation criteria**

	<b>VARIABLE (K)</b>	<b>MEASUREMENT (1-10)</b>	<b>WEIGHTING (1-10)</b>	<b>SCORE</b>
	Analysis of the contextualization (Reference Framework) of the Project (Points from 1 to 10)	1 a 10	5	50



	<b>VARIABLE (K)</b>	<b>MEASUREMENT (1-10)</b>	<b>WEIGHTING (1-10)</b>	<b>SCORE</b>
	Analysis of the Results Matrix (feasibility, level of risks) Notes from 1 to 10	1 a 10	5	50
P R O P O S A L 8	Profitability (%) of agribusiness estimated in PN (classes ( $X \leq 5$ ) =3 points; ( $5.1 \leq X \leq 10$ ) =5; ( $10.1 \leq X \leq 20$ ) =7; ( $X \geq 21$ ) =10)	10	2	20
	Economic internal rate of return (EIRR) <sup>18</sup> (%) of the Business Plan (classes ( $12 \leq X \leq 17$ ) =3 points; ( $17.1 \leq X \leq 25$ ) =5; ( $X \geq 25.1$ ) =10).	10	5	50
	Lowest cost per beneficiary, (USD1.00/producer) (classes ( $X \leq 2,000$ ) =10 points; ( $2,001 \leq X \leq 2,500$ ) =7; ( $2,501 \leq X \leq 3,000$ ) =5; ( $3,001 \leq X \leq 4,000$ ) =3; ( $X > 4,000$ ) =0).	10	5	50
	Percentage of women direct beneficiaries, (women direct beneficiaries/total beneficiaries) (classes ( $X \leq 10\%$ ) = 0 points; ( $10\% \leq X \leq 50\%$ ) =3; ( $50 \leq X \leq 75\%$ ) =7; ( $X \geq 75\%$ ) =10).	10	10	100
	Percentage of PCT direct beneficiaries, (PCT direct beneficiaries/total beneficiaries) (classes ( $X=0\%$ ) = 0 points; ( $1\% \leq X \leq 25\%$ ) =3; ( $25 \leq X \leq 65\%$ ) =5; ( $X \geq 65\%$ ) =10).	10	10	100
	Percentage of young direct beneficiaries, (young direct beneficiaries/total	10	7	70

<sup>18</sup> Business plans with a IRR of less than 12% will not be eligible to receive funds from the Project.

	<b>VARIABLE (K)</b>	<b>MEASUREMENT (1-10)</b>	<b>WEIGHTING (1-10)</b>	<b>SCORE</b>
	beneficiaries) (classes (X=0% = 0 points; (1%≤X≤25%) =3; (25≤X≤65%) =5; (X≥65%) = 10).			
	No. of producers benefiting from the Business Plan (classes: up to 100 =3; 100 up to 150 =7; > 150=10 points)	10	2	20
	Expected increase in income for beneficiary producers (up to 20% = 1 point, > 20% = 2 points)	5	2	10
	Market risks (None or NA=10; Small= 8; Medium= 5; Large- 2; Uncertain= 1)	10	3	30
	Proponent's maturity ((2≤X≤3 years) = 2 points; (3≤X≤5 years) =5 points; (6≤X≤10 years) =7 (X≥10 years) = 10 points)	10	5	50
	Technical capacity to generate water security compatible with the Project	10	5	10
	Ability to guarantee food security for beneficiary families	10	5	10
	<b>TOTAL Proposal</b>			

- 1.31 Once the ROP has been approved, a Memorandum of Understanding will be signed between the beneficiary organization and SEAFDS. The funds will be transferred according to the criteria defined by the fiduciary sector and mentioned in the ROP.
- 1.32 To prepare the Project, two PNs were drawn up to form a sample for the Economic and Financial Assessment. Based on field visits and analysis of secondary data, the following economic organizations and productive activities were selected: i) Primary production and processing of honey, and ii) Strengthening of production capacities and primary processing of organic cotton. These activities were selected because they have strong potential and are well integrated into the socio-economic and agro-environmental context. It is important to mention that during implementation, based on the demands and economic organizations

identified, other agricultural and non-agricultural chains may be supported through PNs, as long as they meet the Project's criteria and objectives.

### **K: Implementation of PNs**

- 1.33 Implementation of the PN will begin once the Development Agreement has been signed and the funds have been made available to the organization. The use of the PN amount will follow the rules defined in the ROP, through installments, proof and validation of spending, provided that at least 60% of the amount already disbursed is accounted for.
- 1.34 The implementation phase will follow the timetable set during the preparation of the PN. In general, in the first year of implementation, priority will be given to investments in infrastructure and equipment.
- 1.35 Capacity building in management, marketing and market access will be carried out over the two years with the support of TA.
- 1.36 During this phase, STA will be looking to establish agreements and partnerships between the cooperatives and associations benefiting from the PIR, with a view to acquiring, processing and marketing production.

### **L: Running arrangement**

- 1.37 SEAFDS, through the PMU, will be responsible for implementing this sub-component. In each Rural Territory of the state, the teams from the Regional Offices will be mobilized and will contribute to establishing synergies and complementarities between the implemented NP and other interventions (COOPERAR in particular).
- 1.38 The implementation of the PNs will be carried out through the Terms of Support signed by SEAFDS with each beneficiary organization.

### **M: Costs and reach**

#### Costs and scope of subcomponent 1.2

Discrimination	Unit	Qty.	Costs (US\$)		Reach
			Unit	Total	
<b>Business plans for large and medium-sized cooperatives</b>	PN	20	198 000	3 960 000	3 000 families
<b>Business plans for small cooperatives</b>	PN	40	48 000	1 920 000	2 000 families
<b>Total</b>	PN	60		6 000 000	5 000 families

### **N: Timetable for the 6 years of implementation**

#### 6-year timetable for the implementation of Subcomponent 1.2

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Economic organizations with agreed Business Plans																								
Economic organizations with executed business plans (>75%)																								

## **Appendix 3.1**

### **Suggested content roadmap for preparing the PN**

#### **Appendix 1: Content roadmap for the PN**

1. **SUMMARY OF THE BUSINESS PLAN**
  - 1.1 General Data.
  - 1.2 Public Beneficiaries.
  - 1.3 Type of community.
2. **PRESENTATION**
  - 2.1 Local context and characterization of the municipality and region.
  - 2.2 Characterization of the community.
    - 2.2.1 Organizational and social aspects.
    - 2.2.2 Basic and productive infrastructures.
    - 2.2.3 Environmental and economic aspects.
    - 2.2.4 Access to public policies.
3. **BUSINESS PLAN PROPOSAL**
  - 3.1 Justification.
  - 3.2 General Objective.
  - 3.3 Specific Objectives.
  - 3.4 Targets, costs and timetable
  - 3.5. **STRUCTURAL ELEMENTS OF THE PROJECT**
    - 3.5.1 Environmental aspects.
    - 3.5.2 Technical aspects.
    - 3.5.3 Support through social technologies.
  - 3.6. **COMMERCIALIZATION**

- 3.7. Technical Assistance.
  - 3.8. Access to public policies.
  - 3.9. Economic and financial aspects.
    - 3.9.1. **INVESTMENTS**
    - 3.9.2 Revenue projections.
    - 3.9.3 Statement of production costs.
    - 3.9.4 Statement of fixed costs and expenses.
    - 3.9.5 Investment viability.
    - 3.9.6 Outcome Measures and Feasibility Indicators: IRR, NPV
  - 3.10. Organizational, administrative and managerial aspects.
  - 3.11. Environmental and social protection.
  - 3.12 **FEASIBILITY**
    - 3.12.1 Technical
    - 3.12.2 Economic (Cost-Benefit)
    - 3.12.3 Finance
    - 3.12.4 Socio-environmental
    - 3.12.5 Institutional
  - 3.13 **PROJECT RISKS (PN)**
- 
- 4. **ANNEXES.**
    - 4.1 Nominal list of beneficiaries.
    - 4.2 Environmental and social verification form.
    - 4.3 Plans for the infrastructure to be implemented.
    - 4.4 List of equipment and their respective prices
    - 4.4 Breakdown of investments by product and schedule.

## ANNEX 4

### Incentives for Innovation

#### A: Objective

- 1.1 Innovations are an important part of this component, focusing mainly on the topic of mechanization (see also Annex "Knowledge Management (KM), South South and Triangular Cooperation (SSTC) and Innovations in PROCASE II"). PROCASE II will promote innovation initiatives by providing funding and technical assistance to identified innovators, helping them to scale up their initiatives to reach other farmers.

#### B: Strategic orientation and methodology

- 1.2 PROCASE II will promote innovations developed specifically for family farming systems, such as tools for agroecological practices, machinery for small-scale agro-industries, biotechnologies aligned with the concept of resilient production systems, among others. Some examples include small tractors, pruning tools, forage cutting machines and oilseed processing engines. Many of these innovative initiatives already exist in the Project area. They will need to be identified, assessed in terms of their suitability for strengthening resilient family systems, improved (where appropriate), and/or disseminated. In several cases, it will be a question of promoting tests of the use of new equipment in the real conditions of family units in Paraíba. Promising innovative initiatives that need resources to consolidate themselves as a benchmark for innovation to be disseminated may be financed by an investment fund that will provide between US\$ 10,000 and 60,000 (R\$ 50,000 and 300,000) for each one, depending on their financing needs. The selected projects will be accompanied by a team of experts in the expansion process (the costs of the support activities are included in the amount of funding received by each initiative).

#### C: Actions and expected results

- 1.3 The Project will fund the development of initiatives (which could be small 'backyard' companies, research groups, experimenting farmers, among others) aimed at creating products and technologies tailored to the local context, such as machinery adapted to small producers and equipment for processing and adding value (priority themes). The Project will also fund innovations in secondary themes, such as products derived from native/traditional species, bio-inputs (soil nutrition, bio-insecticides), efficient water management technologies, solid waste treatment, etc.
- 1.4 The investment dedicated to this sub-component will enable up to 25 initiatives of this nature to be funded. The selected initiatives will receive the following benefits:
  - i) Funding from R\$ 50,000 to R\$ 300,000 (including support activities mentioned below);
  - ii) Technical consultancy;
  - iii) Mentoring focused on the business and the market;
  - iv) Development of business plans;
  - v) Support with design and visual communication;
  - vi) Networking and partnership opportunities.

#### D: Themes for the initiatives

- 1.5 To qualify, innovation initiatives must fall into the following types:
  - a) **Priority Innovative Themes**

- i) Mechanization for small producers/organizations: Adapted mechanization for agroecological and agroforestry family farming, such as motor cultivators, forage palm choppers and feeders, long-arm pruning shears, woodchippers and other small implements. Companies that share or rent<sup>19</sup> machines and implements will also be supported.
- ii) Technologies for Cooperatives and Associations: machines and implements for cooperatives and associations, such as pulpers, dehydrators, dryers, mills, packaging machines and processing machines in general, as well as recycling machines such as waste separators and processors.

**b) Secondary Innovative Themes**

- i) Agroecological Markets and Local Biodiversity: Promoting nutrition based on local biodiversity, through the development of products derived from native/traditional species, the extraction of oils and essences, the creation of agroecological fairs, greengrocers, restaurants and snack bars, etc.
- ii) Adapting to Climate Change: water harvesting and efficiency technologies, climate comfort, etc.
- iii) Access to renewable energies: Financing and installation of photovoltaic panels for small producers, heat pumps, energy efficiency works, reduction in the use of firewood, biodigesters, etc.
- iv) Soil nutrition and integrated pest/weed management: manufacture of organic fertilizers and products used in the biological control of pests and weeds, such as the production of green manure seedlings and seeds, inoculation of natural enemies, production of compost, bio-slurries and other bio-inputs.
- v) Studies and research projects: small research projects that can be classified as innovative projects, for example new variants of agroforestry systems.
- vi) Digital tools for small producers: Access to digital technical assistance (including plant and insect identification, recommendations for fertilization or weed or pest control), Information services (prices, logistics, soil conditions, weather information and early warning systems), Financial services (financial management tools and access to credit and insurance), Digitization of the supply chain (recording information, planning tools, sharing implements, shared transport of products and inputs, etc.) and Access to markets and inputs (Sale of family farming products, purchase of inputs, etc.) and Access to markets and e-commerce (sale of family farming products, purchase of inputs, etc.).
- vii) Digital tools for cooperatives and associations: Resource sharing (machinery, implements, processing equipment/facilities, etc.), Market access and e-commerce, Planning and management tools (recording information, organizing inventories, etc.) and Certification and legal compliance tools, (checklists for obtaining licenses or preparing for health inspections, etc.).

**E: Execution Arrangement**

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<sup>19</sup> Cf.: <https://www.sciencedirect.com/science/article/pii/S0308521X18314914> and <https://repository.cimmyt.org/xmlui/bitstream/handle/10883/22429/65927.pdf?sequence=1&isAllowed=y>



- 1.6 The Project Management Unit (PMU) will appoint a foundation responsible for innovation that will examine existing prototypes in the Project area and select innovators according to predefined criteria. The Project will finance the expansion of these initiatives, providing guidance, refining the prototypes and facilitating access to the market. The selection can be done through a competitive process (calls for tenders) or through a direct search in the Project area, with the help of the Project team and TA technicians. The direct search for existing innovations will involve the local PROCASE II offices and will focus on Federal Institutes (IFs), Agricultural Family Schools (EFAs), Universities, Rural Schools and local artisans. The work carried out by local institutions such as SERTA (<https://serta.org.br/>) serves as an example of how the innovations identified by the Project could be supported.
- 1.7 The foundation selected must be a non-profit organization and preferably linked to a university, with the same foundation being responsible for the Knowledge Management and South-South Cooperation component (2.5). The incubation and monitoring of innovations can be done directly by the Foundation (if it has experience in this area) or in partnership with a social entrepreneurship incubator, such as IACOC (incubator of the Paraíba Technology Park).

#### **F: Possible criteria for funding and support**

- 1.8 Below are some criteria that could be considered when choosing the innovative initiatives to be supported by the Project. These criteria will be further detailed in the PIM (ROP).
- i) Social Criterion: The innovation must seek to have a positive social and environmental impact, for example by aiming for low prices for farmers and fair pay for workers.
  - ii) Right to repair: Machinery, implements and equipment must be designed in such a way that they are easily repairable using accessible technologies and with easy parts replacement, thus avoiding the user being forced to buy a new copy.
  - iii) Economic sustainability: The entity must prove that there is a demand for its service/product in the long term.
  - iv) Environmental sustainability: The entity must show that its product/service does not generate significant environmental impacts (GHG emissions, waste, etc.).
  - v) Local Impact: Team members come from the Project regions.
  - vi) Traditional/ancestral knowledge: Valuing and integrating indigenous and traditional/ancestral knowledge and technologies.
  - vii) Focus on young people and women: 50% quotas for women and 50% for young people are suggested, with 50% of young people's places reserved for women.

#### **G: Costs**

<b>Actions</b>	<b>Unit</b>	<b>Number</b>	<b>C. Unit (in US\$)</b>	<b>Estimated value in (US\$)</b>
Incentives for Innovation	Unit	25	40 000,00	1 000 000,00
<b>TOTAL</b>				<b>1 000 000,00</b>

#### **H: Implementation schedule**

6-year timetable for the implementation of Subcomponent 1.3

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Support for Innovative Initiatives																								

## ANNEX 5

### Strengthening family farmers' capacities

#### A. Objective

- 1.1 O component will focus on strengthening the capacities of beneficiary families and community organizations, considering the weaknesses identified in various areas, with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations.
- 1.2 It will finance the contracting of Technical Assistance Services (TA) Agroecological to carry out activities aimed at increasing beneficiary families' access to adequate, quality information. The main themes to be addressed by TA will be the development of more profitable agricultural production profitable diversified and more resilient, a protection and recovery of environmental resources and improving the management of organizations. It will also seek to better integrate them into different value chains in the region with initiatives to support processing and commercialization. And finally, the subcomponent will seek to strengthen the TA teams contracted to ensure the good quality of this service.

#### B. Strategic orientation and methodology

- 1.3 There are a number of barriers in the Project area that reinforce the unsustainable *status quo*. Of particular relevance is the lack of knowledge about resilient and better performing production systems, for various reasons, including the lack of access to agroecological services. Also noteworthy is the limited capacity for collective action found in the communities, mainly due to the fragility of the local population's organizations. This situation needs to be overcome to pave the way for transformations that will help overcome the vulnerabilities that characterize this unsustainability.
- 1.4 To carry out this task satisfactorily, the contracted TA entities will follow a training program on topics related to building resilient production systems and associative management. The first task of the contracted technical teams will be to advise on the participatory drafting/design process of the Resilient Investment Plans and then on their implementation.
- 1.5 There are also significant shortcomings in terms of access to public policies to support Family Farming, whether due to a lack of information about the rules governing access to and operation of government programs, or the lack of or outdated documentation, which diminishes the potential and benefits of the investments made directly by the Project. For this reason, the subcomponent will also aim to develop the skills of the Family Farming public on the subject of these public policies.
- 1.6 This subcomponent will also use other instruments to develop the capacities of the target groups. It will be able to hire specialized consultants, hold training events designed to work on topics of particular importance (such as associative management, for example) and will support the exchange of knowledge between farmers, as an important tool for strengthening their capacities. This activity will make it possible to make the most of the experience and knowledge accumulated by PROCASE I beneficiary families.

#### C. Actions planned

- a) **Action: Provision of TA Services in the communities**

- 1.7 The work to strengthen family units and communities will be carried out through the provision of TA services in the communities selected to benefit from the Project. All PIR beneficiary families and the corresponding organizations will receive TA services.
- 1.8 The first responsibility of this action to provide TA in the communities will be to conduct the participatory planning process that will enable the design and implementation of the Resilient Investment Plans.
- 1.9 These Plans, which are Component 1's main instrument of action, will contain the investment actions and the introduction of practical innovations in the productive and environmental dimensions, as well as activities to develop the human and organizational capital needed to drive the desired sustainable transformation. The investments and other actions contained in these Plans will represent the materialization of the Project's support for this transformation process.
- 1.10 Once drawn up, each Plan is assessed by the Project's PMU and adjusted for subsequent approval. The approved Plans will be transformed into terms of development or collaboration, which will be the instruments that allow the transfer of Project resources to local organizations. It will then be up to the TA teams hired under this component guide, advise and monitor the execution of the activities/acquisitions contained in these Plans/Terms.
- 1.11 In this context, these teams will have to provide technical support for the families' various productive activities, especially those directly covered by the Plans. They will also work to encourage the inclusion and effective participation of women and young people in the productive and environmental activities supported by the Project.
- 1.12 The technical advice provided by these teams will play a crucial role in implementing the agroecological approach of the various production and environmental preservation and recovery initiatives to be carried out in the communities. At the same time, the TA teams will have to advise the families on access to public policies, starting with access to the CAF (National Family Farming Register)<sup>20</sup>, which is the basic instrument without which farming families cannot access any public policy intended for them, and access to or regularization of the CadÚnico, which is also the gateway to other complementary public policies. They will also have to support the registration regularization needed to access other programs such as PNAE and PAA. The communities/families will be encouraged to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the work plans and business plans it supports. The process described will also seek to create opportunities for cooperation with the private sector, the third sector and city halls.
- 1.13 TA teams will also have the task of strengthening community associations. In this respect, they will be responsible for training and accompanying the teams of these associations to make them capable of managing the terms mentioned, involving aspects such as acquisitions, recording and accounting of operations, use of financial resources and accountability, etc.<sup>21</sup> This work will be linked to the training on management issues that will

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<sup>20</sup> The CAF replaces the previous equivalent document, the old DAP (Declaration of Aptitude to PRONAF).

<sup>21</sup> As the proper management of an agreement of this type will require the association to have some equipment (such as a computer, a filing cabinet, etc.), it will be important to include these 'association strengthening kits' in the preparation of the PIRs.

- be offered to the associations' management teams (see 'Action: Complementary training events for farmers and association managers' below). The PMU team will have to provide ongoing support to the TA teams and the associations to ensure that this process runs smoothly.
- 1.14 It should be emphasized that this TA work on the design and implementation of PIRs should pay special attention to the specific needs and aspirations of women, young people and Traditional Peoples and Communities. To this end, the working methods of these TA teams must be able to take these specificities into account.
  - 1.15 The technical advisory service must have a regular and continuous local presence with the Project's target audience throughout the duration of the service. This will require setting up permanent teams to work with the families and communities to be assisted. These teams will have to dedicate themselves exclusively to serving this public, with an approximate ratio of one technician for between 90 and 120 families. It is estimated that around 600 communities (approximately 18,000 families) will be served, for a minimum period of three and a half years, during the lifetime of the Project.
  - 1.16 The teams providing these TA services will be multidisciplinary, made up of technicians with different skills (agricultural and environmental sciences, management, etc.). Whenever possible, the incorporation of experimenting farmers and multipliers, including young people, into these teams will be very welcome. In selecting the entities that will provide the TA service, criteria will be considered to guarantee the presence of women technicians on the teams, with a view to being as adherent as possible to the specific needs of women and to propose more for the women beneficiaries of the Project's actions.
  - 1.17 This consultancy will adopt a participatory approach in all the planning and execution of the Project's actions. To this end, it will use a set of appropriate pedagogical tools, such as meetings, field visits and transects, working parties, exchange visits, etc. When necessary, the TA teams can make use of pedagogical tools that allow them to seek out new and relevant information outside the same communities. An important tool for this dimension of the work will be exchange visits.
  - 1.18 In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, and which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of the Social Technologies and training beneficiaries to apply good use and maintenance practices.
  - 1.19 Considering the methodological innovations taking place in TA services (see section on 'Limited access to technical advice and funding' in the Justification), PROCASE II will offer hybrid TA, combining face-to-face and remote modalities, incorporating the use of digital tools.
  - 1.20 Capacity-building and support activities on issues that require a more specific and/or technically complex approach will have to be carried out by contracting specialized technical assistance services (TA), in addition to ongoing advisory services. For this advice, the Project will hire people or institutions with the appropriate skills to assist families, community organizations, and groups of women and young people with whom the Project will work.
  - 1.21 Unlike ongoing consultancy, specialized consultancy should generally be contracted for shorter periods (a few weeks or months). In this context, partnerships can be established with entities such as EMBRAPA, SEBRAE, universities and other educational institutions,

NGOs, cooperatives and farmers' organizations, private sector companies and others. Individual professionals with the necessary skills can also be called upon to provide the specialized services required.

b) **Action: Training events training/exchange for farmers, including association leaders.**

- 1.22 The subcomponent provides for the organization of training events that are complementary to the capacity-building work carried out by the TA entities with the communities. In particular, it will be essential to hold a series of training events dedicated to management, with an emphasis on managing the terms of collaboration or development, for the management teams of community associations, with the aim of ensuring that these agreements are properly executed and that the respective accounts are properly rendered.
- 1.23 This training work will have to rely on the constant support of the Project team (regional offices and PMU), which will monitor the management processes of the agreements. In the specific case of quilombola communities that may be interested in official recognition, specific events linked to this process can be organized, such as homologation / certification workshops. Training events in environmental education will also be held, focusing on strengthening the practices, climate resilience, community management of natural resources and sustainable use of conservation areas. If other important topics emerge in which there is a significant lack of knowledge, training events could be organized for farmers and/or association leaders, dedicated to these topics. If other important topics emerge in which there is a significant lack of knowledge, training events could be organized for farmers and/or association leaders, dedicated to these topics.
- 1.24 This subcomponent will also support knowledge-sharing events between farmers from the Project's beneficiary communities, as an instrument to strengthen their capacities. This activity will make it possible to value the experience and knowledge accumulated by PROCASE I beneficiary families.

c) **Events to improve TA teams**

- 1.25 The experience of other sustainable rural development projects, including PROCASE I, shows that it will be necessary for the project to ensure that the TA services offered to the beneficiaries are adequate and effective. In particular, it is crucial that these contracted teams are fully aligned with the project's priority focuses.
- 1.26 The experience gained from previous projects in this dimension indicates that there are important shortcomings in the teams of existing TA providers that will need to be addressed<sup>22</sup>. Thus, all the technical teams hired under PROCASE II will have to undergo training throughout the implementation of the Project to ensure that they have the necessary knowledge to achieve the desired objectives. The goal is to train 300 technicians.

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<sup>22</sup> We will highlight the shortcomings identified in the following areas: i) in the methodological dimension, it will be necessary to improve the participatory approach in the planning and implementation of investment plans and in the processes of acquiring new knowledge on the part of the families served; ii) in the technical dimension, improving the knowledge of TA entities and teams about innovations designed under the agroecological approach to improve production performance, environmental sustainability and adaptability to climate change of the production systems of families in the different regions of the state; iii) in the economic sphere, expanding knowledge about markets and the processes for accessing them; iv) in operational terms, in general the teams need to develop greater mastery of and use of digital tools in the practice of ATER, with an emphasis on carrying out the tasks of monitoring and evaluating the work carried out.

- 1.27 This process should also include a PMU in setting up a training program for the TA teams that includes the themes of participatory planning (which materialize in the PIR and PN plans), agroecology, persons with disabilities and PCT, as provided for in component 2.3), nutrition and food security, and access to markets (short circuits, certification). Targeted training will also be provided for more specific actions of the project and sanitation and animal health. The training may take place in a mixed format, with face-to-face and virtual activities, using knowledge management materials already produced, and on an ongoing basis throughout the Project.
- 1.28 The PMU will monitor the companies and trained technicians, ensuring that the quality of the work is adequate. services provided to the public.
- d) **Training family farmers in public policies**
- 1.29 The Justification section of this Component mentions that public policies to support Family Farming are poorly accessed. In other cases, there are policies and regulations in force that are not fully adopted/applied, such as various environmental regulations on pesticides, deforestation and burning, etc. The public to be served by PROCASE II should be able to know more about these policies and, where appropriate these policies.
- 1.30 That is why the Project will seek to facilitate this access, reinforcing an approach of dialog and advocacy on public policies. To this end, it will carry out a broad awareness-raising and training campaign on existing public policies and the mechanisms for accessing them. It will also be necessary to train families so that they can, where appropriate, account for and monitor the development of activities.
- 1.31 This axis of the Project's work will potentially reach a very wide range of the rural population (approximately 32,000 families) in the priority territories that will be served by the Project, with an emphasis on women, young people, PCTs, indigenous people, LGBTQIAP+ and persons with disabilities. Preference to this activity will be given to families who have not benefited from other Project activities.
- 1.32 The main instrument of this axis of work will be 400 training events in the different territories of the state. These events will be the main existing public policies for Family Farming, including PRONAF, Low Carbon Agriculture and Crop Insurance, rural worker documentation and civil birth registration programs, public procurement programs such as PNAE, PAA, PAA Milk, land access programs for young people (PNCF), access to water (P1MC and P1+2), the Rural Development program and state programs, such as the State Seed Distribution Program. These events will provide more detailed information on the characteristics of each of these policies, including aspects such as eligibility rules and access mechanisms and, where relevant, the accountability process.
- 1.33 Training / environmental education events will also be held, which will deal with environmental regulations that apply to rural areas and farming activities (such as the use of pesticides, burning, etc.) and also 'good practices' that restore/preserve environmental resources.

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<sup>23</sup> For example, Castro and Pereira point out that the introduction of the "principles of promoting sustainable rural development based on the principles of agroecology, managed democratically and with social control, constitutes a radical change in relation to the previous paradigm of Brazilian Ater" (p.23). Cf. CASTRO, C. N. d.; PEREIRA, C. N. Family Farming, Technical Assistance and Rural Extension and the National TA Policy. Brasília / Rio de Janeiro: IPEA, 2017. 41 p. Available at: [https://portalantigo.ipea.gov.br/agencia/images/stories/PDFs/TDs/td\\_2343.pdf](https://portalantigo.ipea.gov.br/agencia/images/stories/PDFs/TDs/td_2343.pdf).

- 1.34 Specific events will also be held to facilitate access to public policies, such as documentation drives, updating the CadÚnico register, etc. In addition, local teams from town halls, NGOs, public rural extension agencies, rural workers' unions and other social movements, etc. will also be trained.
- 1.35 To implement this line of work, it will be necessary to hire advisory bodies with experience in the subject. with capacity and experience in organizing content in a didactic, dynamic and accessible language, as well as community mobilization. The first activity to be carried out will be implementing a process of identification and mobilization of the groups / organizations / communities to be trained. The second activity will be preparing the courses, defining the contents, methodologies and preparing the necessary supporting teaching materials, according to the demands and profile of the beneficiaries identified. The third activity will be to hold the 400 training events themselves, with broad mobilization of the communities and project partners.
- 1.36 In addition to producing content, organizing and mobilizing training, the(s) organization(s) contracted(s) shall(will)in partnership with the PMU, seek to involve other project partners involved in the aforementioned public policies at a regional/local level so that they can offer services for issuing/updating documents and registrations for access to programs (e.g. birth certificate or ID, CAF, Cadúnico and other state registrations) and act as a kind of focal point for future referrals and guidance, thus helping to ensure that such training already has concrete results in terms of impact and increased access to policies for rural populations.
- 1.37 Although there are converging themes, it should be pointed out that while the TA services for families and communities are focused on drawing up and monitoring the PIRs (therefore more focused and specific), this activity has a broader focus, accessing families and communities not covered by the component 1 plans or those already covered by phase I.
- D. Execution arrangements**
- 1.38 *TA activities.* All TA activities will be carried out by technical advisory bodies to be contracted by the Project. Taking the previous experience of PROCASE and other projects as a reference, in its first year of implementation the Project will select TA entities to carry out this work.
- 1.39 The Project will select and contract public or private entities (including third sector organizations, cooperatives, etc.) that have proven experience in providing TA services in the biomes present in Paraíba (Caatinga and Atlantic Forest), to provide these services to the beneficiaries. The selection criteria for these entities to be contracted will include: i) having at least 5 years' experience of working with sustainable, agroecological agricultural production systems, geared towards adapting to climate change and coexistence with the semi-arid region. and coexistence with the semi-arid region; ii) depending on the region to be served, have experience of working with TA in the semi-arid region or in the Atlantic Forest region; iii) technical team with experience of working with women, young people, traditional and/or indigenous communities; iv) the ability to work with the theme of protecting and regenerating environmental resources; v) the ability to use remote TA tools digital as a complementary strategy to face-to-face TA; vi) experience of working with public programs and policies. As mentioned above, the selection of the entities that will provide the TA service will consider criteria that guarantee the presence of women technicians on the teams.
- 1.40 To provide TA services with a territorial approach, the contracted entities will work by lot, which will be made up of groups of neighboring communities, close to each other, to be



defined by the Project after the communities to be covered have been chosen. To avoid excessive concentration, each entity may be selected for a maximum of two lots.

- 1.41 In cases where there is a need to implement social technologies, entities with experience in this area will be hired, in accordance with the rules of the Federal Government's Cistern Program.
- 1.42 In the case of TA, natural or legal persons should be selected who have proven experience with 'specialized' topics, such as drawing up plans for groups of shellfish gatherers, or specific topics such as sustainable irrigation systems, renewable energies, and others.
- 1.43 *Public Policy Training Activity.* At the beginning of the policy training work, it will be necessary to hire a specialized consultancy to define the content to be worked on in the communities and prepare teaching material on the subject. The actual training events will have to be carried out by the entity(ies) contracted for this purpose through an appropriate selection process and in addition to the above. The PMU will be responsible for organizing the training events and supervising the work of these contractors.
- 1.44 As for the other capacity-building activities (training and improvement events for TA teams, exchanges, etc.), it will be up to the PMU to organize the activities and contract the services and materials needed to carry them out.

**Costs of Subcomponent 2.1 - Strengthening family farmers' capacities (values in US\$).**

<b>Activities</b>	<b>Amount</b>	<b>Unit Cost</b>	<b>Estimated value (US\$)</b>
<b>Activity: Provision of agroecological TA services in communities</b>			<b>18 900 000</b>
Provision of agroecological TA for families	18 000 families	900	16 200 000
Specialized TA	18 000 families	150	2 700 000
<b>Activity: Complementary training/exchange events for farmers, including association leaders</b>			<b>52 800</b>
Association training courses	92 events	400	36 800
Exchange events between farmers			
Training courses and exchange events on environmental education, agroecological practices, climate resilience, community management of natural resources and sustainable use of conservation areas	40 events	400	16 000
<b>Activity: Events to improve TA teams capacities</b>			<b>300 000</b>
Training events for TA teams	20 events	15 000	300 000
<b>Activity: Training family farmers in public policies</b>			<b>1 000 000</b>
Course preparation, including content and teaching material	1		80 000
Organization of training events for access to public policies	280	2 300	644 000
Training events for access to public policies on current environmental regulations (pesticides, deforestation) and 'good practices' that restore and preserve environmental resources	120	2 300	276 000
<b>TOTAL for subcomponent 2.1</b>			<b>20 252 800</b>

**E. Results**

- 1.45 Approximately 18,000 families will benefit from TA services, of which 50% should be represented by women, 30% by young people and at least 20% by Traditional Peoples and Communities. Part of this same public (approximately 2,600 people) will be served with complementary training events. Approximately 150 technical TA agents will also be trained.
- 1.46 The Public Policy courses should benefit a total of 32,000 families, of which 50% should be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

**F. Implementation schedule**

Implementation schedule for Subcomponent 2.1

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1 - Provision of TA Agroecological			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
2 - Specialized TA					■	■	■	■	■	■	■	■	■	■	■	■	■	■						
3- Association training courses						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
4 - Exchanges between farmers						■	■	■	■	■	■	■	■	■	■	■								
5 - Capacity building / training of TA teams			■	■	■	■			■	■			■	■										
6 - Preparing a course on Public Policy			■	■																				
7 - Public Policy Training Events					■	■	■	■	■	■	■	■	■	■	■	■	■	■						

## ANNEX 6

### Strengthening organizations' commercialization capacities

#### A. Objective

- 1.1 The focus of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) served by the Project. Groups/organizations of farmers will also be worked with to create or strengthen local fairs and small commercialization centers. In the context of improving commercialization conditions, the Project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories / 'consortia of municipalities'.
- 1.2 The aim is to help family farming organizations and their products enter diversified commercialization channels, generating more income for the families who benefit from them.

#### B. Strategic orientation and methodology

- 1.3 In the previous section, it was seen that all existing local organizations - with a special focus on family farmers' cooperatives - have significant capacity gaps on a number of key issues. It will be necessary to strengthen the capacities of the cooperatives' teams to make it possible to draw up and then implement Business Plans (PNs). Once the implementation of the PNs is underway, it will be necessary to ensure that the cooperatives' capacities are strengthened on specific topics, such as financial and project management, good production practices, marketing and commercialization, environmental compliance, etc. They will need support, mainly in the form of training, if they are to play an active and effective role in implementing the various sustainable development initiatives, they are called upon to carry out.
- 1.4 To achieve these objectives, the subcomponent will use the following main instruments: (i) providing of Specialized Technical Assistance (STA), focused mainly on preparing and monitoring the execution of Business Plans; (ii) various types of training events will be organized (workshops, training courses, technical visits, exchanges, etc.) that will strengthen the capacities of the organizations served in areas such as management (including project management), good production practices, marketing and commercialization, environmental compliance and other topics. It will also be a Project to encourage access to short marketing chains (street markets, Solidarity Economy Centres) and another to strengthen organizations on the subject of creating and/or strengthening health inspection services.

#### C. Actions planned

##### a) Provision of Specialized Technical Assistance (STA)

- 1.5 As seen above, it will be necessary to strengthen the economic organizations (cooperatives and similar organizations) that will benefit from the Project. This will be done through the provision of STA services, with 60 of these organizations expected to be served.
- 1.6 STA's primary responsibility with the beneficiary economic organizations will be to conduct the participatory planning process that will enable the Business Plans to be drawn up, and then to monitor their implementation. It will be up to the STA to organize the provision of training on specific topics that are necessary for the success of the organization in the business it proposes proposed (and which will be supported by PROCASE II).
- 1.7 In the end, it is hoped that by strengthening the production and management processes provided by STA, the organizations will be able to better structure their production processes, thus adding more value to primary products and accessing new commercialization channels.
- 1.8 Individuals or companies may be contracted to provide these services. The criteria for selecting providers will include: i) experience in providing consultancy services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, including issues such as improving processing processes, developing a business strategy and identifying new marketing channels, strengthening management in the accounting, financial and administrative spheres, etc.; iii) institutional capacity to mobilize the specific skills needed by the

organizations being assisted; iv) technical capacity to deal with environmental and/or climate issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to complementary public policies to support family farming (such as credit, public procurement, etc.).

- 1.9 The STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and also to meet demands not included in the business plans it supports. As market access-oriented organizations will also have to look for possibilities for cooperation with the private sector, STA should support them in this search.

**b) Initiatives to strengthen fairs and marketing centers**

- 1.10 By supporting Family Farming organizations with PNs, the Project is encouraging greater access to markets for Family Farming products. Another way of improving access to markets is to strengthen short marketing chains, creating new short circuits or strengthening those that already exist, so that farmers have greater predictability for the disposal and sale of their produce.
- 1.11 To this end, support will be given to groups/associations of farmers who are interested in setting up or strengthening/expanding open-air markets and points of direct sale to consumers in the urban areas of the various municipalities. Groups of family producers can also be supported so that they can be present at local or wider fairs. The Project will also seek to strengthen, in partnership with the State Secretariat for Human Development (SEDH), the Marketing Centers and Solidarity Economy Houses, following the example of the initiative implemented with the same Secretariat by PROCASE I, which made it possible to strengthen the Solidarity Economy Centers that served family farmers in the municipalities of Soledade (in the Western Curimataú micro-region) and Sumé (in Western Cariri).
- 1.12 The Project is expected to support 50 groups/associations, including groups of market traders and Marketing Centers and Solidarity Economy Houses.

**c) Pilot implementation of the Participatory Guarantee Systems (PGS)**

- 1.13 There are already several organizations in Paraíba working on participatory certification. It is possible that another farmers' organization that is working on production with a focus on agroecology and sustainability may wish to become a participatory certification organization. In another plausible scenario, an existing participatory certification organization may wish to expand the scope of its certification processes, for example by adding certification of animal products to the certification of plant products that it already operates.
- 1.14 In this circumstance, the Project will be able to provide support to carry out the intense process of mobilization (various meetings), training and the acquisition of basic equipment (files, computer, etc.) that is necessary to be able to set up/extend the scope of a Participatory Guarantee System (SPG).
- 1.15 The very creation, expansion and operation of new PGSs in the regions served by the Project is a strong incentive for family farmers to advance in the sustainable production and commercialization of agroecologically-based products, being able to access new markets, sell their products for better prices and contribute to strengthening healthier local food systems. It is planned to set up 15 pilot experiences of this type.

**d) Structuring Municipal Health Inspection Services**

- 1.16 Brazilian legislation requires enterprises that process animal products to obtain a Health Inspection Seal to be able to sell them. In Paraíba, there are very few family establishments whose products have this seal. It is formally the responsibility of the municipalities to provide the municipal health inspection service, but they rarely do so, citing a lack of financial and human resources. Several states in the country have launched initiatives to form Municipal Consortia<sup>24</sup> with the aim of providing this

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<sup>24</sup> In the Northeast, there are Municipal Consortia offering this service in Rio Grande do Norte and Bahia. There are also initiatives of this kind in other Brazilian states.

type of service to the population (and especially to farming families), and the Federal Government, through the Ministry of Agriculture (MAPA), has supported this initiative<sup>25</sup>. The government of Paraíba has embraced this idea and has set a target in the next PPA of 'articulating Municipal Agricultural Inspection Consortia'.

- 1.17 In line with this state guideline and the initiatives taking place in other states, PROCASE II proposes to stimulate the emergence/strengthening of initiatives of this kind by supporting the structuring of municipal Health Inspection Services. A support initiative of this kind will include at least the following phases or stages: i) identification of municipalities that have already formed or wish to form consortia and are interested in setting up a Sanitary Inspection Service of this type; ii) creation or updating of Municipal Inspection Service (SIM) laws by the City Councils and approval of corresponding decrees<sup>26</sup>; iii) Strengthening operational capacity by acquiring the necessary equipment; iv) Strengthening technical capacity by carrying out a series of training courses for the municipal team responsible for the Service, thus enabling them to start operating in practice; v) Monitoring the first six months of operation of the SIM thus created.
- 1.18 By expanding the supply of these services, family farmers and their organizations will be better able to adapt their production processes to obtain certification and increase the sales range of their animal products.
- 1.19 The Project will support, with some investment resources and training, the structuring of the Health Inspection Services of two Consortia during the period of its operation.

#### **D. Execution arrangement**

- 1.20 Specialized Technical Assistance (STA) will be hired by the Project (PMU), through a selection process that meets IDB standards, with funds provided in the subcomponent's budget.
- 1.21 Individuals or legal entities may be contracted to provide these consultancy services. Criteria for selecting providers will include: i) experience in providing consultancy services to Family Farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new commercialization channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.
- 1.22 The implementation of the investments defined in the Support Plan for Solidarity Economy Fairs/Centers will be carried out through agreements, Terms of Collaboration or Promotion, or Cooperation Agreements signed by the Project (PMU) with the market associations or Solidarity Economy Centers. The regional teams will play an important role in coordinating the various players involved in these initiatives. If it is not possible to use the terms of collaboration and/or promotion in this way, it will be up to the PMU to organize and deliver the training and purchases included in the Plans. The participation of other secretariats, such as SEDH, will be done through ACTs without transferring resources, and the partner secretariats will be able to mobilize human and financial resources from their own programs.

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<sup>25</sup> In 2021, MAPA published a booklet entitled "Municipal Inspection Services linked to a Public Consortium of Municipalities", which details the process of "how to implement, operationalize, promote health security, reduce costs and create opportunities to expand the market for local products". Ref.: BRAZIL-MAPA; CONFEDERAÇÃO-NACIONAL-DE-MUNICÍPIOS; REDE-NACIONAL-DE-CONSÓRCIOS-PÚBLICOS; SEBRAE. **Municipal Inspection Services linked to a Public Consortium of Municipalities**. Brasília: MAPA, CNM, RNCP, SEBRAE, 2021. 46 p. Available at: [https://www.gov.br/agricultura/pt-br/arquivos/servicos-de-inspecao\\_v6.pdf](https://www.gov.br/agricultura/pt-br/arquivos/servicos-de-inspecao_v6.pdf).

<sup>26</sup> Reference: PRÓ-SEMIÁRIDO. Project Completion Report (PCR). Main Report and Appendices. Salvador: Projeto Pró-semiárido; IFAD: 45 p. 2023.

1.23 In the case of pilot PGS (Participatory Guarantee Systems) implementation and initiatives to support the structuring of Health Inspection Services, the PMU will be responsible for diagnosing demands and contracting individuals and/or companies for consultancy services, the purchase of goods, equipment and/or small projects.

**E. Costs**

**Costs of Subcomponent 2.2 - Strengthening organizations' commercialization capacities (values in US\$).**

Activities	Number	Unit Cost	Value (in US\$)
Provision of STA for Economic Organizations with PNs	60 PNs/ orgs.	20 000	1 200 000
Strengthening Local Fairs and Marketing Centers	50 pcs.	16 000	800 000
Establishing Health Inspection Services with Consortia of Municipalities	2 pcs.	150 000	300 000
Pilot of a Participatory Guarantee System	15 systems	2 000	30 000
<b>TOTAL for Subcomponent 2.2</b>			<b>2 330 000</b>

**F. Results**

1.24 The provision of STA services will work with 60 Business Plans from economic organizations, benefiting approximately 5,000 families, of which 50% must be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

1.25 The initiative to strengthen local fairs and commercializationmarketing centers will work with 50 units (fairs and centers), benefiting approximately 800 families.

1.26 It is planned to structure 2 Sanitary Inspection Services of Municipal Consortia, as well as the structuring of 15 participatory guarantee systems - SPG

**G. Implementation schedule**

**Implementation schedule for Subcomponent 2.2**

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1- Specialized TA																								
2 - Strengthening local fairs and commercialization centers																								
3- Structuring Health Inspection Services																								
4- PGS pilot experiment																								

## ANNEX 7

### Diversity, gender, youth, nutrition and food security

#### A. Objective

- 1.1 This subcomponent will aim to promote the empowerment of women, young people, PCTs, LGBTQIABP+ and persons with disabilities, as well as to improving nutrition and food security of beneficiary families. The activities will work with the Project's cross-cutting themes, strengthening and supporting the integration of these themes into all the components.

#### B. Strategic orientation and methodology

##### a) Gender and Diversity:

- 1.2 The Project will take a holistic approach to transforming gender relations, promoting the inclusion of Afro-descendants and PCTs, the LGBTQIAPN+ community and persons with disabilities, focusing on the environmental, economic, political and cultural causes of the social vulnerability of these groups. To transform unequal power relations, shaped by patriarchal and exclusionary structures, norms and practices, as well as empower women, Afro-descendants and PCTs, the LGBTQIAPN+ community and persons with disabilities, the following transformation paths will be followed: i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development, ii) address the issue of women's overload due to domestic and care work by promoting a fairer division of the workload between men and women, iii) empower target groups to have a greater voice and decision-making power in rural institutions and organizations, iv) promote advocacy in policies for women, youth and PCTs, v) prevent gender-based violence, v) value traditional knowledge, practices and ways of life in production, food and natural resource management and vi) promote the inclusion of the LGBTQIAPN+ community and persons with disabilities, seeking to strengthen them, promote their leadership and respect for their rights.

- 1.3 Therefore, this sub-component aims to support the mainstreaming of the gender and diversity strategy throughout the Project, which will have an intersectional approach, considering the overlap of multiple discriminations of gender, race/ethnicity, sexual orientation and disability. All the activities and products proposed for this component will be contained in and guided by the Gender and Diversity Strategy and Plan to be drawn up at the start of Project implementation.

##### b) Youth:

- 1.4 Among the factors that influence staying in rural areas is access to work and income opportunities, education/training suited to the characteristics of rural areas, appreciation of rural ways of life, the availability of services and conditions that can offer the possibility of success in agricultural production. To respond to these issues raised in the Youth diagnosis, the aim is to promote the permanence of young people in the countryside, as well as offering more opportunities for sustainable income and work for young people in general, the strategy of this subcomponent is based on three main axes:

- i) Promote a broad training program in agricultural and non-agricultural activities that generate greater employment and income opportunities,

- ii) Implement a program to revalue life in the countryside through communication activities,
- iii) Promote the formation of Youth Networks and debates on issues relevant to the development of rural youth.

**c) Nutrition and Food Security:**

- 1.5 To improve food security, nutritional status and increase the adoption of dietary healthy, this subcomponent of PROCASE II will implement a strategy centered mainly on food and nutrition education training. There will be three main lines of action:
- i) Sensitization on good nutrition and health practices (reproductive health, maternal health and child health), to improve in particular the nutritional and health status of women and children.
  - ii) Sensitization for food culture, a healthy diet that includes in particular Neglected and Underutilized Species (NUS) from the target territories, and
  - iii) The training of vulnerable communities in the processing of healthy local products to increase their daily consumption in a sustainable way and to promote the empowerment of vulnerable communities by valuing the local food culture.
- 1.6 The nutrition and food security activities in this subcomponent complement the actions to increase access to and availability of food by increasing production, productive diversification and income as a result of the productive investments provided for in component 1.

**C. Planned actions and products**

**a) Action: Gender and Diversity Plan**

- 1.7 The Gender and Diversity Plan will be drawn up in the first few months of Project implementation by the PMU's Gender and Diversity specialist with the support of a specific consultancy hired to detail the general strategy and implementation methodology for all activities related to gender equity and women's empowerment, as well as the inclusion of PCTs, persons with disabilities and LGBTQIAPN+. The activities set out in the Gender Plan should include:

**b) Modular training in Gender and Diversity for the Project and TA teams:**

- 1.8 All Project teams, from the PMU and the decentralized units (RPMUs), will be trained in gender and diversity issues to ensure that these themes are integrated into all dimensions of PROCASE II's management and implementation and that all Project activities are adapted to the specific demands of women, Afro-descendants, PCTs, the LGBTQIAPN+ community and persons with disabilities. Training will take place in all the local offices in the Project territories. The PMU's Gender and Diversity specialist will be responsible for training the Project team, as well as supporting colleagues in addressing issues of gender equality, women's empowerment, Afro-descendants, PCTs, LGBTQIAPN+ and persons with disabilities in their operations throughout implementation, including in knowledge management, M&E and results measurement.
- 1.9 The sensitization/capacity building of the RPMUs' teams will be key to ensuring that field activities integrate gender and diversity concerns, and focal points should be selected in the field offices to assist the PMU Gender and Diversity specialist in implementing the



Gender and Diversity Plan at territorial level. The Technical Assistance teams will have a regular and continuous presence with the target audience and, to promote a service that meets the specific demands of the Project's target groups (women, young people, PCTs, LGBTQIAPN+ and persons with disabilities), these teams must be trained in Gender and Diversity issues.

- 1.10 The technical specialist in Gender and Diversity at the PMU will play a crucial role in implementing an inclusive and transformative approach in terms of diversity and gender. Some of the themes proposed in the trainings are: women's rights, fair division of domestic labor, empowerment, agroecology, LGBTphobia, gender-based violence, public policies aimed at women and PCTs, as well as the ethnic and racial dimension.

**c) Gender and diversity training for the Project's direct beneficiaries**

- 1.11 PROCASE I has consolidated a successful Gender methodology. However, it must strengthen its ethnic-racial and generational sections, as well as being updated to include a broad diversity perspective that includes promoting the empowerment of Afro-descendants, PCTs and the LGBTQIAPN+ community.
- 1.12 The main objectives of the training are: i) To develop the capacities of the target groups so that they can play an active role and be socially recognized in the economic and productive spheres of the family and community; ii) To promote voice and influence in rural institutions and organizations, both of women and of PCTs and the LGBTQIAPN+ community; and iii) Promote debate on the sexual division of labor, with a view to fostering a fairer division of the workload between men and women; iv) Value and disseminate traditional knowledge, practices and ways of life and discuss issues related to racism, sexual orientation and gender identity.
- 1.13 During the training sessions, the issue of Violence against Women and Domestic Violence will be addressed, providing knowledge and information about the Maria da Penha Law, how to access the Network for Combating Violence against Women and how to file complaints, with the aim of preventing violence against girls and women. The training sessions will be held in the beneficiary communities. The training program will take an intersectional approach, considering how racism, patriarchy, heteronormativity and other exclusionary structures generate dynamics between multiple axes of subordination - gender, race/ethnicity, sexual orientation and social class.

**d) Implementation of the Agroecological Logbook Methodology:**

- 1.14 The Agroecological Logbooks (ALs) are an innovative and successful political-pedagogical instrument for women's economic empowerment, which has already been widely tested within the framework of IFAD projects in Brazil. The ALs are implemented to measure, value and give visibility to women's fundamental contributions to the family economy and, consequently, to community development. They also aim to promote greater self-esteem among women and demonstrate how they contribute, through production in agroecological backyards, to a healthy, diversified and safe family diet. As a result of valuing women's contributions to the family economy, the aim is to change power relations in the domestic and community spheres.
- 1.15 The Agroecological Logbook is a simple-to-use tool with four columns for organizing information about women's production. It records what is sold, donated, exchanged and consumed on a daily basis, based on everything that is grown in the spaces where women live in family and peasant farming units, from agricultural production to handicrafts and processing. During the implementation of PROCASE I, the Logbook proved to be an

efficient tool for monitoring women's production, even allowing for the valuation of production that does not involve monetary exchange and which was previously invisible, such as that for self-consumption, which plays a fundamental role in guaranteeing food and nutritional sovereignty. The role of the Technical Advisory Service is to mobilize the beneficiaries, train them in the use of the ALs and follow up and monitor their completion. Therefore, as well as promoting women's socio-economic empowerment, the ALs also play a role in qualifying TA actions as an instrument for intervening in reality, constituting new indicators for the Project's actions. The implementation of the complete AL Methodology includes the costs of training, implementation and M&E.

**e) Training cirandeira(o)s:**

- 1.16 The communities will select people from their own communities to be trained as facilitators of childcare circles, developing skills to care for and teach children during the Project's activities, allowing mothers to take part in the training and other activities proposed by the Project. The educational training of the facilitators (cirandeiro(a)) will be carried out by a qualified team of professionals from various fields, such as Pedagogy, Arts, Social Work, Anthropology and Sociology, and will last around a year.
- 1.17 The municipalities will be organized into training centers where 48-hour workshops will take place over 12 months, in two phases of 24 hours each, totaling 336 hours of activity. Training for cirandeiros and cirandei-ras should take a multidisciplinary approach to themes that are interrelated, such as "gender relations", "environmental education" and "child development", helping to prepare facilitators for carrying out their educational activities with children. Facilitators should also be trained in the use of dynamic methods and tools, such as storytelling, games and toy-making. A set of educational materials should also be prepared, consisting of videos, CDs, books, and memory games to increase awareness of a range of issues during the sessions with the children. One of the important aspects of this methodology is the process of training men and women, many of whom are young, to develop their leadership qualities through pedagogical methods that seek to strengthen intergenerational links.
- 1.18 The Project will ensure, through hiring a support foundation in the process of selecting cirandeiros, that there is a methodology and prioritization criteria that guarantees gender equity and diversity. PCTs, persons with disabilities and LGBTQIAPN+ will have priority. At least 50% of cirandeiros must be from these priority target groups.

**Childcare/education activities that allow women to participate in the Project's activities:**

- 1.19 The Project will offer childcare/education services to ensure women's participation in PROCASE II activities, such as the Gender and Diversity Trainings. The activities are conducted with children by one or two educators/facilitators in a physical space provided by the community. The costs of the activity are as follows: i) training childcare workers; ii) reserving materials and resources for activities; and ii) paying for childcare services. The action is built on a dynamic methodological approach that strengthens relationships between generations, promotes debate on gender equality in family and community networks and conveys positive messages about the semiarid region and sustainable practices that are developed by different organizations and communities within this ecosystem. In addition, this activity helps to reduce women's work overload due to childcare and encourages many communities to play a role in collectively sharing the task of caring, normally associated with the private sphere. Another positive aspect is the

promotion of gender-transformative education, which allows stereotypes, attitudes, norms, and practices to be transformed, generating critical awareness among both children and their educators about gender inequalities.

**f) Thematic meetings on diversity (aimed at persons with disabilities and LGBTQIAPN+ )<sup>27</sup>:**

- 1.20 The thematic meetings will be aimed at the beneficiaries of two specific target groups: Persons with Disabilities and the LGBTQIAPN+ community, will have a community approach and will be demand-driven. They will complement the Gender and Diversity training aimed at beneficiaries, addressing specific topics of interest to the communities and strategic for closing the inclusion gaps identified in the Gender and Diversity diagnoses related to Persons with Disabilities and LGBTQIAPN+.
- 1.21 In particular, persons with disabilities and the LGBTQIAPN+ community in the Project area are impacted by the combined effects of numerous forms of discrimination, including gender, race, disability, sexual orientation, and socio-economic conditions. As a result, they face even greater obstacles to participating in decisions that affect their well-being and to the full realization of their rights. Five meetings will be held for persons with disabilities and five for the LGBTQIAPN+ community. Through these thematic meetings, guided by the demands of the target groups themselves, political mobilization will be promoted, awareness will be raised about rights, as well as issues related to sexuality, sexual orientation, and the inclusion of persons with disabilities.
- 1.22 Whenever possible and necessary, the possibility of ensuring a cross-cutting and transdisciplinary Food and Nutrition Security (FNS) agenda in these thematic training meetings should be considered, considering the social vulnerability and food and nutritional insecurity of the groups mentioned, which are priority groups in FNS policies in Paraíba.

**D. Youth Plan**

- 1.23 A Youth Plan will be drawn up in the first few months of Project implementation by the PMU's Youth specialist to detail the general strategy and implementation methodology for all the activities in this subcomponent related to the socio-economic and political empowerment of young people. At least the following cross-cutting activities will be developed for rural youth in the Project area:

**a) Vocational training in agricultural and non-agricultural activities:**

- 1.24 In the area of intervention, there is a process of exodus of young people in search of better job and income opportunities in the cities, challenging the process of rural succession. In this context, non-agricultural productive activities have become an important income-generating alternative for part of the rural population, and could help young people stay in the countryside. In this sense, PROCASE II will promote vocational training for young people in activities such as: information technology, mechanics, rural tourism, maintenance of machinery and equipment, cutting and sewing, handicrafts, gastronomy, among others. For those who decide to take up agricultural activities, the Pproject will also offer vocational courses that will enable young people to diversify their sources of income and promote better conditions for success in agricultural production. Courses will be

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<sup>27</sup> Give preference to trans people, when possible, because this is a group that is particularly marginalized among the LGBTQIAPN+ community, prioritizing self-recognition between the trainer and the participants in the meeting.

offered in agricultural subjects such as horticulture, beekeeping, poultry farming, rural administration, among others. To implement training in agricultural and non-agricultural activities, the Project will seek to build partnerships with institutions such as SENAI, SEBRAE, PRONATEC, SENAR, EMBRAPA, universities and teaching and research institutes.

**b) Training Young Communicators:**

- 1.25 PROCASE II will train young rural people to become Young Communicators. Training will be offered in subjects such as photography, audiovisual, interview techniques, cordel, digital marketing, project development and citizenship. With the skills developed, the Young Communicators will be able to help record and monitor project activities, produce audiovisual and printed materials and act as social mobilizers in their communities. This initiative will also allow young people to develop their vocation and even start practicing a new profession. The activity will involve: (i) the selection process for the young people; (ii) the training course; (iii) an exchange event and a final meeting. In this process, the Young Communicators will be encouraged to produce communication materials about the Project's experiences, good practices, etc. and will be guided in the search for the insertion of these "products" in communication channels such as blogs, YouTube channels, community radio stations, among others.

**c) Thematic meetings with young people and the formation of Rural Youth Networks:**

- 1.26 The Project will promote meetings on topics relevant to the full development of rural youth identified in the youth diagnosis (justification section), such as violence, the lack of public policies aimed at rural youth, limited access to specific lines of credit aimed at young people, education in the countryside, among other topics. The themes chosen will also be guided by the demands of the young people themselves. On this occasion, the formation of Rural Youth Networks will also be promoted, to strengthen the self-organization of young people and their groups and organizations, ensuring that they have greater capacity to access available public policies and advocate for new public policies aimed at rural youth.

**E. Plan to Strengthen Traditional Peoples and Communities (PCTs)**

- 1.27 A Plan to Strengthen Traditional Peoples and Communities will be drawn up in the first few months of the Project's implementation.

**a) Strengthening PCT networks:**

- 1.28 PROCASE II will invest in the formation of PCT groups and the strengthening of existing groups, promoting the strengthening of ties between PCTs from different territories in Paraíba, fostering the construction of networks. The PCT diagnosis showed that these groups still have inclusion gaps in various socio-economic and political dimensions. The formation of PCT networks and the strengthening of existing ones could help to close the gaps. As a strategy for scaling up promotion to strengthen the self-organization of the PCTs and their constituent groups and organizations, at least three broad meetings will be held to encourage the formation of PCT Networks, in which the common challenges faced will be debated and good practices and lessons learned shared. This activity, together with the PCT Policy Integration Fairs, will help articulate the partnerships needed to access public policies for existing PCTs and influence new public policies. The main agendas defined as priorities in the PCT Networking meetings can be presented at the PCT Policy Integration Fair.

**b) Policy Integration Fairs for the PCTs:**

1.29 The project will seek to influence public policies aimed at traditional peoples and communities, consolidating and expanding the human rights of this target group. Despite the existence of national, state, and local policies aimed at PCTs, there is a lack of greater integration between them and a specific approach to overcoming challenges and meeting the aspirations and demands of PCTs in the Project area. To this end, six PCT Policy Integration Fairs will be held with the participation of beneficiaries and various actors from the public sector and civil society at state and local level to debate public policy proposals that meet the wishes and demands of Paraíba's traditional peoples and communities. The cooperation promoted, through the exchange of information and experiences, must consider the diversity of agents involved, with a view to building intersectoral networks that can influence the definition of public policies for the PCTs.

**F. Nutrition and Food Security Plan**

1.30 A Nutrition and Food Security Plan will be drawn up in the first few months of the Project's implementation.

**a) Nutrition education initiative to improve nutrition and maternal and child health in the Project's most vulnerable communities:**

1.31 Initially, the communities with the greatest malnutrition problems in the Project area will be identified. This should be done with the support of partners such as the Secretariat for Human Development (SEDH), which has a central role in drawing up and coordinating the various actions included in the State Plan for Food and Nutrition Security, and the Paraíba School of Public Health or another potential partner with expertise in nutrition and food security. The Project's baseline study, which will measure the percentage of women with a minimum diversified diet, could also be used as an indicator to define the target groups and obtain information on the content of the diet. Once the communities with the greatest problems of malnutrition have been identified, nutritional education courses will be given there. The beneficiaries will mainly be community health workers, women, young people, and women from PCTs.

1.32 The training will take place in communities, with selected professionals teaching. The final part of the course will include the establishment, with the community agents, of an action plan to be developed in the community to monitor changes in practices over the long term. To ensure the commitment of the participants, it will be important to consult the beneficiaries about the time of year and the hours to be given priority so that the courses can be followed up regularly.

1.33 Likewise, the content of the course will be chosen jointly, prioritizing teaching related to children's nutrition to combat a micronutrient deficiency and provide a balanced diet that respects the needs of each age. The topic of promoting exclusive breastfeeding during the first 6 months of children's lives will also be part of the course, as it persists as a health problem, in addition to the topics of mothers' health (in particular to combat anemia, overweight and obesity) and reproductive health, given the high rates of teenage pregnancy. Ideally, the partnerships, course content and action methods will be defined in the first year of the Project by the PMU's nutrition and food security officer (and in collaboration with the service provider) for implementation in the communities from year 2 to year 5 of Project implementation. At the end of the course, it will be important to identify and document the results at community level.

**b) Training events on food culture and food processing to enhance local products with a view to improving nutrition and facilitating the empowerment of women and young people:**

- 1.34 The content of the training will be defined by the Project's nutrition manager (in conjunction with a partner with expertise in nutrition and food safety or a service provider specializing in this area), including priority topics such as the appreciation of Neglected and Underutilized Species (NUSs), influences on eating habits with a view to improving health, technical support for food processing with a view to economic autonomy and the appreciation of family farming products. The objectives will be to promote nutritional security, strengthen and value traditions related to food practices, promote the consumption of local and healthy products by teaching tasty and easily reproducible recipes.

**c) Raising awareness of nutrition, health, and food culture among students at the Integral Citizen Schools:**

- 1.35 Students will be made aware of food culture, healthy eating practices and gastronomy. Considering that eating habits are still developing among young people, it is hoped that the impact of the training will be significant for these students. The training is planned for around 10 schools in the Project area, prioritizing schools in poorer municipalities. The students will be divided into groups of up to 30 students, spread over the four years of the Project's implementation. The course will last one day, divided into a theoretical part (adapted for students) and a practical part (cooking class). In the process of selecting the schools, it will be necessary to investigate whether there is already some kind of nutritional teaching in the school, to propose new content. It would also be important to include all the school staff, in particular the cooks, to influence, for example, the menus and practices linked to food in schools.

**G. Local Development Agents**

- 1.36 The Project will hire a foundation, which will be responsible for hiring the Local Development Agents (ADL), who are young people from the communities themselves, hired by PROCASE II to carry out tasks such as mobilizing communities and organizations to actively engage in the Project. In addition to mobilization, the ADLs must play a significant role in the management of the agreements made by the community associations, supporting the holding of tenders, the updating of financial information, the monitoring of investments made, the rendering of accounts and the maintenance of the associations' fiscal regularization. One young person will be hired per Resilient Investment Plan, which in turn serves 3 communities. The young ADLs will receive a series of training courses to develop their skills. By playing the role of ADL, it is hoped that the young people selected will be able to gain experience in leadership and management, becoming references in the communities they represent and continuing to support them even after the end of the Project. The ADLs will also play an important role in supporting the implementation of cross-cutting activities, such as gender, diversity, and youth, as well as in communication between the communities, the Project, and the TA teams.

**H. Execution arrangement**

- 1.37 To draw up the plans for this subcomponent (Gender and Diversity, Youth, PCTs and FNS), it will be necessary to hire individual consultants or consultancy firms to design them in full methodological and operational detail. The activities planned and included in the plans for this subcomponent will be implemented both through actions carried out directly by the Project's technical team (the PMU and the Regional Project Management

Units) and through events that will be included in the terms of collaboration or promotion with producer organizations (associations). The terms will allow for the purchase of support materials, the hiring of instructors, as well as exchanges between farmers. Regarding ADLs and cirandeiros, a foundation will be selected which will be responsible for hiring these agents.

- 1.38 A Gender and Diversity specialist, a Youth specialist should be hired as part of the Project management team, a specialist in Traditional Peoples and Communities and Nutrition specialist, all with exclusive dedication. They will be responsible for drawing up and supervising the implementation of the respective plans provided for in this subcomponent according to their area of expertise. All four specialists must be trained in differentiated approaches to the inclusion of persons with disabilities and LGBTQIAPN+.
- 1.39 In each Regional Project Management Unit, there should be a focal point for social themes, who should work closely with the PMU specialists and the technical advisory teams at local and regional level.

#### I. Costs

#### Costs of Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security (values in US\$)

Activities	Amount	Unit Cost	Value (in US\$)
<b>Gender and Diversity line of work</b>			<b>1 025 000</b>
Drawing up a Gender and Diversity Plan	1	25 000	25 000
Gender training for Project and TA staff	18	9 000	162 000
Gender and Diversity training for beneficiaries	350	1 400	490 000
Implementation of Agroecological Logbooks	40	2 200	88 000
Training cirandeira(o)s	5	18 000	90 000
Childcare/education activities (Cirandas)	1 000	70	70 000
Thematic meetings on diversity (aimed at persons with disabilities and LGBTQIAPN+)	10	10 000	100 000
<b>Youth Work Line</b>			<b>525 000</b>
Drawing up a Youth Plan	1	25 000	25 000
Vocational training	35	7 000	245 000
Training for Young Communicators	20 events	5 500	110 000
Thematic meetings and youth networks	50	2 900	145 000
<b>Traditional Peoples and Communities Line</b>			<b>425 000</b>
Drawing up a PCT Strengthening Plan	1	25 000	25 000
Meetings to Strengthen PCT Networks	3 enc.	60 000	180 000
PCT Policy Integration Fairs	6 fairs	36 667	220 000
<b>Nutrition and Food Security Line</b>			<b>625 000</b>
Drawing up a Nutrition and Food Security Plan	1	25 000	25 000
Maternal and child nutrition education events for vulnerable communities	190	1 400	266 000
Training in food culture and NUS (Neglected and underutilized Species)	180	1 300	234 000

Raising awareness among students at the Integral Citizen Schools	40	2 500	100 000
<b>Line of Local Development Agents</b>			<b>2 000 000</b>
Hiring ADLs	200	10 000	2 000 000
<b>TOTAL for Subcomponent 2.3</b>			<b>4 600 000</b>

**J. Timetable for the 6 years of implementation**

Implementation schedule for Subcomponent 2.3 - Gender, Diversity, Nutrition and Food Security

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Drawing up Gender, Youth, PCT and Nutrition Plans	█	█	█	█																				
2. Gender Training for Project and TA teams			█	█	█	█	█	█	█	█														
3. Gender and Diversity training for beneficiaries						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█			
4. Agroecological Notebooks							█	█	█	█	█	█	█	█	█	█	█	█	█	█				
5. Training cirandeira(o)s						█	█	█	█	█	█	█												
6. Childcare Activities (cirandas)						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
7. Thematic meetings (persons with disabilities and LGBTQIAPN+)						█	█	█	█	█	█	█	█	█	█	█								
8. Vocational training for youth										█	█	█	█	█	█	█	█	█	█	█				
9. Young Communicators										█	█	█	█	█	█	█	█	█	█	█				
10. Youth Meetings and Networks										█	█	█	█	█	█	█	█	█	█	█				
11. PCT Network Meetings														█	█	█	█	█	█	█				
120. Policy Fairs for PCTs														█	█	█	█	█	█	█				
13. Maternal and child nutrition events										█	█	█	█	█	█	█	█	█	█	█	█			
14. Training in food culture										█	█	█	█	█	█	█	█	█	█	█	█			
15. Hiring ADLs																								



## ANNEX 8

### Land and Environmental Regularization

#### A. Objective

- 1.1 As previously mentioned, land and environmental regularization of rural properties is a significant challenge faced by family farmers, both due to the scenario of legal insecurity regarding land ownership and to the possibility of state sanctions or difficulties in accessing productive inputs due to non-compliance with legislation.
- 1.2 Considering this situation, this subcomponent will focus on strengthening the family units served, making the production base more secure by supporting land and environmental regularization.

#### B. Strategic orientation and methodology

- 1.3 It has already been seen, in the Justification of this report, that there is a great lack of land and environmental regularization in Paraíba. The subcomponents will focus on the following priority groups: quilombola communities and federal and state Agrarian Reform settlements. It will also be other PCT groups and traditional Family Farming communities. Whenever possible, environmental and land regularization, aimed at these priority groups, will seek to integrate the different lines of action of the Project and these communities may also receive other actions, such as productive investments.
- 1.4 The subcomponent's general methodology will be guided by the same participatory principles that frame the Project's overall work, aiming for greater social justice, preservation of natural resources, better access to public policies and appreciation of the culture of the groups to be benefited. The working method will be centered on ongoing consultations and dialogues that allow for the inclusion of the families and communities served, enabling them to participate effectively in the process.

#### C. Actions planned

- 1.5 To achieve this goal, actions to support land and environmental regularization will be implemented.
  - a) **Support for land and environmental regularization.**
- 1.6 Seeking to provide solutions to the above-mentioned problem of the existence of a large number of family units in Paraíba that do not have complete legal documentation or formal recognition of these properties, the project proposes to implement a land regularization and environmental registration initiative.
- 1.7 A Rural Property Land Regularization Program, already implemented by the Paraíba state government through EMPAER, is an appropriate background for this initiative<sup>28</sup>. It was on the basis of this experience that an action strategy was developed for this type of activity, which involves a series of stages.
  - b) **The choice of communities/properties to be benefited:**
- 1.8 As mentioned earlier, there are many families and rural properties in the state that are in an irregular land and environmental situation and that need support to overcome this situation.

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<sup>28</sup> This program was implemented by EMPAER from 2017 to 2020, mainly in the Borborema Territory in Agreste Paraibano. See link: <https://empaer.pb.gov.br/noticias/programa-de-regularizacao-fundiaria-beneficia-mais-de-6-mil-agricultores-em-lagoa-seca>; and [https://auniao.pb.gov.br/noticias/caderno\\_paraiba/governo-realiza-regularizacao-fundiaria-30-mil-titulos-em-21-municipios](https://auniao.pb.gov.br/noticias/caderno_paraiba/governo-realiza-regularizacao-fundiaria-30-mil-titulos-em-21-municipios).

The initial task to be carried out by the Project in this area will be to choose the communities/properties that will be assisted by this action. As mentioned above, the first priority will be given to quilombola communities, followed by federal and state land reform settlements.

- 1.9 With regard to these priority communities, it should be noted that only communities and settlements that are not in a situation of conflict or litigation can benefit from this action. Therefore, when the Project comes into force, it will be up to the PMU, in partnership with the other relevant bodies/entities (INCRA, EMPAER<sup>29</sup> and the federal and state bodies for the promotion of racial equality in the case of quilombola communities), to identify and validate eligible quilombola settlements and communities based on this first criterion. Preliminarily, 33 quilombola communities (out of 47 in the state) were mapped in 21 municipalities, as well as 28 agrarian reform settlements in 27 municipalities. It is understood that there will also be the possibility of serving 'traditional' rural communities, albeit in limited numbers. The Project will have to define the prioritization criteria that will allow this choice to be made. The communities/settlements to be targeted should then be defined.
- 1.10 Preliminarily, it was agreed that 40% of the target would be focused on serving quilombola communities and federal agrarian reform settlers (preferably those already served with productive projects in phase I of PROCASE, and which have already been previously mapped). The other 60% of the target will be focused on 09 municipalities in the state, on properties of around 25 hectares (an average of 8 ha per property) belonging to beneficiaries of the PNCF, the ECOPRODUCTIVE project, state agrarian reform settlements, the riverside population, and other groups of family farmers.
- 1.11 The municipalities preliminarily mapped by EMPAER are Barra de São Miguel, Boqueirão, Cabaceiras, Camalaú, Caraúbas, Congo, Monteiro, São Domingos do Cariri and Sumé. These municipalities were worked on by PROCASE I through production projects, mechanized patrols and technical advice to riverside communities benefiting from the São Francisco river transposition project. In these 9 municipalities, the plan is to work with up to 150 communities, which have already been mapped.

**c) The implementation of the regularization roadmaps:**

- 1.12 EMPAER's previous experience has enabled it to define a roadmap or sequence of steps that must be carried out in order for a rural property to be regularized. It is this roadmap, which covers both the land ownership dimension and that of environmental registration, that forms the methodological backbone of the Project's regularization initiative.
- 1.13 It should be noted that the route to be taken by each property to be regularized is slightly different depending on the starting situation of each property, in which case there are two possible initial scenarios: i) Properties with a public deed - areas of ownership and ii) Properties without a public deed - areas of possession. Both routes are similar, with the one for squatter areas having a few additional steps. The roadmaps are presented in more detail below.

**d) Action strategy: the roadmaps for land regularization and environmental registration**

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<sup>29</sup> In a recent administrative reform, the newly created EMPAER incorporated the function of the former EMATER-PB and INTERPA, which was the Paraíba Land Institute responsible for state settlements.

<p>Initial moment: Mobilization and dissemination action, in which the initiative is presented and explained to the beneficiary public, with the aim of identifying/confirming the family units or communities interested in participating and that meet the prioritization criteria (areas without litigation, quilombolas, settlers, PA with less than 25 ha, etc.).</p> <p>Once the potential participants have been identified, the following activity guides are applied.</p>	
<b>Activity roadmap (i): Domain areas</b>	<b>Activity roadmap (ii) - Ownership areas</b>
1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).	
2 - Georeferencing rural property.	2 - Georeferencing rural property.
<p>3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected.</p> <p>Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>	<p>3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected.</p> <p>Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>
4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages	4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages
5 - Creation or update of registration code in the National Rural Registration System (with issuance of CCIR) <sup>30</sup>	5 - Creation or update of registration code in the National Rural Registration System (with issuance of CCIR)
<p>6 - Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows for the generation of technical parts (plans and descriptive memorials) of the property. The delivery of these technical documents certifies land regularization, which is the georeferencing (in script (i) of the ownership areas).</p>	6 - Approval by the agency (INCRA/EMPAER) of the geo-referenced parcel/property in the Land Management System (SIGEF), which allows technical parts (plans and descriptive memorials) of the property to be generated. As this is vacant land, the documentation is issued in the name of the state at this stage. The delivery of these documents concludes the first stage of land regularization, which is georeferencing.
	6.1 - Delivery of the plan and memorial to the notary's office, for the creation of the registration and collection of the vacant land.
	6.2 - Analysis by Discriminatory Committee
	6.3 - Updating the technical parts, which will then be in the name of the beneficial owner and drawing up a definitive title in their (or the community in the case of collective land).

<sup>30</sup> CCIR is the Rural Property Registration Certificate, which is issued by INCRA via the Rural Registration System.

	6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).
7 - Creation or updating of the CAR (Rural Environmental Registry), using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.	7 - Creation or updating of the CAR (Rural Environmental Registry), using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.
8 - Drawing up the title deed.	8 - When stage 6.4 of the notary's office is completed, the property is fit and up-to-date. With the above steps completed, the property's documentation is fully regularized and ready to be handed over to the beneficiary (individual or collective).
9 - The property is ready and up to date. With the above steps completed, the property is ready for occupation., with recognition of ownership. The technical documents can be sent to the notary's office for registration of the area. A new, updated certificate can then be issued.	

1.14 EMPAER will be responsible for coordinating this line of action under PROCASE II. Building on the previous experience mentioned, EMPAER will reaffirm its partnership with INCRA, which plays a vital role in the whole process (issuing the CCIR e coordination of SIGEF). Some of the stages of this roadmap will be implemented in the field by companies hired for this purpose.

1.15 Approximately 5.000 properties (covering around 100,000 hectares) will be able to follow this route with the Project, until the desired regularization is achieved. It should be made clear that in land reform settlements (federal or state) and in the municipalities served by EMPAER, title will be granted individually, per beneficiary family. In the case of quilombola communities, the title will be collective, covering the entire georeferenced polygon and in the name of the duly registered residents' associations.

**D. Execution arrangement**

1.16 EMPAER, through the Directorate of Agricultural Planning and Land Regularization, will be responsible for carrying out this subcomponent, conducting the entire process and following the flow of steps required until the definitive title deeds and domain recognition are issued. A specialized company will be hired, through a bidding process, to carry out some stages of the roadmap presented in the previous section (register and georeferencing), under EMPAER's supervision.

1.17 A specific Technical Cooperation Agreement will be signed with INCRA, with no transfer of funds, so that it can receive the georeferenced areas, carry out the inspection and approval of the technical pieces necessary for the regularization process of quilombola communities and federal land reform settlements.

- 1.18 The SEAFDS and EMPAER teams will also make efforts with ANOREG and the state's Corregedoria Geral de Justiça to sign a cooperation agreement to provide support for faster analysis by the registry offices.
- 1.19 The process will also include public hearings to talk to the municipalities and communities that will benefit, and priority will be given to titling on behalf of women. EMPAER will count on the support of the rural workers' unions and rural community associations in the municipalities and communities served.

**E. Costs**

Costs of Subcomponent 2.4 - Land and Environmental Regularization<sup>31</sup>

Activity	Amount	Unit Cost US\$	Estimated value (US\$)
<b>Activity: Land and environmental regularization initiative</b>			<b>2 000 000</b>
Implementation of rural property regularization initiative	5 000 families	Estimated average cost per hectare: 20 000	2 000 000
<b>TOTAL for Subcomponent 2.4</b>			<b>2 000 000</b>

**F. Results**

- 1.20 The land and environmental regularization initiative will serve approximately 5.000 rural properties and families, of which 40% will be quilombola communities in federal and state settlements.

**G. Implementation schedule**

Table XX: 6-year timetable for the implementation of Subcomponent 2.4

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Land and environmental regularization																								

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<sup>31</sup> This amount includes expenses for the aforementioned registration and georeferencing services, as well as for monitoring, inspection and titling. This amount may also cover the purchase of equipment and operating costs for carrying out the activities. EMPAER will pay its civil servants from its own budget.

## ANNEX 9

### Knowledge Management and South-South and Triangular Cooperation

#### A. Objective

- 1.1 Subcomponent 2.5 will develop and implement a knowledge management process capable of generating, recording, sharing, and using knowledge generated in the Project. It will also seek to feed the Project implementation process with relevant information and knowledge.
- 1.2 Knowledge will be made available at different geographical scales: among Project participants (at community and territorial level), at state level, in the Northeast region and in other developing countries (via SSTC), and to different target audiences: beneficiaries, implementing partners and service providers, the Project team, government entities and others. The objectives will be refined during the preparation of the Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC) plan.

#### B. Strategic orientation and methodology

- 1.3 At the start of PROCASE II, the KM and SSTC specialist will draw up a guiding document, which will contain the entire methodology and arrangement for implementing the CG and CSST actions, known as the KM and SSTC plan. The KM and SSTC plan will be drawn up in the first year of Project implementation and will detail the general strategy and implementation methodology for all activities related to the KM and SSTC theme. Annex A specifies what a KM and SSTCS plan should contain and provides some important considerations for KM and STC in PROCASE.
- 1.4 The KM and SSTC Specialist plays a crucial role in development projects, ensuring that information and knowledge are systematically captured, shared, and used to improve Project results. To foster a culture of knowledge sharing within the Project team, the specialist must emphasize that knowledge management is a collective responsibility. This involves promoting the importance of documenting experiences, good practices, lessons learned and so on, encouraging open communication and providing training to incorporate these practices into day-to-day work. In doing so, the specialist helps to build a collaborative environment where continuous learning and improvement are integral parts of the team's success.
- 1.5 In addition, during the initial phase and throughout the implementation of the Project, the Expert will lead the identification of strategic partners to carry out studies, research and events. These partners will play a key role in the Project's sustainability strategy, ensuring that the knowledge generated is widely distributed and made available even after the end of the Project. In particular, they will seek to ensure that the knowledge, innovations, and good practices generated in the Project can be scaled up and contribute to improving local, national, and regional public policies on rural development. The Specialist will also manage the hiring of specialized consultants to prepare technical documents and specific activities.
- 1.6 The specialist will also be responsible for the Project's institutional communication. Institutional communication includes creating information leaflets about the Project, managing the Project's website and social media channels, issuing press releases, among other activities. The specialist will develop a comprehensive communication and visibility strategy. Activities related to institutional communication fall under general Project management and are not part of this specific subcomponent. However, the knowledge management plan also includes a dissemination strategy, detailing how specific knowledge products will reach their target audiences. Effective coordination between general

communication efforts and the dissemination of knowledge products will be key, as it enhances the communication activities of the Project as a whole.

**C. KM and SSTC plan**

- 1.7 This plan will define the detailed objective of the KM and SSTC activities, the products developed for each target group, the distribution channels, among others. PROCASE II will be able to draw on a wide range of resources, products and experiences from other initiatives and projects, including lessons learned from PROCASE I. Therefore, PROCASE II's KM and SSTC activities should avoid duplicating material that already exists, while at the same time using this material in project activities, such as capacity building and training.
- 1.8 The detailed KM and SSTC activities and products will be defined when the plan is drawn up. The main activities and products include:
  - a) **Systematization of experiences, good practices and results and studies of interest to the project on specialized topics:**
- 1.9 The Project's interventions will be subject to participatory and qualitative evaluations of their results, and those with a proven impact will be selected to be systematized, using the appropriate methodology for this process, and will be disseminated as a benchmark for good practice. Systematization can lead to different products such as written documents, videos, podcasts, and others. In addition to systematization, specialized studies will be contracted. Studies and consultancies will be carried out on topics relevant to the Project. such as studies on agroecology, agroforestry systems (SAFs) adapted to the Atlantic Forest and or Semiarid, sustainable management of natural resources, social technologies that improve access to water, or mechanization innovations - will generate inputs for improving the Project's implementation processes. They will also be key to ensuring the development of strategic, evidence-based Knowledge Management products that can serve as a reference for other rural development projects at various levels - state, regional, national, and international. These products are also important for the process of dialogue and influence on public policies. In total, 25 systematizations and studies on KM will be prepared and published during the Project.
  - b) **Communication and Dissemination in Knowledge Management**
- 1.10 The dissemination of accumulated knowledge is the central idea of KM. Communication actions are a means of ensuring ownership of the activities, results and knowledge generated in the implementation of the Project among stakeholders and can even lead to the creation of new knowledge. The dissemination of knowledge products allows innovative practices, lessons learned, etc. to be accessed by the Project and strategic dialogues to be established with a wide range of partners. The planning of these activities is an integral part of the KM and SSTC Plan and must be coordinated with the Project's institutional communication strategy. The project will organize various events, such as meetings, thematic exchanges (of beneficiaries, Project staff and others), round tables, webinars, among others.
- 1.11 The Project will also participate in and organize public policy dialogue events. Engagement and dialogue on public policy are important aspects of development projects. It is important that the knowledge generated during the Project informs policymakers, thus prioritizing the most important aspects for the Project's target groups. Involvement with policy is also key to the sustainability, replication, and expansion of projects. Annex A specifies the policy dialogues in which PROCASE has been involved and describes the possibilities for involvement in PROCASE II.

**c) South-South and Triangular Cooperation Actions:**

1.12 Ten SSTC events will be organized, which may cover topics such as technical exchanges and policy dialogues. One or more of these events could take the form of SSTC learning routes, so that partners can learn about the experiences and lessons learned from the implementation of the Project and so that beneficiaries, technicians, and Project managers can learn from good practices implemented in other countries or in other regions of Brazil. The Project will maintain a close relationship with IFAD's Center for Knowledge and South-South and Triangular Cooperation, located in Brasilia and with a regional mandate for Latin America and the Caribbean, which will be able to support knowledge exchanges with other IFAD initiatives in Brazil and Latin America through SSTC activities.

**D. Execution arrangement**

1.13 The PMU will hire a foundation to carry out the Project's KM and SSTC activities, as defined in the KM and SSTC plan. This means that the foundation will prepare systematizations, conduct studies, prepare other knowledge products and organize events, including SSTC events. The foundation selected must be a non-profit organization, preferably linked to a university, and the same foundation will be responsible for the Innovation component (1.3) and some of the contracts under sub-component 2.3. The KM and SSTC specialist will be the focal point for KM and SSTC within the PMU and will be responsible for overseeing the contract with the foundation and coordinating its implementation.

**E. Costs**

1.14 To implement the KM and SSTC Plan a **detailed work plan and budget** must be drawn up. This plan will be reviewed annually for proper budget execution. The following table shows a preliminary budget for general CG, OSH&S and Communication activities:

Costs for Subcomponent 2.5 - Knowledge Management and South-South and Triangular Cooperation

Activity	Unit	Number	C. Unit (in US\$)	Estimated value in (US\$)
Systematizations and studies in Knowledge Management prepared and published	Study	25	40 000	1 000 000
Annual phases of Communication and Dissemination in Knowledge Management implemented	Years	6	20 000	120 000
South-South and Triangular Cooperation	Exchanges	10	100 000	1 000 000
<b>TOTAL</b>				<b>2 120 000</b>

**F. Results**

1.15 Under this subcomponent, 25 systematizations and studies on Knowledge Management will be carried out, six annual communication and dissemination phases and ten South-South Cooperation exchange events.

**G. Implementation Schedule**

Timetable for the 6 years of implementation of Subcomponent 2.5

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4



Studies																						
Systematizing Experiences																						
Communication and Dissemination in Knowledge Management																						
South-South and Triangular Cooperation																						

## ANNEX 10

### Eligible, Ineligible and Prohibited Investments

#### A. Eligible Investments for Financing

- 1.1 Project resources finance the investments needed to make PROCASE II actions, plans and projects viable. These investments can be classified into three groups.
  - a) **Group 1 - Non-Consulting Services.** This group includes investments associated with hiring technical-operational services, such as transport, application of inputs, installation of equipment, vehicle rental, technical assistance and rural extension (ATER) to producers, software customization, training, among others;
  - b) **Group 2 - Assets.** This group includes investments associated with the purchase of inputs, such as seedlings or seeds, semen for the genetic improvement of cattle, goats and sheep, vehicles and equipment for production, processing and commercialization, among others;
  - c) **Group 3 - Works.** This group includes investments associated with the provision or renovation of productive structures and/or economic infrastructures, such as road rehabilitation, well drilling, the construction of individual or collective sewage systems and processing plants.

#### B. Investments Not Eligible for Financing

- 1.2 Some types of investment will not be financed by PROCASE II, even if they are necessary to make the projects viable. Among other items, the following cannot be financed i) purchase of real estate of any kind; ii) current expenses (salaries and social charges of existing staff, water, electricity, internet, telephone); iii) operating and maintenance costs; v) construction, expansion, modernization, renovation or implementation of civil or water works on real estate that does not have ownership of the land; vi) construction or expansion of wood-burning ovens, unless their adoption brings a substantial reduction in greenhouse gas emissions; vii) purchase of cattle, goats and sheep, even for genetic improvement..

#### C. Investments Prohibited for Financing

- 1.3 Chapter VI of the ROP (Environmental and Social Management of the Program) includes a list of activities and goods prohibited for financing by PROCASE II.

## Annex 11

### Requirements set out in the IDB's PBAS for the content of the ESMP <sup>32</sup> (Environmental and Social Management Framework - ESMF)

#### 1.1 Requirements of PDAS 1 (IDB): Assessment and Management of Environmental and Social Risks and Impacts:

- Mitigation and performance improvement measures and actions aimed at addressing the environmental and social risks and impacts that have been identified should be described. Plans or programs should be defined, which may consist of a documented combination of operating procedures, practices, plans and related supporting documents (including legal agreements) managed in a systematic way.
- These Programs will be broad for the entire organizational structure of the executing agency for the execution of the Project, including the main contractors and suppliers over which the organization has control or influence, or for specific sites, facilities, or activities.
- The mitigation hierarchy will be considered to address the risks and impacts identified, prioritizing the prevention of impacts, measures to minimize them and then compensation or offsetting measures, when residual impacts persist and whenever they are of a technically and financially feasible nature.
- Mitigation and performance measures and relevant actions will be drawn up to ensure that the project operates in accordance with applicable laws and regulations and meets the requirements of financial institutions.
- Environmental and social action plans will be established (general or thematic), which will define the desired results and actions to tackle the issues raised in the process of identifying risks and impacts.
- Given the dynamic nature of the Project, the Management Program must be able to react to changes in circumstances, unforeseen events and the results of monitoring and review activities.
- Procedures will be established to monitor the Management Program and measure its effectiveness, as well as compliance with all related legal or contractual obligations and regulatory requirements.
- A stakeholder participation plan will be drawn up according to the risks and impacts of the Project, adapted to the characteristics and interests of the people affected by the Project and other relevant stakeholders.

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<sup>32</sup> The details are in the Project's Strategic Environmental and Social Management Plan

- If applicable, a consultation process commensurate with the risks and adverse impacts of the Project and the concerns of affected people (including Indigenous peoples and Afro-descendants), as well as other stakeholders, will be included.

#### 1.2 Requirements of PDAS 2 (IDB) and Standard 5 (IFAD): Work and Working Conditions:

- Measures will be included (for example, an Occupational Health and Safety Plan) to prevent accidents, injuries and illnesses that may arise from work, be associated with it, or occur during it, reducing the causes of the risk factors to a minimum, as far as is reasonably practicable. In the event of pandemics or epidemics, occupational health and safety measures and protocols will be considered to protect the workers of the projects in the sample representative of the risk of exposure.
- Measures will include the elimination, replacement or modification of hazardous conditions or substances; worker training and record-keeping; documentation and reporting of occupational accidents, injuries, illnesses, and incidents; arrangements for emergency prevention, preparedness, and response; processes for reporting unsafe or unhealthy work situations, as well as mechanisms for evaluating performance in terms of occupational safety and health.
- They should also include recommendations for the prevention of child labor and forced labor.

#### 1.3 Requirements of PDAS 3 (IDB) and Standard 2 (IFAD): Resource Efficiency and Pollution Prevention:

- Technically and financially feasible measures (e.g. solid and liquid waste management plan, emissions, and other relevant environmental aspects) will be considered so that, within the Project's activities, the consumption of energy, water and other resources and inputs is improved, and greenhouse gas emissions are avoided or minimized.
- Measures to prevent or reduce the emission of pollutants into the air, water or soil, as well as responses to accidental situations.
- Measures to reduce, recover and reuse waste in a way that is safe for health and the environment.
- Considerations for treating, destroying or disposing of waste (hazardous and non-hazardous) in an environmentally correct manner.

#### 1.4 PDAS 4 requirements (IDB) and Standards 6 and 9 (IFAD): Community Health and Safety:

- Prevention and control measures will be established in accordance with international best practices for preventing risks and impacts on the health and safety of the community.
- Measures to prevent the community from being exposed to hazardous materials and substances that the Project may generate in the event of the implementation of works or the application of unauthorized chemical products within the scope of the Project.
- Measures to avoid or minimize the community's exposure to water-borne diseases, vectors, and contagious diseases.

- Emergency preparedness and response measures will be included that take into account affected people, local government agencies and other relevant parties, both for their protection and for their participation and collaboration.
  - Adequate resilience and adaptation measures to disasters and climate change, including risks caused by natural disasters or changes in land use to which Project activities may contribute.
- 1.5 Requirements of PDAS 5 (IDB) and Standard 7 (IFAD): Land Acquisition and Involuntary Resettlement:
- It should be noted that the project cannot lead to situations in which land acquisition and involuntary resettlement are necessary, in which case this requirement will not be triggered.
- 1.6 Requirements of PDAS 6 (IDB) and Standard 1 (IFAD): Biodiversity Conservation and Sustainable Management of Living Natural Resources:
- When impacts on biodiversity and ecosystem services cannot be avoided, measures will be defined to minimize them and restore biodiversity and ecosystem services in the long term, through the adoption of adaptive management practices that respond to changes and monitor the results.
  - For the protection and conservation of biodiversity, the mitigation hierarchy will include biodiversity equivalent offset measures, which can only be considered once adequate prevention, minimization and restoration measures have been applied. These biodiversity equivalent offset measures will be designed and implemented in such a way as to achieve measurable conservation outcomes that generate no net loss and preferably result in a net increase in biodiversity. These measures will not be acceptable for habitats defined as critical.
  - For critical habitats, mitigation strategies will be considered through a Biodiversity Action Plan with the aim of achieving net increases in biodiversity values.
  - For non-critical habitats, measures such as: (i) preventing impacts on biodiversity by identifying and protecting reserve areas; (ii) minimizing habitat fragmentation by implementing measures such as biological corridors; (iii) habitat restoration during operations and/or habitat restoration after the operation will be considered.
  - Impacts on ecosystem services will be avoided or minimized through measures aimed at maintaining the value and functionality of priority services to increase the efficiency of their use in operations.
- Requirements of PDAS 7 (IDB) and Standard 4 (IFAD): Indigenous Peoples<sup>33</sup> :
    - If it is not possible to avoid adverse impacts on Indigenous peoples that are eventually identified in the ESA, measures will be designed to minimize or provide restoration or compensation for such impacts in a culturally appropriate manner and commensurate with

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<sup>33</sup> The prerogatives of this guideline are in line with ILO 169, to which Brazil is a signatory (Legislative Decree No. 143 of June 20, 2002).

the nature and size of such impacts and the vulnerability of the communities of indigenous peoples eventually affected by the Project.

- The proposed measures will be drawn up in conjunction with the consultation and informed participation of these communities, considering an Indigenous Peoples' Plan, if necessary.
- Interaction process measures with indigenous communities that may be affected by the Project will be established.
- Means will be established to obtain the free, prior and informed consent of indigenous communities that may be affected by the Project and relevant mitigation measures will be determined. Free, prior and informed consent will be applied to the design and execution of the Project and the expected results in relation to impacts affecting indigenous communities.

1.7 Requirements of PDAS 8 (IDB) and Standard 3 (IFAD): Cultural Heritage:

- Provisions will be designed to manage chance finds through a specific procedure.
- Measures will be considered according to the hierarchy proposed in this PDSA for the mitigation of adverse effects during the removal of reproducible (non-critical) cultural heritage, if these exist in the Project area.
- Measures will be developed to prevent the removal, alteration or damage of any critical cultural heritage or irreproducible cultural heritage.

1.8 PDAS 9 requirements (IDB): Gender equality.

- Measures will be drawn up to: (i) avoid, minimize or mitigate the negative impacts identified, or provide compensation in this regard with mechanisms that promote gender equality and (ii) ensure that people of different genders, including women and gender-diverse people, who may be affected by the Project, receive social and economic benefits equal to those received by other members of the community, thus avoiding the potentiation of gender inequalities.
- Measures to prevent risks of sexual and gender-based violence related to the Project will also be considered, including specific policies for contractors regarding sexual harassment and codes of conduct for workers, workshops and awareness campaigns for workers and contractors and for the communities where the Project is implemented, etc.
- Effective complaint mechanisms will be developed that minimize the reporting burden on victims, offer gender-responsive services and minimize the risk of retaliation. These mechanisms will contain specific procedures for sexual and gender-based violence, including confidential reporting through people trained in the subject, with secure and ethical documentation.
- Measures to prevent the risk of sexual exploitation or abuse of minors will be incorporated.

1.9 PDAS 10 (IDB) requirements: Stakeholder Involvement and Information Disclosure:

- The stakeholder engagement plan will describe the measures that will be used to remove barriers to participation and how the opinions of groups that are affected differently by the Project will be captured.
- In the case of projects that may have significant adverse impacts on the people affected by them, a process of consultation and informed participation will be designed, in accordance with PDAS 1. If any project is found to have adverse impacts on Indigenous peoples, a process of consultation and informed participation will be designed, with a view to obtaining free, prior and informed consent, in accordance with PDAS 1 and 7.
- A grievance mechanism will be proposed to receive concerns and complaints and facilitate their resolution. This mechanism could also serve as such to fulfill the requirements of PDAS 5 and 7. However, the grievance mechanism for project workers, required under PDAS 2, should be established separately from the others.
- The plan must include communication actions in the event of emergencies and socio-environmental accidents.

**Annex 12**  
**Draft Internal Regulations of the Executive Committee for the Management  
of Productive Investments - CEGIP/CGP**

**Paraíba State Government**

**State Secretariat for Family Farming and Semi-Arid Development - SEAFDS**

**Paraíba Sustainable Rural Development Project - PROCASE II Internal  
Regulations of the Executive Productive Investment Management Committee -  
CEGIP**

**CHAPTER I**

**The objective**

**Art. 1** These Regulations establish the rules for the organization and operation of the Executive Committee for the Management of Productive Investments, within the scope of the Paraíba Sustainable Rural Development Project - PROCASE II.

**CHAPTER II**

**Purposes and duties**

**Art. 2** The Committee is responsible for:

- I. analyze and approve or not resilient Business Plans and Investment Plans with a value of up to R\$ 6,435.00 per family and R\$ 9,400.00 (nine thousand four hundred) per family, respectively;
- II. decide on PROCASE II's strategic priorities, rules and procedures and other equally relevant issues;
- III. approve the terms of reference for the socio-economic and environmental feasibility studies and reports;
- IV. decide on the financing of the proposed investments;



- V. establish norms, guidelines, instructions, criteria and standards relating to productive investments;

**§ Paragraph 1 CEGIP may invite specialists in a given area of activity to provide the plenary with clarifications on information pertinent to the productive investments under analysis.**

## **CHAPTER III**

### **Composition**

**Art. 3** CEGIP's Plenary will be made up of the following members:

- I. the head of the State Secretariat for Family Farming and the Development of the Semi-Arid Region (SEAFDS) as President, with the Executive Secretary of this portfolio as Alternate;
- II. a representative of the State Secretariat for the Development of Agriculture and Fisheries (SEDAP)
- III. one representative and one alternate from the Paraibana Research, Rural Extension and Land Regularization Company - EMPAER;
- IV. one representative and one alternate from the State Secretariat for Infrastructure and Water Resources (SEIRH);
- V. one representative and one alternate from the State Secretariat for the Environment and Sustainability (SEMAS);
- VI. one representative and one alternate from the State Secretariat for Science, Technology, Innovation and Higher Education (SECTIES);
- VII. one representative and one alternate from the Superintendence of Environmental Administration (SUDEMA);
- VIII. one representative and one alternate from the Secretariat for Tourism and Economic Development (SETDE);
- IX. one representative and one alternate from the State Council for Sustainable Rural Development (CEDRS);

- X. one representative and one alternate from the Directorate of Mineral Resources and Hydrogeology (DRMH);
- XI. one representative and one alternate from Empreender PB;
- XII. one representative and one alternate from the Secretariat for Planning, Budget and Management (SEPLAG);
- XIII. one representative and one alternate from the COOPERAR Project;
- XIV. one representative and one alternate from the Ministry of Agriculture, Livestock and Supply (MAPA);
- XV. one representative and one alternate from the Ministry of Agrarian Development (MDA);
- XVI. one representative and one alternate from the Borborema Citizenship Territory;
- XVII. one representative and one alternate from the Western Cariri Citizenship Territory;
- XVIII. a representative from the Curimataú Citizenship Territory;
- XIX. one representative and one alternate from the Zona da Mata Norte Citizenship Territory;
- XX. one representative and one alternate from the Zona da Mata Sul Citizenship Territory
- XXI. a titular and alternate representative of the Rural Identity of Eastern Cariri;
- XXII. a representative from the Rural Identity of the Médio Sertão;
- XXIII. a representative from the Rural Identity of the Seridó;
- XXIV. a full and alternate representative of the Alto Sertão Rural Identity;
- XXV. a full and alternate representative of the Brejo Rural Identity;
- XXVI. a representative from the Rural Identity of the Middle Piranhas;
- XXVII. a full and alternate representative of the Serra do Teixeira Rural Identity;
- XXVIII. a titular and alternate representative of the Rural Identity of the Piancó Valley;
- XXIX. a full and alternate representative of the Rural Identity of the Paraíba Valley;
- XXX. a full and alternate representative of the Rural Identity of the Piranhas Valley;
- XXXI. a full and alternate representative of the Rural Identity of the Maringá Valley;

- XXXII. a full and alternate representative of the Rural Identity of Piemonte da Borborema;
- XXXIII. a representative from the State University of Paraíba (UEPB);
- XXXIV. a representative from the National Semi-Arid Institute (INSA);
- XXXV. a representative from the Brazilian Micro and Small Business Support Service (SEBRAE);
- XXXVI. a representative from the National Rural Apprenticeship Service in Paraíba (SENAR);
- XXXVII. a representative from the Paraíba Federation of Agriculture and Livestock (FAEPA);
- XXXVIII. a full and alternate representative of the Federation of Agricultural Workers (FETAG);
- XXXIX. one representative and one alternate from the Federation of Agricultural Workers (FETRAF);
- XL. a representative from the Articulação do Semiárido Brasileiro (ASA);
- XLI. a representative from the Landless Workers' Movement (MST);
- XLII. a representative from the Pastoral Land Commission (CPT);
- XLIII. a representative and alternate from the Paraíba State Water Management Executive Agency (AESAs);
- XLIV. one representative and one alternate from Banco do Brasil/Bradesco?
- XLV. one representative and one alternate from Banco do Nordeste do Brasil.

§ Paragraph 1 CEGIP shall be made up exclusively of representatives with experience and/or political-institutional responsibility in allocating resources for productive investments.

§ Paragraph 2 The Executive Secretary of CEGIP will be the State Coordinator of the Project Management Unit.

§ Paragraph 3: Representative members shall have a two-year term of office, appointed by the SEAFDS Secretary through nominations made by the bodies or entities represented.

§ Paragraph 4. The members of CEGIP shall take office before the Chairperson at the first (1st) meeting of the Committee to be held after their appointment.

Art. 4 The participation of CEGIP members is considered a relevant service and will not be remunerated.

Sole paragraph. Members shall be entitled to a certificate for relevant services rendered to the State of Paraíba.

## CHAPTER IV

### Organization

Art. 5 CEGIP is organized as follows:

- I. Presidency;
- II. Collegiate;
- III. Executive Secretariat.

## SECTION I

### The Presidency

Art. 6 The Chair is responsible for:

- I. calling Committee Meetings;
- II. chairing the meetings and work of the Committee;
- III. sign minutes, resolutions, recommendations and other acts and documents of the Committee;
- IV. propose to the Committee, at the last meeting of the year, the annual calendar of Ordinary Meetings for the following year;

- V. represent CEGIP in and out of court, and may appoint other members of the Committee to represent it;
- VI. to appoint civil servants to provide technical and administrative support to the Executive Secretary;
- VII. to swear in the other members of the Committee;
- VIII. invite to participate in meetings and debates, without the right to vote, federal, state and/or municipal persons and entities that can contribute to the clarification of matters within the Committee's competence;
- IX. perform such other duties as may be delegated to it by the Committee; and
- X. ensure compliance with the rules of these Regulations.

Sole paragraph. The Chair may approve *ad referendum* of the Committee when:

- 1) A meeting is called twice in succession and a quorum is not reached;
- 2) Urgent approval is needed to avoid harming Project beneficiaries.

## SECTION II

### The Board

Art. 7 The members of the Board are responsible for:

- I. attend, participate in and vote at Committee meetings;
- II. propose the convening of extraordinary meetings of the Committee, with the signature of at least one third of the members;
- III. approve the annual calendar of ordinary meetings;
- IV. proposing or requesting steps and clarifications that may be useful for the better judgment of the matters on the agenda of the meetings;
- V. judge the cases by voting in plenary;
- VI. propose the call for representatives and/or experts referred to in the eighth paragraph of article 6;

- VII. carry out visits to private institutions or public bodies to fulfill their duties, as delegated by the Board; e,
- VIII. propose amendments to these Rules of Procedure, by means of a request signed by at least five (5) members.

### SECTION III

#### CEGIP's Executive Secretariat

Art. 8 The Executive Secretariat is responsible for:

- I. secretariat the Committee's meetings, drawing up the respective minutes and providing information on the matters on the agenda;
- II. ask members for clarifications necessary for the correct drawing up of minutes;
- III. prepare the agendas for the Committee's meetings;
- IV. forwarding to the members a notice convening the meetings with the respective agenda and the matters on the agenda, as well as the minutes of the meetings, which are the subject of examination and discussion;
- V. carry out all the administrative services that are relevant to them;
- VI. disseminate the Committee's resolutions and implement them; e,
- VII. carry out other activities assigned to it by the president.

### CHAPTER V

#### Operation

Art. 9 The Executive Committee for the Management of Productive Investments, which will act as a normative and decision-making body, will meet ordinarily one (1) time per four-month period and, when necessary, at the extraordinary call of the Committee's Chairman or Alternate, or the Coordination of the PROCASE II Management Unit, or at least one third of the members.

Sole paragraph. The notice for ordinary and extraordinary meetings, together with the agenda and minutes of the previous meeting, must be sent at least 10 days in advance.

Art. 10 The meeting shall be held with a quorum of at least one third of its members.

Article 11 Any of its members may request sight of the cases on the agenda, and must submit an opinion on the day of the meeting.

Sole paragraph. Meetings will have their agenda prepared by CEGIP's Executive Secretariat and will necessarily include:

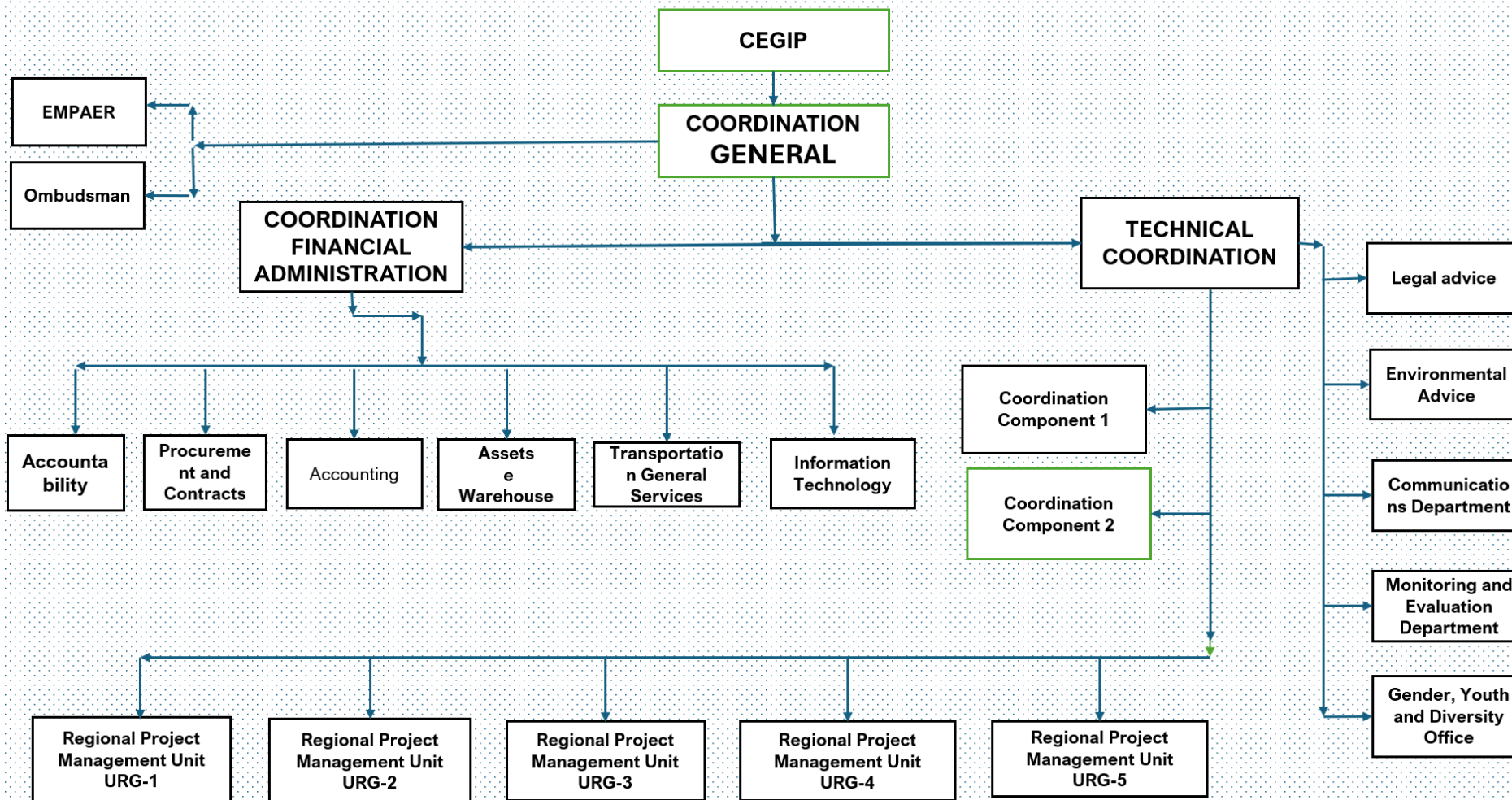
1. opening of the sitting and verification of the quorum;
2. reading, discussion and voting on the minutes of the previous meeting, if applicable;
3. reading and discussion of the agenda;
4. agenda;
5. free speech; and,
6. closing the proceedings.

ANTÔNIO RIBEIRO (FREI ANASTÁCIO) Secretary of SEAFDS President of CEGIP

**Annex 13**  
**PROCASE II Implementation Organization Chart**



**ORGANIZATION CHART**



## Annex 14

### Terms of Reference Key Functions of the PMU

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
<p>Technical Project Coordination</p>	<ul style="list-style-type: none"> <li>- Technically direct the Project Management Unit;</li> <li>- Articulate the Project with other existing programs and projects;</li> <li>- Analyze and control the demands of international financial institutions in the construction of tools and indicators for the technical cooperation project and its results;</li> <li>- Attending internal and external audits, providing technical information and relevant reports;</li> <li>- Carry out project execution controls;</li> <li>- Participate in the project's strategic planning processes and activities;</li> <li>- Perform tasks of the same nature and degree of complexity, within their area of activity, whenever required;</li> <li>- Managing the technical and managerial information needed to carry out the project's components;</li> <li>- Prepare documents containing management and statistical information necessary for the execution and monitoring of the project;</li> <li>- Promote the management of the project's actions and goals in conjunction with state coordination through the control and monitoring of the execution of the loan agreement.</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to coordinate teams, leading them to work to achieve project results;</li> <li>- Capacity for communication and institutional coordination;</li> <li>- Ability to negotiate and establish agreements of interest to the project;</li> <li>- Knowledge of public policies on the themes of the project.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with a degree in Agricultural Sciences, preferably in Agronomy;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Postgraduate degree in Agricultural Sciences.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least ten years' experience in project management;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Relevant experience in managing development projects, preferably with external funding.</li> <li>- Fluency in foreign languages.</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
Administrative and Financial Coordination of the Project	<ul style="list-style-type: none"> <li>- Plan, coordinate, monitor and evaluate the execution of the administrative and financial actions and activities defined within the scope of the Project;</li> <li>- Managing the implementation of the administrative and financial activities provided for in the Project and its planning documents, promoting coordination with the other participating bodies and seeking synergies with the areas involved in the Project;</li> <li>- Coordinating and guiding the PMU's administrative and financial team, promoting the achievement of the planned goals and ensuring compliance with the standards and norms established in the loan agreement and the Project Operational Manual;</li> <li>- Coordinate, together with the other areas, the preparation of the Annual Workplan and Budgeting (AWPB) and other project planning instruments;</li> <li>- Supervising the execution of the Project's AWPB, with a view to ensuring that the planned goals and objectives are achieved;</li> <li>- Accompany the administrative and financial actions related to the Project's monitoring and evaluation system, for the presentation of progress reports and other reports contained in the loan agreement;</li> <li>- Coordinate the activities of the Consultants, according to the needs of the project;</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to coordinate teams, leading them to work to achieve project results;</li> <li>- Capacity for communication and institutional coordination;</li> <li>- Ability to negotiate and establish agreements of interest to the project;</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Higher education professional in the fields of economics, accounting and administration;</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least ten years' experience in project management;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Relevant experience in managing development projects, preferably with external funding.</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- To be the formal interlocutor in technical and operational relations with the IDB/IFAD for administrative and financial matters relating to the project;</li> <li>- Liaise with the PROCASE II State Coordination, the Planning, Budget and Management Secretariats, the State Administration Secretariat and the Finance Secretariat for the necessary processing of matters related to the project's budgetary and financial requirements, respectively;</li> <li>- Operationalize the processes for periodically evaluating the performance of the members of the PMU's Administrative and Financial Team and take management measures aimed at overcoming the deficiencies detected;</li> <li>- Evaluate contracts for the purchase of goods and the execution of works and services whenever necessary;</li> <li>- Drawing up and forwarding to the PROCASE II State Coordinator both the annual accountability reports and disbursement requests for the PROCASE II project.</li> </ul>			
Component 1 Operational Coordinator	<ul style="list-style-type: none"> <li>- Follow up on field activities related to the implementation of component 1;</li> <li>- Providing guidance and technical support to subcomponent teams and regional units;</li> <li>- Draw up reports on the implementation of the Component actions under their responsibility and report to the Project's Technical Coordination;</li> <li>- Accompanying, supporting and integrating the work of the regional units' field teams;</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to work as part of a team;</li> <li>- Ability to communicate and negotiate with family farmers and their organizations;</li> <li>- Knowledge of public policies for rural development, markets and</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with a degree in Agricultural Sciences, preferably in Agroecology or Agronomy;</li> </ul> <p><b>Desirable requirements:</b></p>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Five years' experience in the profession;</li> <li>- Relevant experience in development projects, preferably with external funding;</li> <li>- Experience in developing productive</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Supervising the execution of the specific technical activities of each subcomponent;</li> <li>- Carry out periodic visits to the regional units to assess the progress of each subcomponent and provide technical support;</li> <li>- Monitoring the performance indicators and results of each subcomponent, proposing the necessary adjustments to achieve the established goals;</li> <li>- Ensure compliance of sub-components with applicable standards and regulations;</li> <li>- Develop strategies to ensure the sustainability of the actions implemented by each subcomponent.</li> </ul>	<ul style="list-style-type: none"> <li>technologies adapted to the semi-arid region;</li> <li>- Knowledge of preparing proposals for rural productive investments.</li> </ul>	<ul style="list-style-type: none"> <li>- Postgraduate degree in Agricultural Sciences.</li> </ul>	<ul style="list-style-type: none"> <li>arrangements for family farming and in formulating and implementing Rural Investment Projects;</li> <li>- Experience with projects aimed at strengthening the climate sustainability and resilience of family farmers and vulnerable groups.</li> </ul>
Component 2 Operational Coordinator	<ul style="list-style-type: none"> <li>- Providing guidance and technical support to subcomponent teams and regional units;</li> <li>- Draw up reports on the implementation of the Component actions under their responsibility and report to the Project's Technical Coordination;</li> <li>- Accompanying, supporting and integrating the work of the regional units' field teams;</li> <li>- Supervising the execution of the specific technical activities of each subcomponent;</li> <li>- Carry out periodic visits to the regional units to assess the progress of each subcomponent and provide technical support;</li> </ul>	<ul style="list-style-type: none"> <li>- An excellent manager and coordinator.</li> <li>- Proven experience and ability to design CG and CSST actions.</li> <li>- Ability to build partnerships and develop joint research and training activities.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with a degree in Environmental or Agricultural Sciences, preferably in Environmental Engineering, Biology, Agroecology or Agronomy;</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Five years' experience in the profession;</li> <li>- Relevant experience in development projects, preferably with external funding;</li> <li>- Registration with the Regional Council of Engineering and Architecture - CREA;</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Monitoring the performance indicators and results of each subcomponent, proposing the necessary adjustments to the project's actions to achieve the established goals;</li> <li>- Ensure compliance of sub-components with applicable standards and regulations;</li> <li>- Develop strategies to ensure the sustainability of the actions implemented by each subcomponent.</li> </ul>		<p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Postgraduate degree in management or related areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Experience in environmental management plans and systems;</li> <li>- Experience in geoprocessing software;</li> <li>- Experience with rural development projects;</li> <li>- Experience with projects aimed at strengthening the climate sustainability and resilience of family farmers and vulnerable groups.</li> </ul>
Gender and Diversity Specialist	<ul style="list-style-type: none"> <li>- Draw up a strategy and action plan on gender and diversity, to assist women and the LGBTQIAPN+ community in the Project's actions and activities;</li> <li>- Ensure a gender and diversity approach in all areas of activity development;</li> <li>- Encourage and guide the involvement of women and LGBTQIAPN+ in the Project's activities;</li> <li>- Training for project teams and technical assistance teams on gender and diversity issues;</li> </ul>	<ul style="list-style-type: none"> <li>- Highly motivated and committed to poverty reduction, gender equality and the LGBTQIAPN+ community;</li> <li>- Preferably a woman or from the LGBTQIAPN+ community;</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with a university degree;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with preferably a degree in one of the following areas: Social Sciences,</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least five years' experience working on gender and social inclusion issues;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Experience in agricultural and rural development projects;</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Strengthen an atmosphere of debate in the communities about the role of men and women in family farming;</li> <li>- Drawing up didactic-pedagogical tools based on the principles and methodology of the Project, to contribute to the processes of discussion and training of the teams;</li> <li>- Establish relationships with other projects and programs that enable mobilization actions, access to markets and public policies aimed at the following target groups of the project: women and LGBTQIAPN+;</li> <li>- Drawing up reports on the implementation of actions.</li> </ul>	<ul style="list-style-type: none"> <li>- Mastery of computer tools.</li> </ul>	<ul style="list-style-type: none"> <li>Anthropology, Rural Development, or related areas;</li> <li>- Specializing in rural development and/or social inclusion (gender and LGBTQIAPN+)</li> <li>- Training in technical courses on gender methodologies such as the Agroecological Logbook (CA), among others.</li> <li>- Ability to work in other languages such as English and Spanish is an advantage</li> </ul>	<ul style="list-style-type: none"> <li>- Experience in projects that integrate gender targeting and considerations in all components/activities and in M&amp;E;</li> <li>- Experience working with women in the LGBTQIAPN+ community;</li> <li>- Experience in designing and delivering training modules;</li> </ul>
Specialist in Traditional Peoples and Communities (PCTs)	<ul style="list-style-type: none"> <li>- Draw up a strategy and action plan for PCTs in the Project's actions and activities;</li> <li>- Ensure an ethnic-racial focus in all areas when developing activities;</li> <li>- Encourage and guide the involvement of PCTs in Project activities;</li> <li>- Training for Project teams and technical assistance teams on traditional community issues;</li> </ul>	<ul style="list-style-type: none"> <li>Highly motivated and committed to poverty reduction and the inclusion of PCTs;</li> <li>- Preferably Afro-descendant and/or a member of traditional peoples and communities;</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with a university degree;</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Professional with preferably a degree in one of the following areas:</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least five years' experience working on ethnic-racial issues and social inclusion;</li> </ul> <p><b>Desirable requirements:</b></p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Drawing up didactic-pedagogical tools based on the principles and methodology of the Project, to contribute to the processes of discussion and training of the teams;</li> <li>- Establish relationships with other projects and programs that enable mobilization actions, access to markets and public policies aimed at the PCTs;</li> <li>- Drawing up reports on the implementation of actions.</li> </ul>	<ul style="list-style-type: none"> <li>- Mastery of computer tools.</li> </ul>	Social Sciences, Anthropology, or related areas; <ul style="list-style-type: none"> <li>- Specializing in social inclusion (traditional peoples and communities);</li> <li>- Ability to work in other languages such as English and Spanish is an advantage</li> </ul>	<ul style="list-style-type: none"> <li>- Experience in agricultural and rural development projects;</li> <li>- Experience in projects that integrate gender targeting and considerations in all components/activities and in M&amp;E;</li> <li>- Experience in working with Traditional Peoples and Communities;</li> <li>- Experience in designing and delivering training modules;</li> </ul>
Youth Specialist	<ul style="list-style-type: none"> <li>- Advising and supporting the project coordinator, other members of the PMU and field officers in the effective integration of young people into Project activities;</li> <li>- Drawing up and implementing a youth strategy and action plan;</li> <li>- Ensure that the goal-setting activities and the strategy and action plan for young people are reflected in the following: repair of the AWPB; design and implementation of the M&amp;E system; project progress reports; and project supervision;</li> </ul>	<ul style="list-style-type: none"> <li>- Highly motivated and committed to poverty reduction and youth inclusion;</li> <li>- Preferably Afro-descendant and/or a member of traditional peoples and communities;</li> <li>- Mastery of computer tools.</li> </ul>	<b>Minimum requirements:</b> <ul style="list-style-type: none"> <li>- Professional with a university degree.</li> </ul> <b>Desirable requirements:</b> <ul style="list-style-type: none"> <li>- Professional with preferably a degree in one of the following areas: Social Sciences,</li> </ul>	<b>Minimum requirements:</b> <ul style="list-style-type: none"> <li>- At least five years' experience working on issues related to rural youth empowerment.</li> </ul> <b>Desirable requirements:</b> <ul style="list-style-type: none"> <li>- Professional with experience in implementing</li> </ul>



PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Together with the M&amp;E and Knowledge Management team, establish an M&amp;E system that captures and analyzes data disaggregated by youth;</li> <li>- Carry out regular assessments of young people's capacity and provide training for field staff, PMUs, implementing partners and service providers;</li> <li>- Establish links with other youth training and social inclusion programs implemented by state, national, international and intergovernmental agencies.</li> </ul>		<p>Rural Development, or related area;</p> <ul style="list-style-type: none"> <li>- Ability to work in other languages such as English and Spanish is an advantage.</li> </ul>	<p>community and organizational strengthening actions with a focus on empowering rural youth;</p> <ul style="list-style-type: none"> <li>- Experience working with local communities and small producer organizations;</li> <li>- Experience in projects that integrate youth targeting and social inclusion considerations into their components, activities and M&amp;E;</li> <li>- It is desirable to have knowledge and experience of working with young women and young people from Indigenous peoples and traditional communities.</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
Nutrition Specialist	<ul style="list-style-type: none"> <li>- Mobilize stakeholders to carry out nutrition activities and ensure coordination to guarantee that they are carried out on time;</li> <li>- Contribute to reference surveys (questions, indicators, follow-up) that will help define target groups in the area of nutrition;</li> <li>- Update the nutrition strategy at the start of the Project;</li> <li>- Coordinate and specify with partners the content of the activities and the logistical aspects of implementation;</li> <li>- Draw up regular quantitative and qualitative evaluations of nutrition activities, in close collaboration with the M&amp;E Officer, the Youth, Gender and PCT Officers and the Project Coordinator;</li> <li>- If necessary, draw up ToR for the recruitment of service providers.</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to communicate orally or in writing to different audiences and actor profiles.</li> <li>- Ability to work in a team and coordinate activities involving several participants;</li> <li>- Mastery of computer tools;</li> <li>- Familiarity with the problems of the Northeast region and with public social, health, rural development and family farming policies.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Higher university degree with specialization in nutrition and food safety.</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Specialization in rural development and/or social inclusion (gender, youth, traditional peoples and communities, LGBTQIAPN+).</li> <li>- Ability to work in other languages such as English and Spanish is an advantage.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least five years' experience in implementing projects focused on improving food and nutrition security.</li> </ul> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Additional experience in projects to empower women, young people and PCTs, and in projects with a participatory approach in rural and agricultural areas.</li> </ul>
Specialist in Knowledge Management (KM), CSST and Communication	<ul style="list-style-type: none"> <li>- Establishing a collaborative environment by creating an infrastructure for managing and sharing knowledge, involving the different components of the project.</li> <li>- Define, together with the managers of each component, the strategic goals and objectives for the areas of SSTC, KM and communication.</li> </ul>	<ul style="list-style-type: none"> <li>- Excellent communicator and articulator.</li> <li>- Proven experience in integrating CSST, GC and communication</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Higher university degree in Social Communication or Journalism.</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least 5 years' experience with rural development projects, including planning and coordinating</li> </ul>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Formulate the integrated KM, SSTC and Communication plan, with special attention to the aspects of sustainability, visibility, dissemination and scaling of successful actions.</li> <li>- Train the Project team to ensure the correct sharing of knowledge and good practices, both inside and outside the project, through events, training and exchanges.</li> <li>- Supporting the documentation of good practices, innovations and lessons learned using KM tools.</li> <li>- Plan and lead the organization of learning events and south-south exchanges on key themes to be defined jointly with the coordinator and managers.</li> <li>- Planning and coordinating the layout and dissemination of studies and publications, with special attention to results, impacts and strategic partnerships.</li> <li>- Leading the preparation (content and design) of communication materials such as press releases, blogs, booklets, infographics and content for social networks.</li> <li>- In collaboration with the coordinator, managers and strategic partners, maintain an up-to-date calendar of events and formulate promotional materials.</li> </ul>	<p>issues into project management architecture, with special attention to financial and M&amp;A aspects.</p> <ul style="list-style-type: none"> <li>- Ability to build partnerships and strategic networks.</li> </ul>	<p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Specialization or postgraduate studies in international cooperation and/or communication.</li> <li>- Ability to work in other languages such as English and Spanish is an advantage.</li> </ul>	<p>Knowledge Management, South-South Cooperation and communication actions.</p> <p><b>Desirable requirements:</b></p> <ul style="list-style-type: none"> <li>- Experience with projects aimed at the strengthening, sustainability and climate resilience of family farmers and vulnerable groups such as women, young people and traditional peoples and communities.</li> </ul>
Specialist in Safeguards (social and environmental)	<ul style="list-style-type: none"> <li>- Ensure compliance with the Project's contractual and operational provisions regarding the identification, management and mitigation of the Project's social and environmental impacts.</li> <li>- Train and/or promote the ongoing training of project teams (e.g. TA and component teams) on the project's safeguard requirements and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>- Technical mastery of issues relating to the management of social and environmental impacts of projects (standards and procedures).</li> </ul>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- Multidisciplinary professional with a university degree.</li> </ul> <p><b>Desirable requirements:</b></p>	<p><b>Minimum requirements:</b></p> <ul style="list-style-type: none"> <li>- At least five years' experience in equivalent activities.</li> </ul> <p><b>Desirable requirements:</b></p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Monitor and report periodically (in the Project progress reports) on compliance with the Project safeguards.</li> <li>- Evaluate the adequacy of the project's safeguarding instruments (ESMF, ESMP, TAA, etc.) and propose any adjustments or improvements.</li> <li>- Document good practices and challenges in implementing the project to promote the continuous improvement of the safeguards function.</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to communicate orally or in writing to different audiences and actor profiles.</li> <li>- Ability to work in a team and coordinate activities involving several participants.</li> <li>- Mastery of computer tools.</li> </ul>	<ul style="list-style-type: none"> <li>- Postgraduate studies in the following areas: Natural Sciences, Environmental Management, Environmental Law, Social Sciences</li> <li>- Ability to work in other languages such as English and Spanish is an advantage.</li> </ul>	<ul style="list-style-type: none"> <li>- Experience in safeguard management /ESG.</li> </ul>
Procurement and Contracts Specialist (Senior)	<ul style="list-style-type: none"> <li>- Supporting the project's procurement procedures, including the preparation of draft Expressions of Interest, Requests for Proposals (SDP), Calls for Tenders, Terms of Reference, specifications, routing guides, contracts and other similar instruments, as well as their approval by the IDB/IFAD;</li> <li>- Monitoring the Procurement Plan and its respective revisions;</li> <li>- Supporting the financing bank's procurement system and internal management information systems with regard to tendering aspects;</li> <li>- Monitoring the execution of the Annual Operating Plans, as well as supporting the process of drawing up the Procurement Plans;</li> <li>- assisting in the general monitoring of the project's procurement and purchasing and procurement information systems;</li> </ul>	<ul style="list-style-type: none"> <li>- Proficiency in public administration systems for the acquisition of contracts and agreements;</li> <li>- Knowledge of computer tools.</li> </ul>	<p><b>Minimum requirements:</b></p> <p>Professional with a degree in one of the following areas: Business Administration, Law, Economics, Accounting or related areas.</p> <p><b>Desirable requirements:</b></p> <p>Postgraduate courses in Tenders and Contracts.</p>	<p><b>Minimum requirements:</b></p> <p>Experience in tendering activities and project contracts under the national rule</p> <p>Experience in tendering and contracting activities in projects financed with international funds (IFAD, IDB, IBRD, FAO, BRICs, etc.).</p> <p>Experience in bidding activities and contracts in projects with</p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- participate, when necessary, in meetings with representatives of the executing agencies and the IDB/IFAD;</li> <li>- Analyzing the Terms of Reference and Technical Specifications, as well as suggesting modifications and/or alterations to ensure the IDB/IFAD procurement aspects;</li> <li>- Analyze the Technical Opinions, as well as suggest modifications and/or changes to ensure the IDB/IFAD procurement aspects;</li> <li>- Monitoring the opening of tender processes with UNICEN's Special Tender Committee and Auctioneer;</li> <li>- Supporting the technical teams in evaluating the proposals/offers for the tenders, providing them with draft reports, minutes and other documents required for the evaluations, in accordance with the rules of the funding body.</li> <li>- Supporting tender negotiations, where appropriate in the method.</li> <li>- Supporting the beneficiaries' tenders by holding workshops and training sessions. As well as analyzing and issuing reports on the tenders carried out by the beneficiaries.</li> <li>- Keeping physical and digital bidding documents.</li> <li>- Carrying out actions to monitor the validity periods of companies' bids.</li> <li>- Submitting contracts for signature, and taking responsibility for processing tender documents by post (outward and/or return). Receiving contracts and returning the original to the contractor by post.</li> </ul>			<p>international technical cooperation organizations (IICA, UNDP, UNESCO, etc.).</p> <p>Experience with agreements and accountability.</p> <p><b>Desirable requirements:</b></p> <p>Technical courses on tenders and contracts.</p> <p>Courses on Tenders and Contracts given by International Financial Organizations (IDB, IBRD, IFAD, IBRD, FAO, BRICs, etc.).</p> <p>Bidding courses Contracts on the rule of International Financial Organizations (IFAD, IDB, IBRD, FAO, BRICs, etc.), given by other entities.</p> <p>Accountability/Covenants Courses</p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Carry out actions to monitor the conclusion and management of contracts.</li> <li>- Carrying out activities to monitor contractual deadlines.</li> <li>- Supporting the beneficiaries' bids by holding workshops and training sessions.</li> <li>- Attend and support audits and supervisions.</li> <li>- Attend to, organize and support the missions of funding bodies.</li> <li>- Inform and justify to the Administrative and Financial Coordination any changes that may be necessary to the Project Procurement Plan;</li> <li>- Carry out any other related activities that may be necessary, as determined by the Administrative and Financial Coordinator and the General Coordinator of the PROCASE II PMU.</li> </ul>			
Financial Specialist	<ul style="list-style-type: none"> <li>- Support the agencies in filling in the project expenses in the Integrated Financial Administration System - SIAF/PB and in the Management, Monitoring and Evaluation System;</li> <li>- Supporting the preparation of periodic Financial Reports on the Project's financial movements;</li> <li>- Monitor PROCASE II's budgetary and financial execution and bank accounts on a daily basis;</li> <li>- Supporting the preparation of accountability reports and financial statements for the project;</li> <li>- Supporting the co-executing bodies in meeting the demands of PROCASE II External Audits regarding financial, budgetary,</li> </ul>	<ul style="list-style-type: none"> <li>- Knowledge of public administration systems;</li> <li>- Knowledge of computer tools.</li> </ul>	<p><b>Minimum requirements:</b></p> <p>Professional with a degree in one of the following areas: Economics or Accounting, Administration or related areas.</p> <p><b>Desirable requirements:</b></p>	<p><b>Minimum requirements:</b></p> <p>Experience with state administrative and financial management and its control systems</p> <p>At least ten years' experience in the profession;</p> <p>Relevant experience in managing sustainable</p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<p>accounting, material control and execution information for goods and services contracts and Procurement Plans;</p> <ul style="list-style-type: none"> <li>- Supporting the preparation of the documents needed to request and replenish funds in the project's designated and operating accounts;</li> <li>- Advising and keeping the project's financial expert informed;</li> <li>- Participate in IDB and IFAD monitoring and evaluation missions on issues related to the financial management of the project;</li> <li>- Support the USEs in controlling all the assets acquired by the Project.</li> <li>- Carry out other duties related to their area of activity and as determined by the financial specialist.</li> </ul>		<p>Postgraduate courses in Controllership, Finance and/or Auditing, Projects.</p>	<p>development projects, preferably with external funding.</p>
Legal advice	<ul style="list-style-type: none"> <li>-Analyze the Terms of Reference drawn up by the Project's components in terms of legal aspects, with a view to avoiding irregularities that could result in challenges, injunctions, etc.;</li> <li>- Drafting ordinances, decrees, bills and other normative documents;</li> <li>- Analyzing and interpreting legal opinions and preparing legally grounded responses;</li> <li>- Assisting in the analysis of requests for clarification, appeals, challenges and writs of mandamus in procurement procedures and preparing legal subsidies;</li> <li>- Articulate with the bodies (PGE, CGE, TCE) to resolve legal doubts or comply with legislation relating to the implementation of project actions;</li> </ul>	<ul style="list-style-type: none"> <li>- Knowledge of the legislation governing agreements, administrative contracts and other similar instruments, as well as proven experience in bidding procedures;</li> <li>- Knowledge of public administration systems;</li> <li>- Knowledge of computer tools.</li> </ul>	<p><b>Minimum requirements:</b></p> <p>Professional with a law degree.</p> <p><b>Desirable requirements:</b></p> <p>Postgraduate course in Bidding and Contracts.</p> <p>Postgraduate course in Auditing or related areas.</p>	<p><b>Minimum requirements:</b></p> <p>Minimum of 10 (ten) years' professional experience in legal advisory activities, proven in the activities to be carried out.</p> <p><b>Desirable requirements:</b></p> <p>Experience in providing legal advice on tenders and project</p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Drawing up standardized dispatches;</li> <li>- Providing legal assistance to the PMU/PROCASE II team;</li> <li>- Attend meetings that the PMU/PROCASE II Coordination deems relevant.</li> </ul>		Technical courses on tenders and contracts. Bidding courses; Contracts administered by International Financial Organizations (IDB, IDA, IBRD, etc.).	contracts at national level; Experience in issuing legal documents for projects financed with international funds (IFAD, IDB, IBRD, etc.). Ability and resourcefulness in issuing legal opinions and drafting legal documents; Knowledge and understanding of sustainable rural development.
M&A Specialist (Senior)	<ul style="list-style-type: none"> <li>- Evaluate the PROCASE II Monitoring and Evaluation Plan, and propose adjustments if necessary;</li> <li>- Coordinate all the actions related to the project's monitoring and evaluation system, with regard to this area of activity, based on the consolidation of the strategic impact indicators and the results matrix indicators;</li> <li>- Plan and monitor the design and implementation of an information management system;</li> <li>- Supporting the diagnostic analysis and monitoring of the progress of the indicators in the Results Matrix of the Loan Agreement and the Program;</li> </ul>	<ul style="list-style-type: none"> <li>- Mastery of management tools;</li> <li>- Knowledge of public administration systems;</li> <li>- Knowledge of computer tools</li> </ul>	<b>Minimum requirements:</b> Professional with a degree in one of the following areas: Economics, Statistics, Engineering or related areas. <b>Desirable requirements</b>	<b>Minimum requirements:</b> Experience in monitoring activities and impact/performance evaluations, with statistical follow-up of indicators for projects/programs financed by international development/cooperati



PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Preparing the ToR and monitoring the impact assessment studies (Baseline, Mid-term and Final Assessment);</li> <li>- Supporting the preparation of diagnoses to support the planning and implementation of the PROCASE II project;</li> <li>- Support the creation of feedback and justification reports on the results of the indicators in the Results Matrix of the Loan Agreement and the Programs;</li> <li>- To support the evaluation of the execution of the actions of the Programs in relation to the forecast and in relation to the Results Matrix of the Loan Agreement;</li> <li>- Supporting the preparation of route correction reports based on the results of the Project's monitoring evaluations;</li> <li>- Assisting in the production of technical opinions and recommendations related to the possible risks of deviations in the implementation of the Project;</li> <li>- Monitor the technical assistance service related to the process and impact evaluation of the project;</li> <li>- Providing support in the preparation of Progress Monitoring Reports (PMR), the Annual Workplan and Budgeting and the Procurement Plan;</li> <li>- Draw up, with the support of the PROCASE II project team, the Project Completion Report (PCR);</li> <li>- Supporting the design and implementation of ongoing training on monitoring and evaluation for the team involved in implementing the project;</li> <li>- Plan and implement tools to monitor the results of the project on the target audience;</li> </ul>		<p>Postgraduate courses in areas related to the activities to be carried out.</p> <p>- Ability to work in other languages such as English and Spanish is an advantage.</p>	<p>on organizations (IDB, IFAD, IBRD, etc.).</p> <p><b>Desirable requirements:</b></p> <p>Technical courses in monitoring and evaluation.</p> <p>Technical courses on monitoring and evaluation given by International Financial Organizations (IFAD, IDB, IBRD, etc.).</p> <p>Experience in planning and/or controlling projects/programs in the area of regional development.</p> <p>Experience in developing impact and/or performance studies and evaluations, with field research on projects.</p> <p>Diverse experience in results monitoring activities.</p>

PMU KEY POSITION TORs				
Function	Key Responsibilities	Profile	Educational Requirements/Training	Professional Experience
	<ul style="list-style-type: none"> <li>- Provide data, inputs and/or information on the scope of the project (physical, procedural, results or impact targets) to the communications department;</li> <li>- Participate in seminars, technical meetings, forums and training sessions on the subject of monitoring and evaluation, especially on the relevant aspects of the project that can contribute to improving the project;</li> <li>- Among other duties required for the area in question;</li> <li>- Provide input on the progress of the PROCASE II project to the IDB/IDA at the time of the missions.</li> </ul>			

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## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex 7: Mainstreaming themes – Eligibility criteria checklist**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



Mainstreaming themes – Eligibility criteria checklist						
	<input checked="" type="checkbox"/> Be gender transformative	<input checked="" type="checkbox"/> Be youth sensitive	<input checked="" type="checkbox"/> Be nutrition sensitive	<input checked="" type="checkbox"/> Prioritize persons with disabilities	<input checked="" type="checkbox"/> Prioritize indigenous peoples	<input checked="" type="checkbox"/> Include climate finance <input checked="" type="checkbox"/> Build adaptive capacity
<b>Situation analysis</b>	<input checked="" type="checkbox"/> National gender policies, strategies and actors <input checked="" type="checkbox"/> Gender roles and exclusion/discrimination <input checked="" type="checkbox"/> Key livelihood problems and opportunities, by gender	<input checked="" type="checkbox"/> National youth policies, strategies and actors <input checked="" type="checkbox"/> Main youth groups <input checked="" type="checkbox"/> Challenges and opportunities by youth group	<input checked="" type="checkbox"/> National nutrition policies, strategies and actors <input checked="" type="checkbox"/> Key nutrition problems and underlying causes, by group <input checked="" type="checkbox"/> Nutritionally vulnerable beneficiaries, by group	<input checked="" type="checkbox"/> National policies, strategies and actors <input checked="" type="checkbox"/> Main groupings among PwDs <input checked="" type="checkbox"/> Context-based barriers and opportunities for PwDs	<input checked="" type="checkbox"/> International standards, national policies, strategies and key IPs' organizations <input checked="" type="checkbox"/> Main IPs communities, demographic, social, cultural and political characteristics <input checked="" type="checkbox"/> Important livelihoods constraints and opportunities for IPs and their cultural heritage	
<b>Theory of change</b>	<input checked="" type="checkbox"/> Gender policy objectives (empowerment, voice, workload) <input checked="" type="checkbox"/> Gender transformative pathways <input checked="" type="checkbox"/> Policy engagement on GEWE	<input checked="" type="checkbox"/> Pathways to youth socioeconomic empowerment <input checked="" type="checkbox"/> Youth employment included in project objectives/activities	<input checked="" type="checkbox"/> Nutrition pathways <input checked="" type="checkbox"/> Causal linkage between problems, outcomes and impacts	<input checked="" type="checkbox"/> Pathways to PwDs' socioeconomic empowerment using a twin-track approach	<input checked="" type="checkbox"/> Pathways to IPs' socioeconomic empowerment	
<b>Logframe indicators</b>	<input checked="" type="checkbox"/> Outreach disaggregated by sex, youth and IPs (if appropriate) <input checked="" type="checkbox"/> Women are > 40% of outreach beneficiaries <input checked="" type="checkbox"/> IFAD empowerment index (IE.2.1)	<input checked="" type="checkbox"/> Outreach disaggregated by sex, youth and IPs (if appropriate) <input checked="" type="checkbox"/> Persons with new jobs/employment opportunities (CI 2.2.1)	<input checked="" type="checkbox"/> Outreach disaggregated by sex, youth and IPs (if appropriate) <input checked="" type="checkbox"/> Targeted support to improve nutrition (CI 1.1.8)  <b>Outcome level CIs</b> <input checked="" type="checkbox"/> CI 1.2.8 MDDW <input type="checkbox"/> CI 1.2.9 KAP	<input checked="" type="checkbox"/> Outreach disaggregated by sex, youth, disability and IPs (if appropriate)	<input checked="" type="checkbox"/> Outreach indicator disaggregated by sex, youth and IPs <input checked="" type="checkbox"/> IPs are > 30% of target beneficiaries	
<b>Human and financial resources</b>	<input checked="" type="checkbox"/> Staff with gender TORs <input checked="" type="checkbox"/> Funds for gender activities <input checked="" type="checkbox"/> Funds for IFAD empowerment index in M&E budget	<input checked="" type="checkbox"/> Staff with youth TORs <input checked="" type="checkbox"/> Funds for youth activities	<input checked="" type="checkbox"/> Staff or partner with nutrition TORs <input checked="" type="checkbox"/> Funds for nutrition activities	<input checked="" type="checkbox"/> Staff with disability inclusion-specific TORs <input checked="" type="checkbox"/> Funds for disability inclusion-related activities (including accessibility)	<input checked="" type="checkbox"/> Staff with IPs-specific TORs <input checked="" type="checkbox"/> Funds for IPs related activities, including FPIC	IFAD Adaptation Finance \$4,716,000  IFAD Mitigation Finance \$3,415,000  Total IFAD Climate-focused Finance \$8,131,000

<b>ECG Remarks</b>	<b>Gender</b> <b>Nutrition</b> <b>Youth</b> <b>Persons with Disabilities</b> <b>Indigenous Peoples</b> <input type="checkbox"/> No social inclusion themes
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## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.0 Secap Acronym List**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

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Latin America and the Caribbean  
Programme Management Department





AASE	Avaliação Ambiental e Social Estratégica/ <i>Strategic Environmental and Social Assessment</i>
AIAS	Avaliação de Impacto ambiental e social/ <i>Environmental and social impact assessment</i>
AOP	Annual Operational Plan
APP	Área de Preservação Permanente/ <i>Permanent Preservation Area</i>
ASA	Associação do Semiárido (NGO)
ATER	Assistência Técnica Rural/ <i>Rural Technical Assistance</i>
CAR	Cadastro Ambiental Rural/ <i>Rural environmental cadaster</i>
CC	<i>Climate Change</i>
CDRI	<i>Climate Disaster Risk Index</i>
CHIKV	<i>Chikungunya virus</i>
CMIP6	<i>Coupled Model Intercomparison Project Phase 6</i>
CPT	Comissão Pastoral da Terra/ <i>Pastoral Land Commission</i>
CTE	Consultoria Técnica Especializada/ <i>Specialized Technical Consultancy (STC)</i>
DENV	<i>Dengue virus</i>
EFSA	<i>Executive Agency for Water Management of the State of Paraíba</i>
AESA	Agência Executiva de Gestão das Águas do Estado da Paraíba/ <i>Executive Agency for Water Management of the State of Paraíba</i>
EMPAER	Empresa Paraibana de Pesquisa, Extensão Rural e Regularização Fundiária/ <i>Paraíba State Agricultural Research, Rural Extension and Land Regularization Company</i>
ENSO	<i>El Niño-Southern Oscillation</i>
ESMF	<i>Environmental and Social Management Framework</i>
ESMP	<i>Environmental and Social Management Plan</i>
FDRI	<i>Flood Disaster Risk Index</i>
FETAG	Federação dos Trabalhadores na Agricultura/ <i>Federation of Agricultural Workers</i>
FETRAF	Federação dos Trabalhadores na Agricultura Familiar / <i>Family Farming Workers Federation</i>
GEE	Gases de efeito estufa/ <i>Green house gases (GHG)</i>
HLCV	<i>Cold Fronts, East Disturbances or East Waves and High-Level Cyclonic Vortices</i>
IBGE	Instituto Brasileiro de Geografia e Estatística/ <i>Brazilian National Institute for Geography and Statistics</i>
IDB	<i>Inter-American Development Bank</i>
IFAD	<i>International Fund for Agricultural Development</i>
INCRA	Instituto Nacional de Colonização e Reforma Agrária/ <i>National Institute for Agrarian Reform and Colonization</i>
INMET	Instituto Nacional de Meteorologia/ <i>Brazilian National Meteorological Institute</i>
INPE	Instituto Nacional de Pesquisas Espaciais/ <i>Brazilian National Space Research Institute</i>
IPCC	Intergovernmental Panel on Climate Change
IRD	<i>Disaster Risk Indices</i>
ISO	<i>International Standards Organization</i>
ITCZ	<i>Intertropical Convergence Zone</i>
KM	<i>Knowledge management</i>
LED	<i>Light emitting diode</i>
LGBTQIAPN+.	<i>Lesbian, gay, bisexual, transgender, intersex, queer/questioning, asexual</i>
LON/ESP	<i>Specific investment loan/Empréstimo de investimento específico</i>
M&E	<i>Monitoring and evaluation</i>

MDA	Ministerio do Desenvolvimento Agrario/ <i>Ministry for Agrarian Development</i>
MGAS	Marco de Gestão Ambiental e Social/ <i>Environmental and Social Management Framework</i>
MST	Movimento dos Trabalhadores sem Terra
MTE	Ministério do Trabalho e Emprego/ <i>Brazilian Ministry of Labour and Employment</i>
OIT	Organização Internacional do Trabalho/ <i>International Labour Organization (ILO)</i>
ONU	Organização das Nações Unidas/ <i>United Nations (UN)</i>
PAA	Programa de Aquisição de Alimentos/ <i>Food Aquisition Program</i>
PAB	Plano de ação de biodiversidade
PAE	
PCT	Povos e Comunidades Tradicionais/ <i>Traditional Peoples and Communities</i>
PDAS	
PERH	Plano Estadual de Recursos Hídricos/ <i>State Water Resources Plan</i>
PGASE	Plano de Gestão Ambiental e Social Estratégico/ <i>Strategic Environmental and Social Management Plan</i>
PGL	Plano de Gestão Laboral/ <i>Labour Management Plan</i>
PNAE	Programa Nacional de Alimentação Escolar/ <i>National Program for School Nuture</i>
PROAGRO	Programa de seguro agrícola/ <i>Agricultural Insurance Program</i>
PROCASE	Paraíba Sustainable Rural Development Project
PRONAF	Programa Nacional de apoio a Agricultura familiar/ <i>National Family Agriculture Support Program</i>
PwD	<i>People with Disabilities</i>
RIP	<i>Resilient Investment Plan</i>
RTA	<i>Rural Technical Assistance</i>
SAA	Sistema de abastecimento de água/ <i>Water supply system (sanitation system)</i>
SAC	Sistema alternative coletivo/ <i>Collective alternative solution (sanitation system)</i>
SAI	Solução alternativa individual/ <i>Individual alternative solution (sanitation system)</i>
SEAFDS	Secretaria de Estado da Agricultura Familiar e do Desenvolvimento do Semiárido/ <i>State Secretaria for Family Agriculture and Semi-arid region Development</i>
SECAP	<i>Social, Environmental and Climate Change Assessment Procedures</i>
SEDH	Secretaria de Estado do Desenvolvimento Humano/ <i>State Secretariat for Human Development</i>
SEJEL	Secretaria Executiva da Juventude, Esporte e Lazer/
SEMAS	Secretaria de Estado do Meio Ambiente e Sustentabilidade
SEMDH	Secretaria Estadual da Mulher ou um Diversidade Humana
SEPLAG	Secretaria de Planejamento Orçamento e Gestão/ <i>State Secretaria for Planning, Budget and Management</i>
SESA	Strategic Environmental and Social Assessment
SGAS	Sistema de Gestão Ambiental e Social
SSTC	South-South and Triangular
STC	Specialized technical consultancy
VRA	vulnerability and risk assessment
MPF	Ministério Público Federal/ <i>Federal General Attorney</i>
ZIKV	Zika virus

Acronym list: some acronyms may appear either in their Portuguese or English versions. The above table presents the both. On the table, once the acronym appears, it is first spelled out on its original language and then translated.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.1 Secap Strategic Environmental And Social Management Plan**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II

<p><b>STRATEGIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN DOCUMENT DRAFT</b></p>
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**June 2024**

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## CREDITS

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## SUMMARY

1	Introduction.....	5
2	Project Overview.....	5
2.1	Project objectives .....	5
2.2	Project Scope.....	6
2.3	Project budget .....	7
2.4	Description of components .....	8
3	Main Impacts and Mitigation Measures .....	23
4	Environmental and Social Plans and Programs .....	30
5	Description of the Measures Applied to the Executing Agency and Contractors... 32	
5.1	Screening, Classification and Scoping Measures for Subprojects.....	32
5.1.1	Environmental and Social Analysis .....	33
5.1.2	Eligibility criteria.....	48
5.2	PGASE Monitoring and Evaluation Measures.....	53
5.2.1	Monitoring and Evaluation Indicators .....	55
5.2.2	Auditing .....	57
5.3	Disaster and Climate Change Risk Management Plan .....	58
5.4	Waste Management Program.....	64
5.4.1	Construction Waste .....	64
5.4.2	Agricultural Production and Processing Waste .....	70
5.5	Water and Effluent Quality Monitoring Program.....	72
5.6	Biodiversity Management, Protection and Restoration Plan.....	74
5.7	Stakeholder Communication, Consultation and Engagement Program.....	85
5.8	Environmental and Health Education Program .....	108
5.9	Energy Efficiency Plan for Projects and Facilities .....	110
5.10	Contaminating Products Management and Control Plan .....	112
5.11	Traffic Program.....	113
5.12	Labor Management Plan .....	116
5.13	Program to Control and Mitigate Temporary Social and Economic Impacts 129	
5.14	Gender Violence Prevention and Care Program.....	136
5.15	Program to Mitigate Impacts on Traditional Communities.....	142
5.16	Disease and Pest Vector Control Program .....	146
5.17	Cultural Heritage and Fortuitous Finds Protection Program .....	147
6	Description of the Measures Applied to Rural Producers under the PIRs.....	150
6.1	Waste Management Program.....	150
6.1.1	Agricultural Production and Processing Waste .....	151
6.2	Biodiversity Management, Protection and Restoration Plan.....	152



6.3	Contaminating Products Management and Control Plan .....	154
6.4	Labor Management Plan .....	155
7	Annexes .....	161
7.1	Annex - Requirements set out in the IDB's MPAS for the content of the ESMP 162	
7.2	Annex - Examples of emergency response procedures for common types of incidents and accidents on similar Projects .....	166

## 1 INTRODUCTION

This Strategic Environmental and Social Management Plan (PGASE) is structured to evaluate the geographic region where the Project is located, in order to have a management tool that integrates the environmental and social dimensions of each of the interventions in the territory, while also aiming to identify convergences and possible gaps between the IFAD and IDB Safeguard Policies. The interventions proposed in the sanitation sub-projects and production plans may have an impact on some of the municipalities that are part of the Project.

This document is based on the Inter-American Development Bank's Environmental and Social Policy Framework (ESMP) and is an integral part of PROCASE II's Environmental and Social Management System (ESMS).

Thus, the PGASE was prepared in accordance with the IDB's MPAS and PDASs (Social and Environmental Performance Standards) 1 to 10 in order to take into account the guidelines needed to mitigate impacts or studies needed to deepen the socio-environmental assessment of projects still in the pipeline. The IDB's MPAS is a guiding framework for the systematic management of PROCASE II's environmental and social performance throughout its life cycle. The identification of gaps in relation to the requirements of the IDB MPAS made during the environmental and social assessments served as input for the definition of the socio-environmental action plan in which the necessary actions are set out in the Environmental and Social Programs of this PGASE, allowing the Project to comply with the Environmental and Social Performance Standards within an adequate period of time.

This document consists of the following main sections:

- General Description of the Project: provides the main information on the Project's justification, objectives, area of inclusion and budget, as well as a description of the Components and the types of projects and plans to be implemented by the Project.
- Main Impacts and Mitigation Measures: summarizes the list of impacts identified and the related mitigation measures.
- Environmental and Social Programs: provides a more detailed description of the actions and guidelines to be complied with as part of the mitigation measures that must be implemented to comply with the institutions' policies and safeguards.
- Annexes: this section includes documents and information that complement the understanding of the document and its mitigation guidelines.

## 2 PROJECT OVERVIEW

The State Government of Paraíba has requested the financing of a project through a specific investment loan (LON/ESP) to promote the sustainable development of the rural area of the state of Paraíba (involving the Atlantic Forest and Caatinga biomes). The project seeks to address the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

Below is the description of PROCASE II, its components and planned sub-projects.

### 2.1 Objectives of Project

The overall aim of the project is to contribute to reducing rural poverty levels, improving food and nutritional security and adapting the rural population to climate change.

The main specific objectives are:

- Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change;
- Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and people with disabilities (PcD);
- Improving the environmental conditions of rural communities and their surroundings.

## 2.2 Project Scope

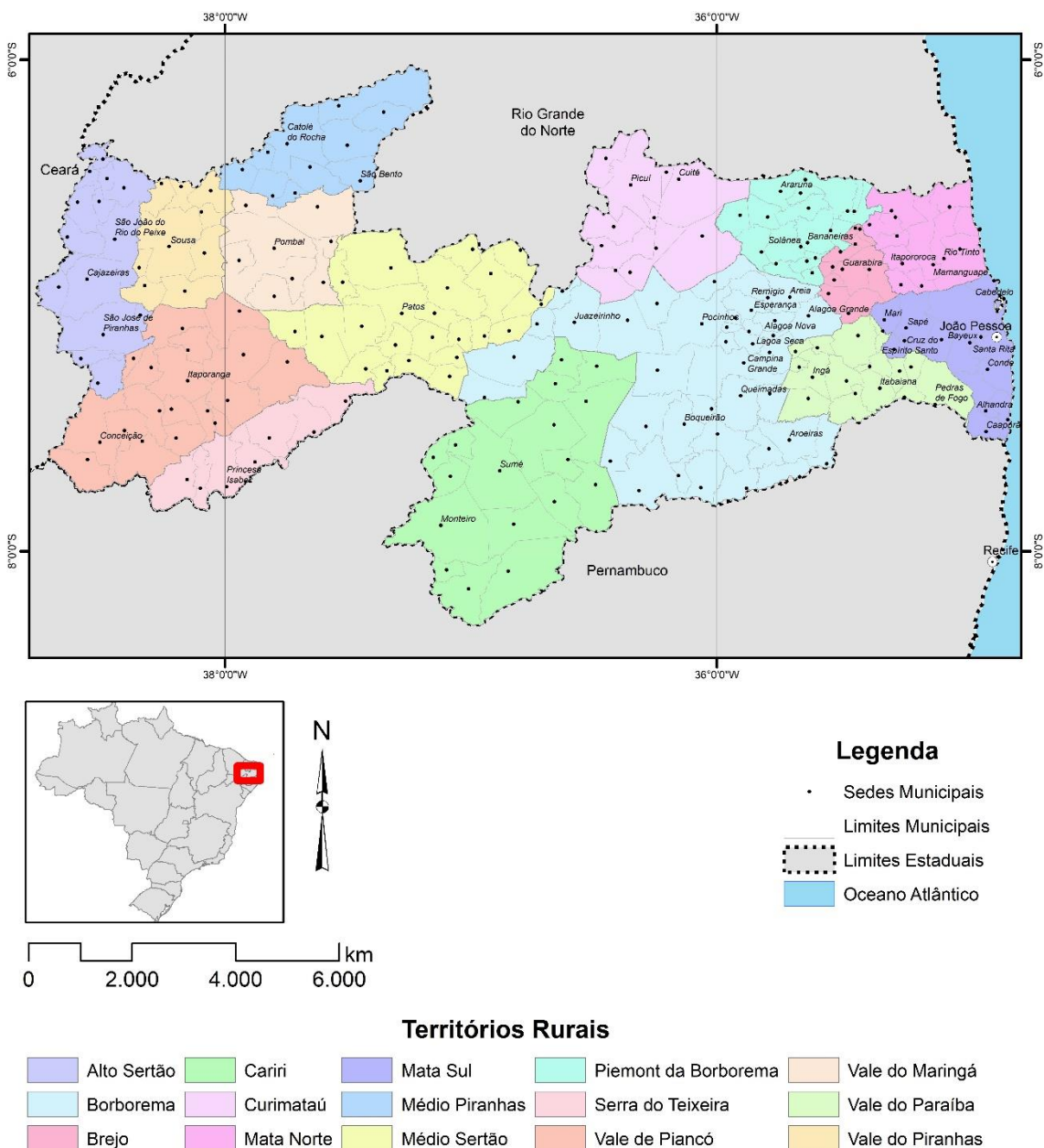
**It is important to note that the beneficiary communities for PROCASE II have not yet been defined and the consultation strategy presented in this document is aimed at communicating and interacting with the institutions representing the prominent communities in the catchment area.**

The project will cover the entire state of Paraíba, involving its 223 municipalities (see figure below), which are distributed between the Caatinga (194) and Atlantic Forest (29) biomes. The Agricultural Census (IBGE 2017) shows a total of 163,218 agricultural establishments, 76.88% of which are family farms (UAF), providing a potential universe for the project.

The project will target approximately 60,000 families as direct beneficiaries, establishing a preferential focus on the following profiles: women, young people, Persons with Disabilities, Traditional Peoples and Communities (PCT), indigenous peoples, fishing communities and gypsies. In any case, specific criteria will be defined for the prioritization and selection of communities to be benefited, involving issues such as cultural traditionality, the need for access to basic sanitation, the rate of families registered with CadÚnico, families who have not benefited from other similar projects, the level of representation of gender, youth and Persons with Disabilities, the level of environmental degradation and the lack of TA service.

The map below shows PROCASE II's area of operation.

**Figure 1 - Area covered by the Project**



Source: IBGE, 2015 - elaboration: Consultoria.

### 2.3 Project Budget

The total amount planned for PROCASE II is 105 million dollars, which will benefit an estimated 600 communities.

**Table 1 - Estimated PROJECT costs (in US\$)**

Components and sub-components	Total Value
<b>C1. Resilient production systems to reduce rural poverty</b>	<b>62.416.000</b>
<i>S1.1 - Implementing resilient biodiverse production systems</i>	56.416.000
<i>S1.2 - Strengthening and diversifying marketing</i>	6.000.000

Components and sub-components	Total Value
<b>C2 - Organizational and Farmer Capacity Building and Knowledge Management</b>	<b>32.302.800</b>
<i>S2.1 - Strengthening the Capacities of Family Farmers</i>	19.252.800
<i>S2.2 - Strengthening Organizations' Marketing Capacities</i>	2.730.000
<i>S2.3 - Diversity, Gender, Youth, Nutrition and Food Security</i>	4.600.000
<i>S2.4 - Land and Environmental Regularization, and Access to Public Programs and Policies for Family Farming</i>	2.600.000
<i>S2.5 - Innovation, Knowledge Management (KM), South-South and Trinagular Cooperation (SSTC)</i>	3.120.000
<b>Project Management, Monitoring &amp; Evaluation</b>	<b>10.281.200</b>
<i>Project Management</i>	8.981.200
<i>Monitoring &amp; Evaluation (M&amp;E)</i>	1.300.000
<b>TOTAL</b>	<b>105.000.000</b>

## 2.4 Description of the components

The PROCASE II components are presented below, highlighting the main information that describes them, including their sub-components.

### **Component 1: Resilient Production Systems to Reduce Rural Poverty**

The aim of this component is to increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change, as well as improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities.

The component's specific objectives are:

- Transform existing systems by introducing innovative, more intensive and diversified agroecological practices;
- Seeking greater resilience of production systems adapted to climate change;
- Promote improved food and nutrition security;
- Improving the integration of producers into value chains, prioritizing women, young people, people with disabilities, Traditional Peoples and Communities (PCT), indigenous peoples, fishing communities and gypsies;
- Make investments in social technologies, ensuring better access to and reuse of water, and sustainable energies;
- Supporting producer organizations (associations and cooperatives) to enable production to be processed, adding value and consequently improving marketing and market access, through investments in machinery and minor renovations;

Productive investments, both at community level and at cooperative level, will be accompanied by TA and STA respectively, financed by Component 2, in order to guarantee better business management, marketing and sustainability.

Component 1 is organized into two sub-components: 1.1: Implementing Resilient Investment Plans; and 1.2: Strengthening and diversifying marketing.

### **Subcomponent 1.1. Implementing biodiverse and resilient production systems**

The aim of this subcomponent is to strengthen and adapt production systems based on the use of agroecological practices and low greenhouse gas emissions, seeking greater resilience and allowing for improved and diversified production of healthy food for self-consumption and the market. It is hoped that these activities will improve families' food and nutritional security, while at the same time helping to improve their income.

Investments will also be made in social technologies (small water and energy infrastructures), which play a fundamental role in building and strengthening more resilient production systems and improving the basic living conditions of families.

The technical characteristics of the production proposals supported by the project will be adapted according to the specific agro-climatic characteristics of each biome.

#### **Product - Resilient Investment Plans (PIR)**

The Resilient Investment Plans (PIR) will be the main instrument for planning and implementing the resources of this subcomponent. It will have a territorial focus and will be prepared with one or more communities, with the support of TA. Each PIR will be carried out by an existing community association, representing the beneficiary community or communities, with which the project will sign an agreement establishing its obligations and rights. The project will transfer the funds and the association will procure the goods, services and works provided for in the RIP, reporting back to the project with the support of technical assistance.

The scope of the PIR will be a Local Territory, made up of up to three communities, and the beneficiaries will be the families in these communities. The PIR will support productive activities (new or strengthening existing activities) geared towards adapting to climate change, with the potential to guarantee food security and improve income through the sale of surpluses. It aims to incorporate concepts of good production practices based on the principles of agroecology, nutritional education and food security for families, as well as ensuring integration with social technologies.

The PIR will finance three areas of intervention: i) Productive and commercialization ii) Environmental and iii) Social Technologies, between which complementarity and synergy will be sought to promote sustainable change. As shown below:

**Productive and marketing axis:** The aim will be to develop productive systems at the family level, always based on the use of agroecological practices with a low impact on greenhouse gas emissions. This axis will also strengthen capacities to market production in the various channels accessible to families (local fairs, PAA, PNAE, local commerce, etc.) and relevant to the beneficiaries, such as: i) Agroforestry systems (SAFs) for diversified production, goat and sheep farming for milk and meat, dairy cattle farming, and free-range poultry farming; ii) Backyards for fruit and vegetable production, including NUS and medicinal plants; iii) Beekeeping and Meliponiculture; iv) Agroecological multi crop systems for organic production, including cotton. It is important to mention that in the case of support for cattle breeding, the project's strategy will be to support dairy production exclusively (it will not be possible to support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, with the exception of the purchase to replace breeding stock. The list is not exhaustive and other activities may be considered, as long as they are in line with the demand of the beneficiaries and the objectives and criteria of the project.

Compared to the first phase of PROCASE, which focused on the semi-arid region of the Caatinga biome, the PROCASE II management team will have to pay close attention to

identifying relevant proposals for developing productive activities with the potential to adapt to climate change in the Atlantic Forest biome.

All the activities supported under this Productive and commercialization axis will be in accordance with the Environmental and Social Management Plan (ESMP) of each PIR and with the project's Strategic Environmental and Social Management Plan (SESMP).

Extractivism, both in the Caatinga biome and in the Atlantic Forest biome, could also be supported through PIRs, both to enhance non-timber products such as fruit, fibers and lianas, seeds, honey from native bees (meliponidea) and other bio-economic products. As it includes an important coastal area, the improvement of artisanal fishing activities, including shellfish gathering, which is carried out by women, could be considered when drawing up the PIR.

In addition to these activities and considering that part of the project's area of operation has strong potential, economic diversification activities based on tourism (particularly in the coastal Zona da Mata) and handicrafts could be developed through the RIPRIP. These non-agricultural activities, which generally involve women and young people, will be very relevant and in line with the project's objectives.

The Productive and Commercialization Axis will focus on actions to sustainably strengthen primary production and the commercialization of products generally in natura and on the local market. TA will encourage and support the establishment of partnerships with cooperative production processing units supported by the project through subcomponent 1.2. This should make it possible to add value to primary production in order to reach other types of market.

**Environmental Axis:** The aim is to manage and restore the environment, whether it is associated with the activities of the RIP's Productive Axis at Local Territory level or not.

They will have specific resources for collective use to encourage the implementation of territorial environmental actions, such as: i) Casas de Sementes da Paixão (Seed Houses of Passion); ii) Implementation of nurseries focused on the production of native species; iii) Reforestation, recovery of permanent preservation areas (springs and riparian vegetation) and degraded areas; iv) Soil and water protection actions; v) Recycling or composting plans, etc. These actions will be implemented in each territory by an environmental management group made up of project beneficiaries, in which the participation of Local Development Agents (ADL) will be prioritized, as key players in introducing environmental education actions and new environmental practices. To implement these actions, synergies and complementarities will be sought with the actions and competencies of SEMAS (Secretariat for the Environment and Sustainability) and AESA (Executive Agency for Water Management), the State Superintendence for the Environment (SUDEMA), the National Semi-Arid Institute (INSA), Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Empresa Paraibana de Pesquisa, Extensão Rural e Regularização Fundiária (EMPAER), Universidade Federal de Campina Grande (UFCG), Universidade Estadual da Paraíba (UEPB), Universidade Federal da Paraíba (UFPB) and other institutions.

The activities of the Environmental Axis will mainly stem from the Environmental and Social Management Plans (PGAS/ESMP), which will be drawn up at the same time as the diagnosis of each RIP. The ESMP will provide a simplified analysis of environmental and social impacts in order to promote and encourage the adoption of environmental and agro-ecological practices. Environmental activities will be carried out with the support of TA, which will also take care of production and marketing.

**Social Technology Axis:** The aim of this axis is to implement social technologies at the family level, such as: i) second-water cisterns (agricultural production); ii) a water harvesting system; and iii) trench dams (underground dams). In addition to these



technologies, 1st water cisterns (human consumption) and other household sanitation solutions such as evapotranspiration basins, or access to more sustainable domestic energy, such as biodigesters and eco-efficient stoves, will also be implemented.

The social technologies will be implemented by entities contracted by the PMU specifically to provide TA for this axis, taking into account the specific nature of the TA and the legal framework targeted. These entities will be trained by PROCASE II, although most of them have the experience to do so. In addition to implementation, these organizations will also provide training to ensure that these technologies are properly appropriated, used and maintained by the families.

The connection and complementarity between the productive, environmental and social technology axes should be sought and highlighted when drawing up the PIRs, with the aim of maximizing the results of the investments made by the project.

In each of these areas, priority will be given to the introduction of innovative practices and technologies, particularly those that will be supported through Subcomponent 2.5, such as mechanization and the use of tools and equipment adapted to the reality of family farming, with a focus on vulnerable groups such as women, young people and the disabled.

The PIRs will also be able to support the strengthening of the functioning of community associations through the acquisition of specific equipment, for example, to improve connectivity, such as audio-visual equipment, etc.

**General aspects about the PIRs:** During the implementation of the PIRs, in addition to a close and permanent synergy with TA actions (including specialized TA in cases where it is justified) and the strengthening of community organizations, complementarities will be established with other Component 2 activities, such as: land and environmental regularization; innovations; actions related to diversity, gender, youth, PCT and families with Persons with Disabilities.

The PIR will benefit groups of families, prioritizing women, young people, traditional communities and Persons with Disabilities, and will finance inputs, tools, equipment and other investments needed to enable the adoption of technologies to improve productivity, adapt to climate change and improve food and nutritional security.

The investments will be financed with non-reimbursable resources and with an economic counterpart from the beneficiaries of at least 10%.

In all cases, the activities selected will come from the Participatory Rural Diagnosis, which will identify not only the demands, but also the problems, priorities and potential demands of the beneficiary communities and families. These activities must meet eligibility criteria that will be detailed in the Project Operational Regulations (ROP) and present: i) high adherence to the productive means characteristic of the biome, region and community, ii) allow productive intensification based on the principles of agroecology, as well as adaptation to climate change and iii) follow the full agreement of the families involved.

The same PIR can support more than one productive activity or environmental axis and include the implementation of various types of Social Technologies, thus seeking coherence with the reality of family farming to meet the demands of the communities in a diversified way and can guarantee the inclusion of various profiles of beneficiaries, particularly women and young people. In these cases, the beneficiaries will be organized into interest groups around the activities selected to make up the PIRs.

During the process of drawing up the PIRs, the integration of new members and partners into existing organizations will be encouraged, giving priority to women, young people and families with Persons with Disabilities.

**Provision of Technical Assistance and Rural Extension (TA) services:** All PIR beneficiaries and their organizations will receive TA services for a period of two years, contracted by the PMU through a competitive process that meets IDB/IFAD standards. These services will be financed by Subcomponent 2.1, in which they are presented in detail. They should enable the beneficiaries to be strengthened and advised on how to design, implement, monitor the operation of and complete the PIRs. This includes advice on production from an agroecological perspective and adaptation to climate change, management, organization, access to public policies and marketing, guaranteeing compliance with current health and environmental legislation. The support provided by the TA entities should include support for the beneficiaries to carry out the procurement and accounting processes related to the implementation of the PIRs, considering that the financial resources will be transferred to the beneficiary associations through the procedure defined in the ROP. In the selection of TA services, criteria will be applied that allow for the inclusion of women technicians in the teams, with a view to being as adherent as possible to the specific needs of women and to proposing the most appropriate solutions for the women beneficiaries of the Project's actions. For example, it will be a selection criterion for TA organizations to have a minimum percentage of 30% women on their teams.

In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of the Social Technologies and training the beneficiaries to apply good use and maintenance practices.

**Planned Actions and Products:** The actions planned in this product involve: (i) identification of communities; (ii) community eligibility criteria; (iii) prioritization and selection of communities; (iv) Resilient Investment Plan Drafting Process; (v) drafting of PIRs; (vi) parameters for drafting PIRs; (vii) investments eligible for funding; (viii) fundable Climate Adaptation investments; (ix) fundable Climate Mitigation investments; (x) ineligible investments; (xi) PIR approval process; (xii) evaluation and prioritization criteria.

### **Subcomponent 1.2 - Strengthening and diversifying commercialization**

This subcomponent aims to improve marketing and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives.

It aims to strengthen cooperatives by means of a Business Plan (PN), with a view to consolidating their management capacities, adding value, diversifying their commercial offer and accessing markets under better conditions. Rather than seeking to create new cooperatives, priority will be given to existing cooperatives to improve their management capacities and those with operational weaknesses.

#### ***Product - Business Plans***

The preparation of these business plans (Pn) will take into account the strengthening of production carried out in subcomponent 1.1 through the PIRs, with the aim of integrating producers into these cooperatives to access the market.

The development of the PNs will seek to diversify the markets accessed. In addition to institutional markets, such as PNAE and PAA, other players will be sought, mainly from the private sector. The project will seek to include the organizations in the Regional Information System for Family Farming in the Northeast (SIRAF), created by the

Northeast consortium and which has been offering a new channel for establishing contact between producers and buyers.

Business Plans (PNs) will be the main instrument for implementing the subcomponent and will be drawn up with producers' economic organizations, usually cooperatives. The PNs should make it possible to finance structuring investments that could benefit family farmers, including the producers benefiting from the PIRs. Specialized technical assistance services (STA) specially dedicated to the PNs and to strengthening the capacities of the beneficiary organizations will also be financed by the PNs.

The NPs should allow for the implementation of competitive mechanisms, geared towards innovative and environmentally sustainable solutions, to strengthen network marketing and cooperative centers.

Investments will be focused on existing organizations that have weaknesses in their management processes, that are unable to achieve sufficient levels of commercialization, that find it difficult to comply with environmental and health legislation, or that operate below their capacity. In these cases, the project will strengthen the capacities of the management teams, support the improvement and modernization of equipment and facilities, improving the processing and diversification of products, with a focus on adapting and/or expanding the physical infrastructure (such as processing and storage areas), with the aim of also meeting the health and environmental standards for obtaining certifications (SIF, organic certification, distinctive collective seals, valuing sustainable products from the Caatinga and Atlantic Forest biomes, etc.). Where relevant, the development of participatory guarantee systems (PGS) geared towards certification processes will also be supported. Subcomponent 2.2 will make an important contribution to these activities and complementarities will be built.

In exceptional cases, the project's support may be directed towards structuring the productive capacity of a cooperative, operating within the supported production chains. These cases will be specific and subject to prior feasibility analysis, considering in particular the existence of other similar ventures in the project area.

Strengthening the capacities of the cooperatives' teams will be a key point of the PNs, which will address the issue of best processing practices, as well as others, such as administrative and financial management. In this case, courses are planned on good management practices and the organization of production, processing, adding value, financial management, institutional strengthening, marketing strategies, etc. The management teams of these enterprises will be the main beneficiaries. These courses will mainly be carried out through specialized consultancies (such as individual consultants, EMPAER, EMBRAPA, SEBRAE, SENAR, etc.).

The preparation of the Business Plans will include a diagnosis of the organization's situation, clearly identifying the most important problems and difficulties encountered and the opportunities that can be seized. The PNs may include agricultural activities of primary production, processing and marketing of this production. Other economic initiatives can also be included, such as handicrafts and community-based tourism, among others, provided they have the potential to generate income in a sustainable way. As the object of these Plans will be 'business' related, involving production and market issues, it is necessary to include more detailed information such as a 'map' of the production chain identifying flows and actors, an analysis of the products demanded by the market and their trends (volumes, prices), an analysis of the competition, a strategy for operating in the market, a sales plan and an investment management strategy. The Business Plan will identify the material investments that will have to be made (construction/refurbishment, machinery, equipment, etc.). In addition, it should point out the training needs (which may cover production, marketing, administrative and financial

management, or other dimensions) that the implementation of the Business Plan will require.

**Provision of Specialized Technical Assistance (STA) services:** Considering the capacities found in the organizations in the region served by the Project, it will be necessary to contract STA services for the preparation and implementation of all the Plans. These services will be contracted by the PMU, through a competitive process that complies with IDB/IFAD standards, with funds provided in the budget for Subcomponent 2.2. However, in certain cases and when the beneficiary organization shows experience and capacity, it could take on the responsibility of contracting the STA directly.

Individuals or legal entities may be contracted to provide these services. The criteria for selecting providers will include: i) experience in providing consultancy services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.

STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the business plans it supports. Opportunities for cooperation and alliances with the private sector will also be sought whenever possible.

**Planned Actions and Products:** The actions planned in this product involve: (i) Identifying and selecting beneficiary organizations; (ii) Drawing up the PNs; (iii) Eligible investments for financing; (iv) Types of Climate Adaptation investments that can be financed; (v) Types of Climate Mitigation investments that can be financed; (vi) Non-eligible investments for financing; (vii) Criteria for evaluating and prioritizing the PNs; (viii) Implementing the PNs.

## **Component 2 - Strengthening Family Farming Capacities and Organizations and Knowledge Management**

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The aim of this component is to strengthen the individual and collective capacities of family farmers and their organizations, necessary to increase the adoption of agricultural technologies that promote greater resilience in their systems, to improve productive and social inclusion, as well as the environmental and land conditions of rural communities and their surroundings.

The capacities strengthened through the component will be an essential tool for implementing the investments and innovative practices promoted by Component 1.

To help achieve the project's general objectives, the component will develop a set of activities with the following specific objectives:

- Strengthen the capacities of families and community organizations to implement more resilient and productive production systems, to better manage organizations and to access public policies;
- Strengthen the capacities of rural organizations so that they can develop their production and access markets;
- Strengthen the specific capacities of priority audiences in the areas of gender, youth, PCTs, Persons with Disabilities, LGBTQIAPN+ population to promote their empowerment.

- Promoting the land and environmental regularization of family farming establishments, agrarian reform settlements and quilombola communities.
- Implementing a knowledge management (KM) and South-South and Triangular Cooperation (SSTC) process to generate, record, share and use relevant knowledge.

The sub-components involved in this C2 are presented below.

### **Subcomponent 2.1. Developing the Capacities of Rural Community Organizations**

The component will focus on strengthening the capacities of beneficiary families and community organizations, considering the weaknesses identified in various areas, with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations.

It will finance the contracting of Agroecological Technical Assistance Services (TA) to carry out activities aimed at increasing the beneficiary families' access to adequate and quality information. The main themes to be addressed by TA will be the development of more profitable, diversified, and resilient agricultural production, the protection and recovery of environmental resources and the improvement of organizational management. It will also seek to integrate them more closely into different value chains in the region, with initiatives to support processing and marketing. And finally, the subcomponent will seek to strengthen the TA teams contracted to ensure the good quality of this service.

#### ***Actions planned***

- Provision of agroecological TA services in communities
- Complementary training/exchange events for farmers, including association leaders.
- Events to improve TA teams
- Training family farmers in public policies

Approximately 18,000 families will benefit from TA services, of which 50% should be represented by women, 30% by young people and at least 20% by Traditional Peoples and Communities. Part of this same public (approximately 2,600 people) will benefit of complementary training events. Approximately 150 technical TA agents will also be trained.

The Public Policy courses should benefit a total of 32,000 families, of which 50% should be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

### **Subcomponent 2.2. Strengthening Family Farming Organizations for Market Access**

The aim of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) benefiting from the project. Groups/organizations of farmers will also be targeted to create or strengthen local fairs and small marketing centers. In the context of improving marketing conditions, the project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories / 'consortia of municipalities'.

The aim is to help family farming organizations and their products enter diversified marketing channels, generating more income for the families benefiting.

### ***Actions planned***

- Provision of Specialized Technical Consultancy (CTE)
- Initiatives to strengthen fairs and marketing centers
- Pilot implementation of the Participatory Organic Certification System (POCS)
- Structuring Municipal Health Inspection Services

The provision of STA services will work with 60 Business Plans from economic organizations, benefiting approximately 5,000 families, of which 50% must be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

The initiative to strengthen local fairs and marketing centers will work with 50 units (fairs and centers), benefiting approximately 800 families.

It is planned to set up 2 Health Inspection Services for Municipal Consortia, as well as 15 participatory guarantee systems - PGS.

### **Subcomponent 2.3. Diversity, Gender, Youth, Nutrition and Food Security**

This sub-component will aim to promote the empowerment of women, young people, PCTs, LGBTQIABP+ and Persons with Disabilities, as well as improving the nutrition and food security of beneficiary families. The activities will work with the project's cross-cutting themes, strengthening and supporting the integration of these themes into all the components.

#### **Focus on gender and diversity**

The project will take a comprehensive approach to transforming gender relations, promoting the inclusion of Afro-descendants and PCTs, the LGBTQIAPN+ community and people with disabilities, focusing on the environmental, economic, political, and cultural causes of the social vulnerability of these groups. In order to transform unequal power relations, shaped by patriarchal and exclusionary structures, norms and practices, as well as empower women, Afro-descendants and PCTs, the LGBTQIAPN+ community and people with disabilities, the following transformation paths will be followed:

- i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development,
- ii) dealing with the issue of women's overload due to domestic and care work, promoting a fairer division of the workload between men and women,
- iii) empower target groups to have a greater voice and decision-making power in rural institutions and organizations,
- iv) promoting advocacy in policies for women, young people and PCTs,
- v) prevent gender-based violence, v) value traditional knowledge, practices, and ways of life for production, food, and management of natural resources and
- vi) promote the inclusion of the LGBTQIAPN+ community and people with disabilities, seeking to empower them, promote their leadership and respect their rights.

Therefore, this sub-component aims to support the mainstreaming of the gender and diversity strategy throughout the Project, which will have an intersectional approach, considering the overlap of multiple discriminations of gender, race/ethnicity, sexual orientation, and disability. All the activities and products proposed for this component will be contained in and guided by the Gender and Diversity Strategy and Plan to be drawn up at the start of project implementation.

### Focus on youth

Among the factors that influence staying in rural areas is access to work and income opportunities, education/training that is suited to the characteristics of rural areas, appreciation of rural lifestyles, and the availability of services and conditions that can offer the possibility of success in agricultural production. In order to respond to these issues raised in the Youth diagnosis and to promote the permanence of young people in the countryside, as well as offering more opportunities for sustainable income and work for young people in general, the strategy of this subcomponent is based on three main axes:

- i) Promote a broad training program in agricultural and non-agricultural activities that generate greater employment and income opportunities,
- ii) Implement a program to revalue life in the countryside through communication activities,
- iii) Promote the formation of Youth Networks and debates on issues relevant to the development of rural youth.

### Focus on Nutrition

In order to improve food security, nutritional status and increase the adoption of healthy eating practices by the Project, this PROCASE II subcomponent will implement a strategy centered on food and nutrition education training. There will be 3 lines of action:

- Raising awareness of good nutrition and health practices (reproductive health, maternal health and child health), in particular to improve the nutritional and health status of women and children;
- Raising awareness of the food culture, healthy eating, which in particular includes the Neglected and Underutilized Species (NUS) of the target territories; and
- Training vulnerable communities in the processing of healthy local products in order to increase their daily consumption in a sustainable way and foster the empowerment of vulnerable communities, valuing local food culture.

### ***Planned actions and products***

- Gender and Diversity Plan: The Gender and Diversity Plan will be drawn up in the first few months of project implementation by the PMU's Gender and Diversity specialist with the support of a specific consultancy hired to detail the general strategy and implementation methodology for all activities related to gender equity and women's empowerment, as well as the inclusion of PCTs, people with disabilities and LGBTQIAPN+. The activities set out in the Gender Plan should include:
  1. Modular training in Gender and Diversity for project and TA teams
  2. Gender and diversity training for the project's direct beneficiaries
  3. Implementation of the Agroecological Logbook Methodology
  4. Training cirandeira(o)s

5. Childcare/education activities that allow women to participate in the project's activities
6. Thematic diversity meetings (aimed at people with disabilities and LGBTQIAPN+)
  - Youth Plan: A Youth Plan will be drawn up in the first few months of project implementation by the PMU's Youth specialist to detail the general strategy and implementation methodology for all the activities in this subcomponent related to the socio-economic and political empowerment of young people. At least the following cross-cutting activities will be developed for rural youth in the Project area:
7. Vocational training in agricultural and non-agricultural activities
8. Training Young Communicators
9. Thematic meetings with young people and the formation of Rural Youth Networks
  - Plan to Strengthen Traditional Peoples and Communities (PCTs): A Plan to Strengthen Traditional Peoples and Communities will be drawn up in the first few months of project implementation.
10. Strengthening PCT Networks
11. PCT Policy Integration Fairs
  - Nutrition and Food Safety Plan: A Nutrition and Food Safety Plan will be drawn up in the first few months of project implementation.
12. Nutrition education initiative to improve nutrition and maternal and child health in the project's most vulnerable communities
13. Training events on food culture and food processing to enhance local products with a view to improving nutrition and facilitating the empowerment of women and young people
14. Raising awareness of nutrition, health and food culture among students at the Integral Citizen Schools
  - Local Development Agents (ADL): The project will hire a foundation, which will be responsible for hiring Local Development Agents (ADLs), who are young people from the communities themselves, hired by PROCASE II to carry out tasks such as mobilizing communities and organizations to actively engage in the project. In addition to mobilization, the ADLs will have to play an important role in managing the agreements made by the community associations, supporting the holding of tenders, updating financial information, monitoring the investments made, rendering accounts and keeping the associations fiscally regular. One young person will be hired per Resilient Investment Plan, which in turn serves 3 communities. The young ADLs will receive a series of training courses to develop their skills. By playing the role of ADL, it is hoped that the young people selected will be able to gain experience in leadership and management, becoming references in the communities they represent and continuing to support them even after the end of the Project. The ADLs will also play a key role in supporting the implementation of cross-cutting activities, such as gender, diversity and youth, as well as in communication between the communities, the Project, and the TA teams.

#### **Subcomponent 2.4. Land and Environmental Regularization**

The aim of this subcomponent is to strengthen the family units served, making the production base more secure by supporting land and environmental regularization.



## Actions planned

To achieve this goal, actions will be implemented to support land and environmental regularization.

- Support for land and environmental regularization: Seeking to provide solutions to the problem of a large number of family units in Paraíba that do not have complete legal documentation or formal recognition of these properties, the project aims to implement a land regularization and environmental registration initiative.

### 15. Choice of communities/properties to be benefited

- Implementing the regularization roadmaps: EMPAER's previous experience has allowed it to define a roadmap or sequence of steps that must be taken for a rural property to be regularized. It is this roadmap, which covers both the land ownership and environmental registration dimensions, that forms the methodological backbone of the Project's regularization initiative.

It should be noted that the route to be taken by each property to be regularized is slightly different depending on the starting situation of each property, in which case there are two possible initial scenarios: i) Properties with public deeds - areas of ownership and ii) Properties without public deeds - areas of possession. Both routes are similar, with the one for possession areas having a few additional steps. The roadmaps are presented in more detail in the table below.

**Table 2 - Roadmaps for land regularization and environmental registration**

Initial phase: Mobilization and dissemination action, in which the initiative is presented and explained to the beneficiary public, with the aim of identifying/confirming the family units or communities interested in participating and that meet the prioritization criteria (areas without litigation, quilombolas, settlers, PA with less than 25 ha, etc). Once the potential participants have been identified, the following activity guides are applied.	
<b>Activities roadmap (i): Domain areas</b>	<b>Activities roadmap (ii) - Ownership areas</b>
1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).	2 - Georeferencing rural property.
2 - Georeferencing rural property.	2 - Georeferencing rural property.
3 - Georeferencing inspection: 100% done by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).	3 - Georeferencing inspection: 100% done by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).
4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages	4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages
5 - Creation or updating of the registration code in the National Rural Registration System (with issuance of the CCIR ) <sup>1</sup>	5 - Creation or updating of a registration code in the National Rural Registration System (with issuance of the CCIR)
6 - Approval by the agency (INCRA/EMPAER) of the geo-referenced parcel/property in the Land Management System (SIGEF), which allows technical	6 - Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows technical

<sup>1</sup> CCIR is the Rural Property Registration Certificate, which is issued by INCRA via the Rural Registration System.

<p>parts (plans and descriptive memorials) of the property to be generated. The delivery of these technical documents certifies the regularization of land ownership, which is georeferencing (in script (i) for ownership areas).</p>	<p>documents (plans and descriptive memorials) to be generated for the property. As this is land is under public ownership, the documentation is issued in the name of the state at this stage. The delivery of these documents concludes the first stage of land regularization, which is georeferencing.</p>
	<p>6.1 - Delivery of the plan and description memorial to the notary's office, for the creation of the registration and collection of the wasteland.</p>
	<p>6.2 - Discriminatory committee review</p>
	<p>6.3 - Updating the technical documents, which will then be in the name of the beneficiary squatter, and drawing up a definitive property title in their name (or that of the community in the case of collective land).</p>
	<p>6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).</p>
<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>	<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>
<p>8 - Drawing up the domain recognition title</p>	<p>8 - When stage 6.4 of the notary's office is completed, the property is fit and up-to-date. With the above steps completed, the property's documentation is fully regularized and ready to be handed over to the beneficiary (individual or collective).</p>
<p>9 - The property is ready and up to date. Once the above steps have been completed, the property is ready, with recognition of ownership. The technical documents can be sent to the notary's office for registration of the area. A new, updated certificate can then be issued.</p>	

It is hoped that approximately 5,000 properties (covering around 100,000 hectares) will be able to follow this route with the project, until the desired regularization is achieved. It should be made clear that in agrarian reform settlements (federal or state) and in the municipalities served by EMPAER, title will be granted individually, per beneficiary family. In the case of quilombola communities, the title will be collective, as per current legal requirements, covering the entire georeferenced polygon and in the name of the duly registered residents' associations.

The land and environmental regularization initiative will assist approximately 5,000 rural properties and families, 40% of which will be quilombola communities and federal and state settlements.

### **Subcomponent 2.5. Knowledge Management and South-South and Triangular Cooperation**

Subcomponent 2.5 will develop and implement a knowledge management process capable of generating, recording, sharing and using knowledge generated in the Project. It will also seek to feed the project implementation process with relevant information and knowledge. Knowledge will be made available at different geographical scales: among project participants (at community and territorial level), at state level, in the Northeast region and in other developing countries (via CSST), and to different target audiences: beneficiaries, Implementing Partners and service providers, the project team, government entities and others. The objectives will be refined during the preparation of the Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC) plan.

#### ***Planned activities***

- **CG and TSSC plan:** This plan will define the detailed objective of the KM and TSSC activities, the products developed for each target group, the distribution channels, among others. PROCASE II will be able to draw on a wide range of resources, products and experiences from other initiatives and projects, including lessons learned from PROCASE I. Therefore, PROCASE II's KM and SSTC activities should avoid duplicating existing material while at the same time utilizing this material in project activities, such as capacity building and training. The main activities and products include:
  - Systematization of experiences, good practices and results and Studies of interest to the Project on specialized topics
  - Communication and Dissemination in Knowledge Management
  - South-South and Triangular Cooperation Actions

Under this subcomponent, 25 systematizations and studies on Knowledge Management will be carried out, 6 annual communication and dissemination phases and 10 South-South Cooperation exchange events.

### **Project Management, Monitoring and Evaluation**

The aim of this component is to create an efficient mechanism for managing and controlling the activities implemented by the Project, allowing them to be fully implemented in line with the Project's objectives, as well as guaranteeing the implementation of the Annual Operational Plans (POA).

It also aims to introduce technological innovations to ensure the monitoring and evaluation of activities, the recording and systematization of Knowledge Management, as well as enabling transparent communication between stakeholders, including knowledge exchange actions.

To meet these objectives, the component will implement 2 sub-components, as follows.

## **Project Management**

It will make it possible to support the Project Management Unit (PMU)<sup>2</sup>, by implementing instruments to strengthen: i) Management; ii) Administration; iii) Technical operational capacity; iv) Procurement processes (tenders and contracts); v) Financial management and, vi) safeguards. This support should facilitate compliance with the contractual clauses of the Loan Agreement.

As a Management Sub-component, its activities converge to comply with IDB and IFAD Guidelines and Policies for financing, such as the specific procedures for: i) tenders and contracts; ii) requests for disbursements and rendering of accounts for the resources contributed, executed and/or committed; and iii) supervision of the implementation of community initiatives, ensuring compliance with environmental and social safeguards, procurement and financial management requirements, including rendering of accounts by beneficiaries.

### ***Product - Project management support***

**Main products:** Project Management Unit operational for 6 years

## **Monitoring and Evaluation (M&E)**

The project will set up a Planning, Monitoring, Evaluation and Systematization (PMAS) system for its activities and results, which will be an essential management tool, enabling planning and monitoring of the project's execution, as well as actions to ensure digital inclusion.

### ***Product - Monitoring system***

The project will implement an information management system, where data collected in the field will flow to the PMU. For better organization, a computer system will be developed based on those used in Procace - phase 1, to monitor all the activities to be carried out.

**Main products:** M&E systems developed

### ***Product - Impact assessment studies***

The impact assessment will provide information on whether the project was able to achieve the results set out in the objective, as well as recording the impacts on improving the lives of the target population, such as nutrition, income, production methods, among others.

The research will use the difference-in-differences method, and will therefore be carried out on 2 groups, the treatment (a sample of Project beneficiaries) and the control (non-beneficiaries, but who have a similar profile to the treatment group), with field research being carried out at 3 different points in time: i) Baseline, which will provide information on family composition, production, income, etc. of project beneficiaries for later comparison with subsequent studies; ii) Mid-term, which will be carried out between years 3 and 4 of the Project, i.e. halfway through its implementation; and iii) Final Impact

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<sup>2</sup> The PMU was formally created by Decree No. 44.934 of April 15, 2024, which provides for the Unit and defines the Basic Structure for managing the Paraíba Sustainable Rural Development Project - PROCASE II.

Assessment, which will be carried out during the last year of the Project's implementation, on the same group surveyed in the previous stages.

**Main products:** Baseline, mid-term and impact research carried out

***Product - Systematization of experiences***

The project will also systematize the innovations, both in terms of processes and activities, highlighting their importance and results. These products will be used by the project team and state officials, as well as in other regions of the northeastern semi-arid region and similar areas, and could support the adoption of other public policies in the Northeast.

**Main products:** 50 systematizations carried out

### **3 MAIN IMPACTS AND MITIGATION MEASURES**

The PGASE Matrix listing the impacts and associated mitigation measures, as well as other relevant information, is presented below.

**Table 3 - Matrix of Impacts and Measures**

ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
1	<b>Generating expectations in the population about the project</b>	Circulation of unofficial or incomplete information about the project	-It is considered that this impact cannot be avoided, to some degree people will always expect it. - Critical evaluation of social communication actions and the Engagement Plan, with emphasis on the application of measures already taken or the implementation of new communication actions	-Social Communication actions provided for in the Communication, Consultation and Stakeholder Engagement Plan, described in the ESMP, which must be adopted even before the start of the works to inform the public and the population about the project, as well as relevant issues arising from its implementation and operation. These actions must be sustained throughout the project's life cycle	Stakeholder Communication, Consultation and Engagement Program	PMU	TBDTBD	TBDTBD	TBDTBD
2	<b>Changes in water quality affecting aquatic habitats and water resources due to soil and other materials being carried into nearby rivers (from construction activities)</b>	Movement and handling of soils in agricultural activities and earthworks, cut and fill.  Exposed soils	- Contaminating materials handled at project sites must be stored in appropriate locations. -Productive systems must be set up respecting the local topography and geology, including strengthening the soil and following contour lines in agriculture. -The use of chemical inputs such as pesticides should be well managed according to best practices and existing technical standards to minimize pollution. . -If contaminating material leaks, rapid action measures must be taken using sawdust or other material to contain and prevent the leak from spreading, and the material used (considered contaminated) must then be disposed of properly (as per existing technical standards and regulations). -In the event of erosion, the soil should be rectified, and the siltation of downstream water bodies monitored. -If areas of degradation are identified (for example, a water channel with silting or chemical products), actions should be taken to rehabilitate the areas, such as: cleaning channels, desilting, removing contaminated soil, scraping concrete cream, among others options e.g. bioremediation). -There are no problems, however - any problems that may breach environmental licenses must be reported to the environmental agency, also showing what measures have been taken to correct the problem identified, as well as the improvements to the environmental and social management system that have been implemented to prevent such situations from recurring. In this case, the environmental agency may impose fines and additional compensation - which must be duly complied with.	-	Water quality control program	PMU	TBD	TBD	TBD

ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
3	Contamination of soil and water resources - from civil works.	Production of unserviceable soil from excavation, unused inputs and materials and leftover materials from civil works with inadequate waste disposal	<ul style="list-style-type: none"> <li>-This impact cannot be avoided, as waste will always be generated.</li> <li>-Waste must be sorted, as set out in the PGASE, in order to provide for the sorting of waste between the different classes, and also which waste requires exclusive separation;</li> <li>-After sorting, packaging must be carried out to ensure that the waste is separated, as planned in the segregation stage, and to facilitate transportation from the construction site to treatment and disposal;</li> <li>-For transport, logistics must be drawn up, providing adequate access, timetables and control of entry and exit of the vehicles that will remove the properly packaged waste, in order to combat the excessive accumulation of waste, improving local organization;</li> <li>-Finally, waste treatment should involve actions aimed at reducing the quantity or polluting potential of solid waste, either by preventing the disposal of waste in an inappropriate place or by transforming it into inert material.</li> <li>-In the event of inappropriate waste disposal, debris and waste must be removed immediately and properly disposed of in licensed landfills and treatment centers.</li> </ul>	-	Waste management program for the installation of structures	PMU	TBD	TBD	TBD
4	People being hit by cars	Circulation of project vehicles on the roads used by the population between their origin and destination.	<ul style="list-style-type: none"> <li>-Overt daytime and nighttime signage;</li> <li>-Speed control;</li> <li>-Defensive driving and good driving practices courses for drivers and machine operators (project implementation teams - TA, contractors, UGP/Procasa); All drivers must receive defensive driving training</li> <li>-Fencing and restricting access to areas where work is being carried out, where appropriate.</li> <li>-All drivers must have knowledge of first aid and how to call emergency services in the event of accidents (project implementation teams - TA, contractors, UGP/Procasa).</li> <li>-.</li> </ul>	-	Traffic Program  Stakeholder Communication, Consultation and Engagement Plan	PMU	TBD	TBD	TBD
5	Proliferation of vector-borne diseases	Accumulation of water in poorly drained areas  presence of organic matter, such as workers' food waste, which favors the development of micro and macro vectors	<ul style="list-style-type: none"> <li>-Drainage of water accumulated on the surface;</li> <li>-Cleaning the workplace;</li> <li>-Disease and vector monitoring and control.</li> <li>-Lectures should be given to workers/producers.</li> <li>-In the event of the formation of areas with environments conducive to the proliferation of vectors, the area must be rehabilitated by removing the environment and/or implementing suitable systems to prevent the proliferation of vectors.</li> <li>-In the event of endemic situations being identified, a process should be initiated to assess the health of producers/workers in order to identify and refer the sick to appropriate treatment.</li> </ul>	-	Disease Vector Control Program	PMU	TBD	TBD	TBD
6	Accidents at work	Agricultural activities with hazardous levels and associated risks (use of cutting tools, handling of species and animals, risk of being run over on roads, etc.)	<ul style="list-style-type: none"> <li>-Workers/producers should receive adequate information and training on health and safety at work;</li> <li>-Prophylactic and reinforcement actions, such as safety dialogues, must be observed;</li> <li>-All workers/producers must be provided with personal protection equipment (PPE), trained in its proper use and charged for its use;</li> <li>-The appropriate New Regulations for the jobs to be performed by the workers must be observed.</li> <li>-Any accident, depending on the degree of seriousness, must stop the activity so that attention can be paid to the occurrence;</li> <li>-It is important that each community has a plan of action (what to do, what not to do, who to warn, where to take the injured) to reduce reaction times.</li> </ul>	-	Labor Management Plan	PMU	TBD	TBD	TBD
7	Increase in gender-based violence	Presence and movement of people (workers) not belonging to the community	<ul style="list-style-type: none"> <li>-Project workers must be made aware by the PMU and contractors of this impact, and must also receive guidance on the set of rules that must be followed when dealing with the community in general (code of conduct) and specifically on the issue of sexual harassment and abuse, as well as violence.</li> <li>-It must be made clear to everyone that no attitude will be tolerated and that inaction by managers will be punished, including the possible dismissal of the worker(s) involved.</li> <li>-Measures to care for and protect victims.</li> <li>-Actions to restore the emotional state and health of the victims;</li> <li>-Assessment of cases of harassment or violence with corrective or punitive measures when necessary.</li> </ul>	-	Gender Violence Prevention and Care Program	PMU	TBD	TBD	TBD

ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
8	<b>Proliferation of new pests due to climate change.</b>	Implementation of production projects associated with altering the cycles of temperature, humidity, rainfall and other climate factors, providing better environments for the uncontrolled reproduction of pests.	<ul style="list-style-type: none"> <li>-The controls indicated in the PIR Investment Plans must be applied.</li> <li>-Periodic monitoring of the appearance of herbivorous insects or plant diseases should be carried out in the project implementation areas (PIR).</li> <li>-If pests are found, measures should be taken using technical guidelines. Agroecological practices based on the manufacture and use of bio-slurries, antagonistic or companion plants or biocontrol agents will be disseminated.</li> <li>-diseased or pest-infested materials should be discarded so as not to spread the pest to other natural areas and/or crops.</li> <li>-In the event of pest proliferation, measures must be taken to control dispersal and isolate contaminated crops;</li> <li>In addition, sanitary measures must be taken to combat pests and normalize the agro-ecological balance.</li> </ul>	-	Disaster and Climate Change Risk Management Plan	PMU	TBD	TBD	TBD
9	<b>Non-adherence to project design and objectives.</b>	Distorted information or misunderstanding on the part of the community about possible administrative procedures (red-tape), requirements and practices required for participation in the Project	<ul style="list-style-type: none"> <li>-It is considered that this impact cannot be avoided, and that to some degree it may occur.</li> <li>-Apply actions and measures to clarify and raise awareness among the community</li> <li>-Critical evaluation of social communication actions and the Engagement Plan, with emphasis on the application of measures already carried out or the implementation of new communication actions</li> </ul>	-Social Communication Actions of the Stakeholder Engagement Plan that should be adopted even before the start of the projects to inform the public and the benefited population about the project, as well as relevant issues arising from its implementation and operation	Stakeholder Communication, Consultation and Engagement Program	PMU	TBD	TBD	TBD
10	<b>Engaging the communities covered by the project in better agro-ecological practices</b>	Understanding and convergence of communities to the Project's practices	This impact is positive	-Public consultations and participatory planning meetings	Stakeholder Communication, Consultation and Engagement Program	PMU	TBD	TBD	TBD
11	<b>Loss of production, production systems and/or equipment due to climatic events, mainly related to excess or lack of rainfall.</b>	Unexpected extreme weather events	<ul style="list-style-type: none"> <li>-When planning areas for cultivation or the installation of structures, suitable location options and construction and installation methods should be studied, avoiding areas that are more prone to flooding or have unstable terrain.</li> <li>-The need for access to water and its adequate storage for periods of drought must be observed.</li> <li>-ATER should be involved to help with the processes of choosing areas and managing resources and the land, which could bring new perspectives and technical training.</li> <li>-It is recommended that an Action Plan be drawn up in the event of situations that threaten production and/or structures, so that in the event of climatic events, communities are aware of what can be done to minimize this impact.</li> </ul>	-	Disaster and Climate Change Risk Management Plan	PMU	TBD	TBD	TBD
12	<b>Soil improvement</b>	Community adherence to best practices and solutions on agricultural organic waste with use of plant waste from mowing, pruning, trimming or thinning as mulch to protect plants and conserve soil moisture, increasing the organic matter content in the soil	This impact is positive	-	Production Waste Management Plan	PMU	TBD	TBD	TBD
13	<b>Soil and water pollution (surface and/or groundwater) - from the operation of production systems</b>	Inadequate disposal of packaging, including pesticide packaging	<ul style="list-style-type: none"> <li>-One of the main actions is related to proper communication, indicating the need to dispose of waste and packaging properly.</li> <li>In the case of pesticide packaging, TA should be involved to discuss best practices, including taking the opportunity to discuss the harm that pesticides can cause, how to store them properly, the need to triple-wash the packaging, its destruction and delivery to appropriate collection points.</li> <li>-One of the project's actions involves reducing the use of chemical pesticides and switching to natural pesticides, which will help to reduce part of this impact.</li> <li>-It is suggested that monitoring be carried out in communities to check whether or not packaging is being disposed of inappropriately.</li> </ul>	-It is recommended that appropriate communication and environmental and health education present a range of information about common contaminants in plantations and production, as well as their effect on biota and people's health, to raise awareness and	Production Waste Management Plan Contaminating Products Management and Control Plan	PMU	TBD	TBD	TBD



ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
		<p>Inadequate disposal of bagasse and other solids from production and processing</p> <p>Use of restricted, prohibited and banned products - Stockholm Convention</p> <p>Accidental spillage of chemical inputs or discharge of untreated effluent</p>	<p>-It is important that contaminating effluents are not directed to the sewage treatment system, as these structures are not prepared for this.</p> <p>Oily effluents should not be mixed with non-oily effluents and should be disposed of appropriately, possibly being used for the production of handmade soap that can be used by the community.</p> <p>-Enforcement actions should also be carried out in conjunction with other official bodies and the monitoring of production. In general, it is recommended that the actions are always educational in nature, so as not to create an atmosphere of mistrust between the community and the TA technicians, which has the potential to affect the project.</p> <p>-All chemicals/hazardous products must be stored properly, in environments that can contain leaks.</p> <p>-The filling of machinery and equipment with diesel or other fuel must be carried out properly, in waterproofed places or using safety trays, avoiding contact with the ground.</p> <p>-Any spillage should be cleaned up, simple actions such as using sawdust or sand, which should be properly packed afterwards, can help in the cleaning process.</p> <p>-Under no circumstances should contaminating effluents be discharged directly onto the ground or into watercourses.</p> <p>-ATER's work is important to show communities the viable alternatives for disposing of waste properly, according to its nature.</p> <p>-If packaging is still being improperly disposed it is important that the community is mobilized, as far as possible, to take action such as collecting packaging that has been thrown into the environment. Such action can help spread best practices, reducing this impact.</p> <p>It is important to segregate waste in kitchens and processing areas, avoiding, for example, putting organic waste together with material that can be recycled (plastics, long-life packaging, etc.).</p> <p>-Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.</p> <p>-For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizer, natural pesticides, among others.</p>	educate communities on how to deal with each contaminant appropriately.	<p>Stakeholder Communication, Consultation and Engagement Program</p> <p>Environmental and Health Education Program</p>				
14	Increased GHG emissions from the use of combustion engines and/or the burning of wood or garbage	Usual practices of burning crop residues (branches, garbage, etc.)	<p>-Monitoring actions are recommended in the communities to check the engines, which must be properly regulated, using the Ringelmann Scale for control (less than or equal to standard no. 2 - 40%), in the operating phase it applies to diesel generators.</p> <p>- If the equipment is not up to standard, it must be adjusted and maintained.</p>	<p>-One of the main actions is related to appropriate communication, aimed at reducing gas emissions and abandoning flaring actions.</p>	<p>Energy Efficiency Plan for Projects and Facilities</p> <p>Stakeholder Communication, Consultation and Engagement Program</p>	PMU	TBD	TBD	TBD
15	Pressure on natural areas and habitats	<p>Increased suppression of vegetation</p> <p>expansion of planting areas not foreseen in the project and in non-sustainable systems</p> <p>greater demand for water using local sources for production or irrigation</p>	<p>-The project should monitor these situations to identify the main problems and define the best actions to take, including taking into account the possible need for extensions.</p> <p>-ATER teams should be involved in helping communities to find the best solutions to the needs and demands that may arise.</p> <p>-It is also important to raise awareness that indiscriminate actions in natural environments can be classified as environmental crimes.</p> <p>-In the event of situations that damage natural environments or cause imbalances, solutions should be applied together with the communities. Such situations should be used to show the problems that can be triggered.</p> <p>-Recovery of natural environments affected indiscriminately and not foreseen by developments related to project implementation actions</p>	<p>-There must be good communication with the communities, with actions to promote the preservation of natural environments, care for water, interaction of agroforestry systems with the natural surroundings, among others.</p>	<p>Management plan, protection and restoration of natural habitats</p> <p>Stakeholder Communication, Consultation and Engagement Program</p>	PMU	TBD	TBD	TBD
16	Changes in gene flow altering the pattern of production and ecosystems in such a	Movement of people between areas where unwanted species are present	<p>-Seedlings and seeds purchased for planting in the SAF should be obtained from nurseries with a RENASEM certificate, accredited farmhouses or research centers. TA technicians should guide this process.</p>	<p>-One of the main actions is related to appropriate communication, indicating</p>	Management plan, protection and restoration	PMU	TBD	TBD	TBD

ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
	way as to promote loss and resilience of ecosystems and production systems .	Insertion of invasive exotic species when planting reforestation seedlings and for production Compromised sanitary status of seeds, seedlings and animal germplasm.	-The management of fauna species, such as bees, also requires care to avoid unwanted proliferation in the event of the species escaping.	the need to be careful with the insertion of invasive exotic species or pests, which can jeopardize the entire production or the SAF, generating great losses for the communities and the environment.	of natural habitats Stakeholder Communication, Consultation and Engagement Program				
17	Increased gender-based violence due to women's greater engagement	Women's economic and social empowerment giving greater prominence to gender in the community	-It is recommended that the complaints management program provide a channel aimed at supporting and gathering information on situations of violence, and that PROCASE II should not be limited to informing other official channels. -On the other hand, official channels should be disclosed whenever possible as part of the project's communications. -It is important that a survey is carried out so that regions and/or communities where there is a greater possibility of violence can be mapped. -There should be monitoring and channels that women can use to report situations of violence. All complaints must be taken seriously and investigated.	-The project should promote actions to promote gender equality, highlighting rights and inclusiveness linked to communication actions.	Prevention and care of gender-based violence	PMU	TBD	TBD	TBD
18	Improving environmental quality and ecosystem flows by restoring modified habitats and forming ecological corridors	Implementing reforestation projects and agro-ecological systems	This impact is positive	-	Management plan, protection and restoration of natural habitats	PMU	TBD	TBD	TBD
19	Interruption of services due to lack of energy , water, telephony, internet	Unplanned power outage and/or interruption of other essential services	-Systems that use more efficient and safer energy sources; -Maintenance of local supply systems, including pruning trees when necessary, especially before rainy periods or strong gusts of wind. -Restoring the supply of essential services by liaising with the concessionaire or public body, and supporting the re-establishment of these services	-	Plan for energy efficiency and sustainable sources for energy generation in projects and facilities Program to Control and Mitigate Temporary Social and Economic Impacts	PMU	TBD	TBD	TBD
20	Security and reduction of costs with the implementation of energy generation and supply infrastructure independent of the public system and based on renewable and available sources	The use of photovoltaics to supply electricity.	-Seeking out national suppliers and making it possible to monitor the supply chain whenever possible; -Monitoring and investigating the supply chain to find evidence to ensure greater certainty about the integrity and behavior of suppliers; -Apply a code of conduct and declaration of commitment to suppliers in the supply chain, including clauses on human rights and the fight against child labor or labor analogous to slavery (modern slavery). If impact-related situations are identified, human rights protection measures for workers and punitive/corrective measures for employers must be applied.	-	Plan for energy efficiency and sustainable sources for energy generation in projects and facilities	PMU	TBD	TBD	TBD
21	Access to adequate sanitation in communities	Implementation and operation of adequate sanitation systems	This impact is positive	-	Water and effluent quality monitoring program	PMU	TBD	TBD	TBD
22	Increased security and stability in people's lives by increasing resilience to the risks of disasters and climate change, improving quality of life and increasing income, adding value to the production chain, access to the market and the efficiency of production processes.	Achievement of the results defined in the Project with the implementation and operation of the systems and Plans	This impact is positive	-Publicizing the positive results of the project	Stakeholder Communication, Consultation and Engagement Program	PMU	TBD	TBD	TBD

ID	Environmental and social impacts	Impacting Cause / Action	Main Mitigation Actions	Consultation and Engagement Activity	Main Plans or Programs of the Associated ESMP	Responsible for implementation in the institution	Means of Verification for Monitoring	Verification frequency	Estimated Cost
23	Increased spending by families due to the need to pay fees to access the Association's resources from the Project (such as maintenance fees for the sanitation system or industrial kitchens), which can have a significant effect on low-income family budgets, affecting their budgetary capacity and even causing the Project to run out of steam.	The need for financial resources to fund the operation and maintenance of systems and associations.	-	-Consultation and participatory planning meetings	Stakeholder Communication, Consultation and Engagement Program	PMU	TBD	TBD	TBD
24	Alteration or destruction of paleontological sites	Implementation of social technology associated with stone tanks or excavation in areas with high potential for the presence of cultural sites	-Assessment by a qualified professional of the presence of cultural sites in areas with significant potential -Rescue of remains or scientific information from the sites (as per existing national laws). -Evaluation of alternative sites that do not affect the cultural site	- Cultural Heritage and Fortuitous Finds Protection Program	-	PMU	TBD	TBD	TBD

#### 4 ENVIRONMENTAL AND SOCIAL PLANS AND PROGRAMS

The guidelines, procedures, objectives and scopes of the PGASE Socio-Environmental Programs are presented and detailed below, with the aim of complying with the IDB and IFAD Safeguard Policies, local legislation and best practices in impact mitigation, prevention and monitoring.

It is important to clarify that the defined impact mitigation measures are translated into actions established in the Environmental and Social Plans and Programs of this ESMP. In turn, it is worth establishing the definition between plan and program as follows:

- **Plan:** more comprehensive and general; includes strategies and guidelines; establishes a reference framework for sectoral and/or regional studies to support the development of specific programs and projects; offers a higher level of aggregation of decisions.
- **Program:** can be the unfolding of a plan; allows for more detailed projections; must contain the strategy and work dynamics to be adopted to carry out the program; includes the activities and projects that will make up the program.

The following table summarizes all the measures defined, specifying where they apply:

**Table 4 - Measures Adopted for Mitigation in Productive Plans**

	Plan / Program	Sub-projects	Target audience and those responsible
1.	Screening, classification and project scope	All Subprojects	Responsible: PMU and TA
2.	Monitoring and evaluation	All Subprojects	Responsible: PMU and TA, some indicators could be catalogued by construction companies.
3.	Disaster and Climate Change Risk Management Plan/Targeted Adaptation Assessment	All Subprojects (can be drawn up by set of actions for PROCASE II)	Responsible: PMU, TA and related government bodies/institutions. Target audience: all actors and stakeholders
4.	Waste Management Program for the implementation of structures and production processes	Sub-projects involving: - Food processing/production that generates packaging and waste - Civil works	Responsible: (i) PMU, TA, construction companies; (ii) rural producer for end activity waste.
5.	Water and Effluent Quality Monitoring and Control Program	Sub-projects involving: - Sanitary sewage and water reuse structures - Civil works	Responsible: PMU, TA and construction companies
6.	Biodiversity management, protection and restoration plan	Sub-projects that are within or in the immediate vicinity (up to 2km) of a Fully Protected Conservation Unit, permanent preservation areas (APP) or Critical Habitat	Responsible: (i) PMU, TA; (ii) rural producers to prevent the spread of unwanted species and support monitoring
7.	Stakeholder Communication, Consultation and Engagement Program and MQR	All Subprojects	Responsible: PMU and TA Target audience: all actors and stakeholders
8.	Environmental and Health Education Program	All Subprojects	Responsible: PMU and TA Target audience: rural producers
9.	Plan for energy efficiency and sustainable sources for energy generation in projects and facilities	Sub-projects involving building structures or machinery/equipment for production	Responsible: PMU and TA Target audience: farmers and construction companies

	Plan / Program	Sub-projects	Target audience and those responsible
10.	Contaminating Products Management and Control Plan	Sub-projects involving: - Sanitation structures that require the handling of chemical products in treatment; - Production processes that could generate contaminating waste or encourage the use of non-permitted products	Responsible: PMU and ATER Target audience: rural producers
11.	Traffic control Program	All sub-projects with actions specifically aimed at the implementation team (PMU, TA, construction company)	Responsible: PMU, TA and construction company Target audience: workers from the PMU, TA and the construction company
12.	Labor Management Plan	All sub-projects with differentiated actions for the implementation team (PMU, TA, construction company) and rural producers	Responsible: (i) PMU, TA and construction company; (ii) rural producer, with specific measures Target audience: all workers involved in the project
13.	Program to Control and Mitigate Temporary Social and Economic Impacts	Sub-projects involving civil works	Responsible: PMU, TA and construction company Target audience: benefited and/or affected communities
14.	Gender Violence Prevention and Care Program	All Subprojects	Responsible: PMU, TA and construction company Target audience: all actors and stakeholders
15.	Program to Mitigate Impacts on Traditional Communities	Sub-projects implemented in traditional communities	Responsible: PMU and TA Target audience: Protection agencies, benefited and/or affected traditional communities
16.	Vector, Disease and Pest Control Program	All sub-projects involving: - Civil works; - Sanitary sewage structures - Agriculture and livestock systems that may suffer or influence the dispersal of vectors	Responsible: PMU, TA and construction company Target audience: benefited and/or affected communities
17.	Cultural Heritage and Fortuitous Finds Protection Program	Sub-projects involving social technologies associated with stone tanks or activities requiring excavation in the region of high paleontological potential For all sub-projects, fortuitous finding actions must be applied	Responsible: PMU and TA Target audience: Heritage protection bodies, the community and project workers.

Source: Consulting, 2024

As can be seen in the table above, there are particularities that apply to certain actions or sub-projects that will involve different actors in their implementation. It should be noted, therefore, that the Plans and Programs that make up the impact mitigation and control measures have been consolidated into two blocks according to the profile/public that will be responsible or that the requirement falls on. This strategy was adopted since PROCASE II has a beneficiary profile that will also be active in implementing the actions set out in the project, which is the rural producer. The other block of profile/public that will have to apply or follow the guidelines is made up of: employees and people in charge of the PMU/borrower or executing agency, employees and people in charge of the TA contracted to implement the actions envisaged in the Project, and other companies and consultancies contracted to implement structures/works such as social technologies.

Thus, the Plans and Programs cover Management Measures, Measures for the Physical Environment, Measures for the Biotic Environment and Measures for the Socioeconomic and Cultural Environment, and are presented below in two main blocks:

- Measures applied to rural producers because of the implementation of actions provided for in the PIRs;
- Measures applied to workers and those responsible for the executing agency and companies contracted to implement the subprojects (UGP, TA and construction companies).

## 5 DESCRIPTION OF THE MEASURES APPLIED TO THE EXECUTING AGENCY AND CONTRACTORS

### 5.1 Screening, Classification and Scoping Measures for Subprojects

The environmental and social management of projects and works requires that instruments and processes be determined so that the actions defined to meet environmental and social requirements are guaranteed and are supervised and corrected when necessary.

For the environmental and social management of projects, we first considered the classification of projects and works according to their respective characteristics. Distinct characteristics are therefore highlighted, which will be taken into account when defining management instruments according to their size and the way they influence the environment and society. The criteria established are presented below.

**Responsible:** TA will be responsible for applying the screening tool to define the scope, and the PMU will be responsible for implementing this process with TA and managing and consolidating the results.

A preliminary analysis is carried out at the preliminary design stage, i.e. it should be started based on a conceptual study or, at the latest, at the stage of drawing up a preliminary sub-project. This assessment should point out sensitive environmental and social issues, eliminating situations that make the project ineligible and a ranking using established criteria. According to the IDB's MPAS, all financed operations must be pre-assessed and classified according to their potential socio-environmental impacts, using 3 categories to classify operations according to their environmental and social risk:

- **Category A:** Operations that may cause significant negative environmental or social impacts or have profound implications affecting natural resources.
- **Category B:** Operations that have the potential to cause mainly local and short-term negative environmental or social impacts and whose effective mitigation measures are known and readily available.
- **Category C:** Operations likely to cause minimal or no environmental or social impacts.

The PROCASE II classification is **Category B**, so no work within the scope of the Project can be classified higher than **Category B** without the IDB and IFAD boards being consulted for further instructions and the possibility of eligibility. The classification of the works will be assessed through a Preliminary Environmental and Social Analysis to be carried out by the PMU and TA team contracted for each Subproject, followed by an impact assessment process and the establishment of a management and mitigation plan, which will then be submitted to the IDB and IFAD for a no-objection analysis.

The category of sub-projects will be indicated according to their level of risk, involving an assessment of environmental, social, land, etc. risks, obviously considering the environment, its aspects and conditioning factors in which the project is inserted.

### 5.1.1 Environmental and Social Analysis

The environmental and social analysis system includes a preliminary assessment phase for subprojects involving a practical tool to be carried out by the TA team with guidance from the PMU during the subproject design phase (preliminary project). It is important to emphasize that no Subproject, or set of Subprojects, should be implemented without first undergoing the Environmental and Social Analysis recommended in this item.

Identifying the environmental and social risks and negative impacts of each Subproject (or set of Subprojects) covers the most important aspects for defining both the Impact Assessment and the Environmental and Social Management Plan. A Screening Worksheet should be completed by the technical team responsible for developing the Subproject as a preliminary stage of the assessment. This approach ensures that environmental and social safeguards are an integral part of each Subproject and are fully understood by the technical teams developing and supporting its implementation. By working on the development of the Subproject and the safeguards simultaneously, a "dialog" between the two processes is facilitated: the impacts and risks identified can be addressed with prior measures and design alternatives avoiding impacts or anticipating their mitigation.

**Conceptualization of Subprojects and Sets of Subprojects:** The tool can be applied either to a single Subproject, which may be configured in a single RIP, for example, or a single implementation action to be carried out in a community, or to a Set of Subprojects. The set of sub-projects must be defined by the PROCASE II team, considering the fact that they share the same geographical area and have the same socio-environmental aspects, or when the same community benefits from more than one sub-project. This joint organization aims to assess the same environment, converge impacts and propose synergistic mitigation solutions for the Subprojects, optimizing the preparation of Impact Assessments and Management Plans.

The suggested tool will work as follows:

- **Stage 1 - Screening:** The technicians fill in the screening form. The form is structured to cover the different sensitive issues that trigger environmental and social safeguards. For each safeguard, a set of questions identifies the possible risks and negative impacts. The questions are formulated so that a "yes" answer indicates a risk or negative impact.
- **Stage 2- Categorization of the Subproject or Set of Subprojects:** In this step, the level of each risk identified in STEP 1 is assessed and categorized as minimal, moderate, substantial or high. This joint categorization of the issues assessed will confirm the Category of the Subproject or Set of Subprojects, in accordance with the provisions of PDAS 1 of the IDB's MPAS (Assessment and Management of Environmental and Social Risks and Impacts)<sup>3</sup>.
- **Stage 3- Environmental and Social Impact Assessments - ESIA and ESIA:** In order to confirm the impacts and risks identified in STAGE 1 and verify the existence of other unforeseen impacts and risks, the borrower must carry out an impact assessment proportional to the outcome of the Screening and Classification phase and the size/engagement of the Subproject(s). The impact assessment study may be a Simplified Environmental and Social Assessment (SEA) or an Environmental and Social Impact Assessment (ESIA), considering only the issues/conditions relevant to the Subproject to be assessed.

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<sup>3</sup> Environmental and Social Screening and Categorization: 3.16 Impact Classification.

- **Stage 4 - Proposing Environmental and Social Management Measures and Plans for the Subproject or Set of Subprojects - ESMP:** For each risk or negative impact identified, a mitigation measure must be listed, and for this a specific Environmental and Social Management Plan - ESMP for the Subproject or Set of Subprojects must be drawn up. The ESMP may be supported by the guidelines set out in the PROCASE II ESMP.

Below are the details of the proposed Environmental and Social Analysis mechanism. It is important to note that this tool may still undergo a process of adaptation according to the experiences and best practices observed during PROCASE II.

### **Stage 1 - Screening**

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In the proposal for PROCASE II, the analysis of the preliminary project must focus on compliance with the IDB and IFAD Environmental and Social Policies. Therefore, the framework *checklist* to be used for the Preliminary Environmental and Social Analysis must contain the items shown in the following table. The table shows the issue analysed which may generate or suffer an impact, establishing the level of impact that may occur and directing the possible ESMP measure to be established.



**Table 5 - Requirements to be taken into account in the Preliminary Environmental and Social Analysis in the design and preliminary project approval phase**

Question analyzed	Possible impacts/risks and associated causes(6)	Impact or risk level(7)	Associated PGAS measure(8)	Category of Subproject(s) (According to Step 2)
<b>Project in area of direct influence of listed or archaeological/paleontological property</b>	Alteration or destruction of paleontological sites by the implementation of social technology associated with stone tanks or excavation activities in areas with high potential for the presence of cultural sites	<input type="checkbox"/> yes: substantial  <input type="checkbox"/> no: minimum	Cultural Heritage Protection and Fortuitous Finds	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>It is in or near(5) a Conservation Unit, Critical or Modified Habitat (2)(3)(4)</b>	Pressure on natural areas and habitats with the advance of plant suppression, expansion of planting areas not foreseen in the project, expansion of non-sustainable systems and greater demand for water with the use of local sources for production and irrigation.	<input type="checkbox"/> yes, close to critical natural habitats and UC-PI: high  <input type="checkbox"/> yes, interference with natural, modified or UC-US habitats: moderate  <input type="checkbox"/> no: minimum	Biodiversity Management, Protection and Restoration	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>It is in a permanent preservation area (APP)</b>	Pressure on natural areas and habitats with the advance of plant suppression, expansion of planting areas not foreseen in the project, expansion of non-sustainable systems and greater demand for water with the use of local sources for production and irrigation.	<input type="checkbox"/> yes: moderate  <input type="checkbox"/> no: low	Biodiversity Management, Protection and Restoration	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>Suppression of endangered or legally protected trees</b>	Loss of a native species with regimentation and importance to preservation.	<input type="checkbox"/> yes: substantial  <input type="checkbox"/> no: minimum	Biodiversity Management, Protection and Restoration	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>Provides for the use or collection of woody material</b>	Pressure on natural areas and habitats with the advance of plant suppression, expansion of planting areas not foreseen in the project, expansion of non-sustainable systems and greater demand for water with the use of local sources for production and irrigation.	<input type="checkbox"/> yes: moderate  <input type="checkbox"/> no: minimum	Biodiversity Management, Protection and Restoration	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C

Question analyzed	Possible impacts/risks and associated causes(6)	Impact or risk level(7)	Associated PGAS measure(8)	Category of Subproject(s) (According to Step 2)
<b>Provides for the use of exotic species</b>	Changes in gene flow, altering the pattern of production and ecosystems in such a way as to promote a loss of resilience in ecosystems and production systems, with the dispersal of unwanted species (naturally or mechanically).	<input type="checkbox"/> yes: substantial  <input type="checkbox"/> no: low	Biodiversity Management, Protection and Restoration	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>Provides for natural revegetation or agroforestry actions (SAF, for example)</b>	Changes in gene flow, altering the pattern of production and ecosystems in such a way as to promote a loss of resilience in ecosystems and production systems, with the dispersal of unwanted species (naturally or mechanically).  Pressure on natural areas and habitats with the advance of plant suppression, expansion of planting areas not foreseen in the project, expansion of non-sustainable systems and greater demand for water with the use of local sources for production and irrigation.	<input type="checkbox"/> yes: moderate  <input type="checkbox"/> no: minimum	Biodiversity Management, Protection and Restoration  Management and Control of Contaminating Products  Disease and Pest Vector Control	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
<b>Installation of structures for food processing activities or agricultural machinery</b>	Soil and water pollution (surface and/or groundwater) - arising from the operation of production systems, with the improper disposal of packaging, including pesticides, improper disposal of bagasse and other solids from production and processing, use of restricted, prohibited and banned products - Stockholm Convention and accidental spillage of chemical inputs or discharge of untreated effluent.	<input type="checkbox"/> yes: moderate  <input type="checkbox"/> no: minimum	Energy Efficiency in Projects and Installations  Management and Control of Contaminating Products	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C

Question analyzed	Possible impacts/risks and associated causes(6)	Impact or risk level(7)	Associated PGAS measure(8)	Category of Subproject(s) (According to Step 2)
<p><b>Implementation of sanitation structures and sub-projects with civil works</b></p>	<p>Interruption of services due to lack of power, water, telephony, internet by Power failure and/or interruption of other unforeseen essential services</p> <p>Soil and water pollution (surface and/or groundwater) - arising from the operation of production systems, with inadequate disposal of packaging, including pesticides, inadequate disposal of bagasse and other solids from production and processing, use of restricted, prohibited and banned products - Stockholm Convention and accidental spillage of chemical inputs or discharge of untreated effluents.</p> <p>The proliferation of vector-borne diseases due to the accumulation of water in poorly drained areas, the presence of organic matter, such as workers' food waste, which favors the development of micro and macro vectors.</p> <p>Contamination of soil and water resources - from civil works by the production of unserviceable soil from excavation, unused inputs and materials and leftover materials from civil works with inadequate waste disposal</p> <p>Alteration in water quality affecting aquatic habitats and water resources by the movement of soil and other materials into nearby rivers (from construction activities) by the Movement and handling of soil in agricultural and earthmoving activities, cut and fill and exposed soils</p>	<p>( ) yes: moderate</p> <p>( ) no: minimum</p>	<p>Waste Management</p> <p>Control and Mitigation of Temporary Social and Economic Impacts</p> <p>Water and Effluent Monitoring</p> <p>Disease and Pest Vector Control</p>	<p>( ) A</p> <p>( ) B</p> <p>( ) C</p>

Question analyzed	Possible impacts/risks and associated causes(6)	Impact or risk level(7)	Associated PGAS measure(8)	Category of Subproject(s) (According to Step 2)
<p><b>Implemented in a Traditional Community</b></p>	<p>Risk of introducing diseases through the movement of people with unidentified illnesses.</p> <p>Risk of accidents in communities and access roads due to construction activities.</p> <p>Risk of internal governance conflicts between communities</p> <p>Risk of harassment of women and children and of GBV</p> <p>Risk of harassment of young people through the introduction of alcohol and drugs and harassment for the sale of natural capital assets</p> <p>Risk of shortages or interruption of essential services (energy and water supply)</p> <p>Risk of nuisance related to noise emissions, dust and traffic of strangers in the communities</p> <p>Risk of using natural capital for structures (wood, sand, gravel)</p>	<p>( ) yes: moderate</p> <p>( ) no: minimum</p>	<p>Mitigating Impacts on Traditional Communities</p>	<p>( ) A</p> <p>( ) B</p> <p>( ) C</p>
<p><b>Triggers item from IDB exclusion list or established eligibility criteria (to be established)</b></p>		<p>( ) yes: high</p> <p>( ) no: minimum</p>	<p>Can be excluded due to ineligibility (see item 5.1.2)</p>	<p>( ) A</p> <p>( ) B</p> <p>( ) C</p>

UC-PI: Integral Protection Conservation Unit / UC-US: Sustainable Use Conservation Unit

(1) Areas provided for in the legislation of the country, state, municipality or internationally recognized sites.

(2) It requires a differentiated risk management strategy for habitats, based on their values and susceptibility, in accordance with the IDB's PDAS 6.

(3) It also considers the existence of ecosystem services.

(4) The existence and degree of risk of impact on natural habitats and critical habitats can guide precautionary measures, detailed studies and plans for biodiversity or even the exclusion of areas or the definition of eligibility criteria for the location of future works that do not yet have a locational definition.

(5) Proximity will be established in accordance with the Buffer Zone defined in the Management Plan or, when this does not exist, a distance of 2,000 meters will be established in accordance with CONAMA Resolution 428/2010.

(6) It is very important to carry out an environmental and social assessment of the sub-projects and their areas of insertion, structured around a Baseline or Socio-Environmental Diagnosis, in order to ascertain the intensity of the anticipated impacts and to verify possible impacts that were not identified in the preliminary phase.

(7) Moderate to high impacts trigger ESMP measures



*(8) Mitigation Plans and Programs not mentioned in this table must be carried out in all Subprojects or Sets of Subprojects regardless of the outcome of the impact assessment (Disaster Risk Management and Climate Change, Communication/Consultation, Complaints and Reparations Mechanism, Environmental and Health Education, Traffic, Labor Management, Prevention/Attention to Gender Violence).*

To determine the level of impact, the following table is provided as a suggested reference.

**Table 6 - Determining the level of the preliminarily predicted impact**

Gravity (Level)	Probability				
	A	B	C	D	E
1	high	high	substantial	moderate	moderate
2	high	substantial	moderate	moderate	moderate
3	substantial	moderate	moderate	moderate	moderate
4	moderate	moderate	moderate	minimum	minimum
5	moderate	moderate	moderate	minimum	minimum

Based on Interpretation Note on Environmental and Social Categorization (IFC, 2012)

<b>Severity of the threat</b> 1. high impact (irreversible and unprecedented) 2. substantial impact (irreversible) 3. moderate (but permanent) impact 4. minimal impact, (temporary) 5. no impact	<b>Probability</b> A. certain occurrence B. expected occurrence C. likely to occur D. the occurrence is not expected E. extremely unlikely to occur
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Elaboration: Consultancy, 2024

## Stage 2 - Categorization of the Subproject or Set of Subprojects

Thus, the Subproject will be categorized according to the result of the Preliminary Analysis presented and according to the following criteria:

- **Ineligible Category:** If the exclusion list is triggered or any eligibility criteria are violated (see item 0 Exclusion and Eligibility List).
- **Category A:** Project with at least one item of the requirements considered in the Preliminary Analysis with a certain and expected, significant, irreversible and unprecedented adverse environmental or social risk (combinations of Severity 1 and 2 with Probability "a"; and Severity 1 with Probability "a" or "b").
- **Category B+ (Substantial)<sup>4</sup> :** Project with at least one item of the requirements to be considered in the Preliminary Analysis with a certain and moderate adverse environmental or social impact, of certain or expected occurrence (combinations of Severity 3 with Probability "a"; Severity 2 with Probability "b"; and Severity 1 with Probability "c").
- **Category B (Moderate):** Project with at least one item of the requirements to be considered in the Preliminary Analysis with a certain and minor adverse environmental or social impact, or probable and significant. (combinations of Severity 4 and 5 with Probability "a", "b" or "c"; Severity 3 with Probability "b", "c", "d" or "e"; and combinations of Severity 4 with Probability "a", "b", "c" or "d"; Severity 2 with Probability "c", "d" or "e"; and Severity 1 with Probability "e").
- **Category C:** Project with minor, temporary or zero adverse impacts (combinations of Severity 4 and 5 with Probability "d" or "e").

<sup>4</sup> This intermediate category was added to differentiate B projects with greater impact, as a socio-environmental project planning strategy for the executing agency.

### **Stage 3 - Environmental and Social Impact Assessments - ESIA and SIA**

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All PROCASE II sub-projects must be subjected to Environmental and Social Assessments, considering adaptations (inclusions and exclusions of themes) in accordance with the interference in environments that is planned and in accordance with the result of STAGE 1 defined in this process.

Two types of impact assessment are suggested at this stage:

- Environmental and Social Impact Assessment - ESIA: contemplating a more complete and robust process with an assessment based on a diagnostic baseline of the situation that expresses the existence or not of an impact;
- Simplified Environmental and Social Assessment - SESA: a more simplified process for identifying and assessing impacts, aimed at less complex sub-projects with minimal associated socio-environmental impacts.

It is important to note that the ESIA must present arguments based on a socio-environmental baseline that clearly proves the occurrence or non-occurrence of an impact in a given environment.

The scope of the Environmental and Social Assessment, both the ESIA and the SAA, are presented below:

#### **Terms of Reference for the ESIA - Environmental and Social Impact Assessment**

The ESIA may be carried out by the TA contractor, under the guidance and supervision of the PMU. To this end, the contract's terms of reference must include the appropriate guidelines for drawing up the ESIA.

The contracting **terms of reference** must consider environmental and social requirements, environmental and social assessments and environmental and social management plans, with some of these instruments being relativized according to the type and size of the Subproject or work.<sup>5</sup>

Environmental and Social Impact Assessments (ESIAs) must be drawn up for sub-projects that contain structures that : (i) involve civil works; or, (ii) involve implementation in or near<sup>6</sup> an integral protection UC, or in a permanent preservation area, or in Critical Habitat; or, (iii) are carried out in Traditional Communities; or, (iv) interfere with a cultural or paleontological site .

The structure of the ESIA in this case should include:

- Detailed description of the Subproject or Set of Subprojects, including maps, sketches, models, characteristics of support structures, forecast of waste to be generated (type, volume), materials and techniques used in implementation, forecast of professionals/workers, implementation schedule;

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<sup>5</sup> Environmental and social characteristics and constraints in the area where the project/work is located are relevant, but they must be dealt with from the repertoire of issues defined in an extensive list of requirements assessed from the instruments used in the management process, depending on an environmental and social assessment of the level of the project/work.

<sup>6</sup> Proximity will be established in accordance with the Buffer Zone defined in the Management Plan or, when this does not exist, at a distance of 2,000 meters from the boundaries of the area in question, this requirement being based on the criteria established in CONAMA Resolution 428/2010.

- Evaluation of alternative considering multi-criteria analysis integrating environmental and social parameters to be carried out as a tool for reducing impacts;
- Identification of the relevant legislation and standards, including federal, state and municipal laws, the standards set out in the IDB's MPAS and IFAD's SECAP for the respective Subproject, international treaties related to the environmental and social aspects affected by the Subproject;
- Baseline and assessment of the physical and biotic environments:
  - Soil quality and stability, geology and geomorphological aspects;
  - Local aspects that interfere with air quality (noise, dust, etc.) and water;
  - Predominant species of native and exotic fauna and flora, identifying those threatened with extinction, vulnerable and protected by law;
  - Water quality and aquatic ecosystems in the Subproject area and its immediate surroundings;
  - Assessment of possible interference in natural, critical and modified habitats, and their influence on ecosystem services - according to the existence of risk<sup>7</sup> (if there is habitat identified);
  - Assessment of possible interference in priority areas for biodiversity conservation (Probio / MMA) and internationally recognized sites (KBA, Ramsar, IBA etc.);
- Baseline and evaluation of the socio-economic, cultural, gender and diversity profile of the community benefiting from the Subproject, with results in relation to issues and restrictions of vulnerable populations;
- Socio-cultural analysis, as established in the PGASE Program for Mitigation of Impacts on Traditional Communities (if there is a traditional community);
- Historical and cultural heritage, whether on the surface or subsurface, when the Subproject is in the area of influence of the heritage (if there is a cultural site);
- Assessment of the risk of disasters that may affect the Subproject, the benefited community or that the Subproject may contribute to exacerbating, using data from IPT/CPRM, Adapta Brasil, or mapping from the municipality itself, interviews with civil defense or local assessments;
- Impact and risk assessment, including:
  - Impacts on the physical, biotic and socio-economic environment;
  - Risks and impacts associated with primary suppliers<sup>8</sup> . Address these risks and impacts in proportion to their control and influence over primary suppliers, as established in PDAS2 and PDAS6 (construction contractors, for example);
  - Risks and impacts including disaster risks and assessment of cumulative and residual impacts;

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<sup>7</sup> Part of this requirement is already assessed, considering conservation units and permanent preservation areas, but only from the perspective of the national, state and municipal laws in force. In this case, the recommendations of the IDB's PDAS6 need to be observed.

<sup>8</sup> Primary suppliers are those who supply, on an ongoing basis, goods or materials that are essential to the core functions of the project. The core functions of a project are the production processes and/or services essential to a specific project activity, without which the project could not continue



- The impact and risk matrix should include:
  - Identifying the impact;
  - Impacting Cause / Action;
  - Main Plans or Programs of the Associated ESMP;
  - Qualitative / descriptive aspects and justification of the impact;
  - Actions planned to avoid the impact (where applicable);
  - Actions planned to minimize the impact (where applicable);
  - Actions planned for rehabilitation (where applicable);
  - Planned compensation actions (where applicable);
  - Means of Verification for Monitoring;
  - Verification frequency
- Other relevant themes can be identified according to the triggers given by the Preliminary Environmental and Social Analysis (Screening) of each Subproject.
- A public consultation process with interested parties should also be organized and carried out, in accordance with the IDB's requirements<sup>9</sup> (see associated program in the PGASE) and considering a FPIC in the case of traditional communities. This process should seek information and primary data obtained through dialog strategies, such as interviews, participatory workshops, consultation meetings or channels for expressing the community's perception of the Subproject and its effects;

The ESIA should consider the guidelines and guidance provided in the IDB's MPAS regarding the significance of residual and cumulative impacts, their long-term effect on the environment and individuals affected by the Subproject, and the extent to which such impacts are considered reasonable in the context of the Subproject. When it is determined that it is not technically or financially feasible to offset or neutralize residual impacts, the justification for this determination (including the options that were considered) will be included in the ESIA.

The assessment will consider all the relevant socio-environmental risks and impacts, depending on the influence of the Subproject on its environment:

- (a) environmental risks and impacts, including: (i) those identified by the PDAS; (ii) those related to community safety; (iii) those related to climate change and other global or transboundary impacts; (iv) any significant threat to the protection, conservation, maintenance and recovery of natural habitats and biodiversity; and (v) those related to ecosystem services and the use of living natural resources, such as fisheries and forest resources.
- (b) social risks and impacts, including: (i) threats to human security due to intensification of personal, community or interstate conflict, crime or violence; (ii) risks that project impacts may disproportionately affect disadvantaged or vulnerable individuals and groups; (iii) any bias or discrimination against individuals or groups in accessing development resources and project benefits, especially in the case of those who may be disadvantaged or vulnerable; (iv) negative economic and social impacts related to land use restriction; (v) risks or impacts associated with the ownership and use of land and natural resources, including (where applicable)

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<sup>9</sup> It does not refer to public hearings, although this request could be adapted to meet the requirements.

potential impacts of the project on local land use patterns, land tenure, access to and availability of land, food security and land value, and any corresponding risks related to conflicts or contestation of land and natural resources; (vi) impacts on the health, safety and well-being of workers and communities affected by the project; and (vii) risks to cultural heritage; (viii) risks associated with occupational health and safety, employment, equity, harassment and violence of the team hired to implement the projects.

### **Terms of Reference - Simplified Environmental and Social Assessment (SESA)**

The SESA may be carried out by the TA contractor, under the guidance and supervision of the PMU. To this end, the contract terms of reference must include the appropriate guidelines for drawing up the AAS.

The contracting **terms of reference** must consider environmental and social requirements, environmental and social assessments and environmental and social management plans, with some of these instruments being relativized according to the type and size of the Subproject or work.<sup>10</sup>

The Simplified Environmental and Social Assessments (SEA) should be prepared for sub-projects or sets of sub-projects that do not involve the implementation of structures that require civil works, are not within or close to Conservation Units or Critical Habitats, are not within Traditional Communities and do not interfere with paleontological sites.

The SESA structure for this case should include:

- Detailed description of the Subproject or Set of Subprojects, including maps, sketches, models, characteristics of support structures, forecast of waste to be generated (type, volume), materials and techniques used in implementation, forecast of professionals/workers, implementation schedule;
- Identification of the relevant legislation and standards, including federal, state and municipal laws, the standards set out in the IDB's MPAS and IFAD's SECAP for the respective Subproject, international treaties related to the environmental and social aspects affected by the Subproject;
- Assessment of the risk of disasters that may affect the Subproject, the benefited community or that the Subproject may contribute to exacerbating, using data from the IPT/CPRM, Adapta Brasil, or mapping from the municipality itself, interviews with civil defense or local assessments;
- Consolidated impact and risk matrix, including information on:
  - Identifying the impact;
  - Impacting Cause / Action;
  - Main Plans or Programs of the Associated ESMP;
  - Qualitative / descriptive aspects and justification of the impact;
  - Actions planned to avoid the impact (where applicable);

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<sup>10</sup> Environmental and social characteristics and constraints in the area where the project/work is located are relevant, but they must be dealt with from the repertoire of issues defined in an extensive list of requirements assessed from the instruments used in the management process, depending on an environmental and social assessment of the level of the project/work.

- Actions planned to minimize the impact (where applicable);
  - Actions planned for rehabilitation (where applicable);
  - Planned compensation actions (where applicable);
  - Means of Verification for Monitoring;
  - Verification frequency.
- Other relevant themes can be identified according to the triggers given by the Preliminary Environmental and Social Analysis (Screening) of each Subproject.
  - A public consultation process with interested parties must also be organized and carried out, in accordance with the IDB's requirements<sup>11</sup> (see associated program in the PGASE). This process should seek information and primary data obtained through dialog strategies, such as interviews, participatory workshops, consultation meetings or channels for expressing the community's perception of the Subproject and its effects;

The assessment will consider all the relevant socio-environmental risks and impacts, depending on the influence of the sub-project on its environment.

#### **Stage 4 - Proposal of Measures and Environmental and Social Management Plan for Subproject or Set of Subprojects – PGAS/ESMP**

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The specific Environmental and Social Management Plan for the Subproject or Set of Subprojects, containing mitigation, compensation and control programs for the environmental and social impacts identified, may be based on the structure, guidelines and directives defined in the PROCASE II ESMP.

The ESMP can be drawn up and implemented by the ATER<sup>12</sup> contractor, under the guidance and supervision of the PMU and, to this end, the contract terms of reference must include the appropriate guidelines for drawing up the ESMP.

The ESMP should apply a mitigation hierarchy, which will:

- (a) foresee and avoid risks and impacts;
- (b) when it is not possible to avoid, minimize or reduce the risks and impacts to acceptable levels;
- (c) when risks and impacts have been minimized or reduced, mitigate them;
- (d) where significant residual impacts and risks remain, offset or neutralize them where technically and financially feasible.

The requirement to mitigate impacts may include measures to help affected parties improve or at least restore their livelihoods as relevant in a given Subproject configuration.

The requirements for preparing the ESMP can be incorporated into the Terms of Reference for preparing the Environmental and Social Assessment. These Terms of Reference must be applied to all Subprojects in accordance with the trigger identified in the Preliminary Environmental and Social Assessments, regardless of whether or not a

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<sup>11</sup> It does not refer to public hearings, although this request could be adapted to meet the requirements.

<sup>12</sup> The implementation of the specific ESMP will have the collaboration/participation of contracted construction companies and rural producers on specific issues.

specific study is required for licensing, respecting the levels of environmental and social assessment proportional to the respective project.

### **Terms of Reference for the Environmental and Social Management Plan – PGAS/ESMP**

The Environmental and Social Management Plan (ESMP) must contain the specific environmental and social management measures required according to the ESIA or SESA carried out to help maximize positive impacts and avoid, reduce, mitigate and/or compensate for negative impacts, based on the mitigation hierarchy.

A relationship will be established between the Subprojects' works; potential impact; and proposed mitigation measures.

The ESMP will also contain all the necessary guidelines to address the environmental and social management and occupational health and safety of the Subproject, including, but not limited to:

- (i) the different environmental and social plans or programs that will meet the environmental, social and health and safety requirements necessary to carry out the project activities, complying with the Safeguard Policies and their specific requirements, as well as government regulations;
- (ii) the institutional obligations and responsibilities for developing and implementing the necessary measures;
- (iii) the mitigation measures for the negative environmental impacts identified in the ESIA or SESA, during the construction/implementation, operation, closure and post-closure phases, as well as the different environmental and social plans or programs that will comply with the requirements necessary to carry out the activities of the Subproject;
- (iv) a description of the environmental and social monitoring plan for implementation, operation, closure and post-closure, identifying the expected results, the parameters to be measured, the measurement sites, the methods and tools used and the periods/frequency at which the measurements will be made, the costs and the institutions responsible;
- (v) the implementation schedule for each of the proposed measures, defining roles and responsibilities and a reference budget.

In accordance with the provisions of the IDB's Safeguard Policies, the ESMP must consider requirements that encompass the parameters described in Annex 7.1 of this document. On top of this, the size of the Subproject, its insertion environment and, consequently, the respective Performance Standards that are specifically triggered for the situation must be taken into account.

### ***ESMP for Projects Subject to Environmental and Social Impact Assessment - ESIA***

Initially, the Environmental and Social Management Plan<sup>13</sup> of Subprojects submitted to the ESIA will present the following mitigation programs, according to the impacts specifically identified:

- 1) Disaster and Climate Change Risk Management Plan;

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<sup>13</sup> The programs set out here are a reference to the ESMP and can be complemented with other programs, based on the results of the Environmental and Social Assessment.

- 2) Waste Management Program, including construction waste (if any), operating waste and production waste;
- 3) Water and Effluent Quality Monitoring Plan;
- 4) Biodiversity Management, Protection and Restoration Plan;
- 5) Stakeholder Communication, Consultation and Engagement Program, considering participation and relations with the community during project execution, including the implementation of a community monitoring mechanism and a complaints attention and management mechanism to be monitored by the borrower;
- 6) Environmental and Health Education Program;
- 7) Contaminating Products Management and Control Plan;
- 8) Energy Efficiency Plan for Projects and Facilities (for Subprojects involving the implementation of building structures, machinery and equipment for production);
- 9) Traffic Plan;
- 10) Labor Management Plan including OHS issues, hiring a workforce that encourages gender diversity, workforce training and awareness, code of conduct and grievance mechanism for workers; attention to and prevention of gender violence;
- 11) Program for the Control and Mitigation of Temporary Social and Economic Impacts;
- 12) Gender Violence Prevention and Care Program;
- 13) Program to Mitigate Impacts on Traditional Communities (Projects located in traditional communities - Indigenous, Quilombola, Gypsy and Fishing/Marisque communities);
- 14) Disease Vector Control Program
- 15) Cultural Heritage and Fortuitous Finds Protection Program (if there are risks to cultural heritage identified in the ESIA);
- 16) Monitoring and Evaluation Plan - each program in the ESMP will have its own management indicators in order to determine compliance with the measures and indicate success or the need for corrections.

### ***ESMP for Projects Subject to Simplified Environmental and Social Assessment - SESA***

Initially, the Environmental and Social Management Plan<sup>14</sup> of Subprojects submitted to the ESIA will present the following mitigation programs, according to the impacts specifically identified:

- 1) Disaster and Climate Change Risk Management Plan;
- 2) Stakeholder Communication, Consultation and Engagement Program, considering participation and relations with the community during project execution,

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<sup>14</sup> The programs set out here are a reference to the ESMP and can be complemented with other programs, based on the results of the Environmental and Social Assessment.

including the implementation of a community monitoring mechanism and a complaints attention and management mechanism to be monitored by the borrower;

- 3) Environmental and Health Education Program;
- 4) Traffic Plan;
- 5) Labor Management Plan including OHS issues, hiring a workforce that encourages gender diversity, workforce training and awareness, code of conduct and grievance mechanism for workers; attention to and prevention of gender violence;
- 6) Gender Violence Prevention and Care Program;
- 7) Monitoring and Evaluation Plan - each program in the ESMP will have its own management indicators in order to determine compliance with the measures and indicate success or the need for corrections.

### **Terms of Reference for Contracting Works**

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It is advisable to establish as a contractual binding clause in the Terms of Reference for hiring the contractor, compliance with the measures established in the project's ESMP that are directly related to civil works actions.

The PMU will be responsible for including environmental and social requirements in the terms of reference for contracting the work, as well as supervising the implementation of the measures and compliance with the works, with the support of the socio-environmental supervision team of the contracted TA.

#### **5.1.2 Eligibility Criteria**

Below are the eligibility and exclusion criteria to be applied to PROCASE II sub-projects.

#### **Legally Protected Areas, Natural Habitats and Cultural Sites**

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PROCASE II projects may not interfere in legally protected areas, except: (i) in the case of those characterized as sustainable use, where controlled and restricted interference is permitted, and also in areas of permanent preservation of rivers (APP), with the exception of situations involving high slopes, hilltops and springs; and (ii) in the case of sanitation works, especially due to the possible need to draw water from natural water resources where there is a requirement to issue a use grant. In these cases, good practices should be taken into account to ensure the least possible impact, the sustainability of the areas and the requirements established by law, respecting the permissions for uses and activities on site.

- Studies should be carried out to measure and avoid impacts on critical habitats<sup>15</sup>, including any need to revise projects and the use of support areas during the works.

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<sup>15</sup> Critical Habitats are areas of high importance or value for biodiversity, including: (i) habitat of significant importance for critically endangered, endangered, vulnerable or near threatened species (According to the International Union for Conservation of Nature - IUCN); (ii) habitat of significant importance for endemic and/or restricted range species; (iii) habitat that supports globally significant concentrations of migratory

- Cultural sites and areas defined as being for the exclusive use of traditional communities must also be respected. It is understood that the areas established as being for the use of traditional communities are territories and groupings with Quilombola, indigenous and fishing community practices, etc.
- Cultural sites include built heritage or natural monuments, whether or not protected by law, to which the community attaches historical, cultural or landscape value. In addition to these, cultural sites preserved in the subsurface, such as buried archaeological and historical sites, are also part of this protection framework. Some cultural sites may have specific permission for intervention or restoration, and these situations are allowed when the criteria and authorizations established by local regulations are followed and good practices for such interventions are followed.
- Critical natural habitats must also be respected, including remaining areas of Atlantic forest and mangroves, and areas used as a source of ecosystem services.
- The interaction of a technically prepared team with environmental and social specialists should be considered, incorporating the ecological concerns set out in the Biodiversity Plan (PAB).

### **Risks of Expropriation and Involuntary Resettlement**

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**the project does not incorporate actions involving involuntary resettlement, nor will it promote implementations that result in the need for this type of solution, therefore sub-projects that encompass such a situation are not eligible.**

### **Licenses and Authorizations**

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Construction work will not be allowed to begin without the appropriate authorizations and licenses provided for by law, and which must be up to date with compliance with the requirements, at a minimum:

- All structures and works subject to the Project's licensing process must have their projects licensed by the competent environmental agencies, based on the following configuration:
  - Resilient Investment Plans and Business Plans: Because they are small investments and use agroecological production practices, they are characterized as having a low environmental impact, and there is no need for environmental licenses, just a simple permit. For food processing support, as these are small, low-complexity investments, the environmental license may need to be issued by the municipality itself. The process will be monitored by the TA team with the support of the PMU and will depend on the specific licensing process of each municipality.
  - Water supply systems, water reuse and sewage systems: According to the state's environmental legislation, these systems are subject to environmental licensing because they use water resources, because they are sanitation works that can generate environmental changes and because they directly intervene in surface or underground water bodies, with the exception of those involving SBN (Nature-Based Solutions), such as rainwater harvesting cisterns or natural

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species and/or congregational species; (iv) highly threatened and/or unique ecosystems; (v) areas associated with major evolutionary processes; and/or (vi) legally protected areas or areas internationally recognized as having high biodiversity value."

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effluent purification systems. Therefore, environmental licenses and water abstraction/intervention permits may be required for certain situations.

- All licenses and permits must be up to date and with the conditions proposed by the authorities met or being met, depending on the schedule;
- No works will be allowed inside Conservation Units that are not compatible with the UC's Management Plan and its objectives. New works or support structures other than those assessed and approved by the IDB and IFAD ESG team and authorized by the management body of the Conservation Units will not be accepted.

## Photovoltaic panels

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The purchase of photovoltaic panels that do not originate from production based on sustainable systems and that comply with the United Nations General Assembly's Universal Declaration of Human Rights will not be permitted.

In the case of contracting/purchasing solar panels, the declarations of conduct and contract clauses expressed in the Labor Management Program (LMP) of this ESMP must be adopted by the construction contractors and their suppliers in the primary supply chain<sup>16</sup>. In addition, financing operations for the generation or consumption of solar energy that have detected the risk of forced labor in their respective polysilicon production chain must carry out a specific *due diligence* process on labor risks, involving the evaluation of primary suppliers up to an assessment of occupational risks, including, in some cases, an independent assessment of forced labor in primary suppliers.

In tendering processes for the purchase of photovoltaic equipment, the following measures should also be taken:

- Require the supplier to have an environmental and social management plan that includes an analysis of occupational risks and the corresponding mitigation measures;
- They will have to take into account enhanced environmental and social sustainability considerations in the qualification of the offer;
- Include contractual clauses in the event of non-compliance with the requirements, including incidents of forced labor in the primary supplier's workforce, as grounds for establishing corrective measures or contractual termination;
- It is necessary to align with the IDB's requirements, confirming that the measures to manage the risks of forced labor are aligned with the document "Medidas del Grupo BID para abordar *el riesgo de trabajo forzoso en la cadena de suministro o módulos solares a base de silicio*", which among the requirements presented in the document includes:
  - Applicable to the supply of medium and large-scale solar installations (over 20MW) using polycrystalline solar modules;
  - The vast majority of medium and large-scale projects with solar energy components include international contracts (international public bidding - LPI), which requires the borrower to use standard bidding documents, including clauses to avoid forced labor and to adopt the modality of *ex ante* supervision. The procurement requirements in the bidding processes must also include

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<sup>16</sup> Suppliers in the primary supply chain are those who, on an ongoing basis, supply goods or materials that are essential to the core functions of the project.



selection criteria, evaluation criteria and compliance and termination measures, according to the aforementioned IDB Group Measures document;

- Adhere to the IDB Group's training and orientation programs to strengthen the capacity to implement environmental and social policies, which includes identifying risks related to labor and human rights aspects, assessing labor risks in the supply chain, and designing, executing and supervising the corresponding mitigation measures;
- Adopt a traceability protocol, including controls such as: independent external audits; a code of conduct on social responsibility; security measures to safeguard information and prevent the illicit handling of goods; due diligence and control of suppliers; employee training; application of the policy, procedures and plans for implementing corrective measures.

## **Exclusion List**

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According to the IDB's MPAS and IFAD's SECAP, the institutions will not finance, directly or indirectly, or through financial institutions, projects involved in the production, trade or use of the products, substances or activities listed below.

### **Prohibited Activities**

- Production or activities that involve forms of forced labor or exploitation<sup>17</sup> or practices that prevent employees from exercising their rights of association and collective bargaining;
- Production or activities that involve harmful forms of child labor or constitute exploitation<sup>18</sup> ;
- Production or activities that violate lands owned or claimed by indigenous peoples, without the full documented consent of these peoples;
- Activities prohibited by the country's local legislation, or international covenants and conventions in relation to the protection of biodiversity resources, cultural heritage or other legally protected areas<sup>19</sup> ;

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<sup>17</sup> Forced labor is any work required under threat of any penalty and for which the person does not volunteer. It can include practices such as threats of dismissal or physical violence, withholding identity documents or wages, threats to report the worker to immigration authorities, or involving the worker in fraudulent debts.

<sup>18</sup> Child labor includes: (i) work below the minimum age for admission to employment; and, (ii) any work that may be dangerous, interferes with the education of children or is harmful to their health or physical, mental, spiritual, moral or social development. If local legislation or regulations allow the employment of young people who are at least 16 years old (in accordance with the ILO Minimum Age Convention of 1973), on condition that their health, safety and morality are fully protected, and they have received specific instructions or adequate vocational training in the relevant activity, then child labor will be understood as the employment of children for work that does not comply with this legislation and regulations.

<sup>19</sup> The relevant international conventions and agreements include: the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention); the Convention Concerning Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention); the Convention on the Conservation of Wild Fauna and Flora and Natural Habitats in Europe (Bern Convention); the World Heritage Convention and the Convention on Biological Diversity.

- activities that are illegal according to local laws, regulations or ratified international conventions and agreements, or subject to international interruptions or prohibitions, such as:
  - polychlorinated biphenyls (PCBs);
  - pharmaceutical products, pesticides/herbicides and other dangerous substances subject to international interruptions or bans<sup>20</sup> ;
  - Persistent Organic Pollutants (POPs);
  - ozone-depleting substances subject to international elimination, especially those governed by the Montreal Protocol<sup>21</sup> ;
  - wildlife or wildlife products regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES)<sup>22</sup> ;
  - transboundary trade in waste or waste products, except for non-hazardous waste destined for recycling, as defined in the Basel Convention<sup>23</sup> ;
  - lead-based paint or coatings in the construction of structures and roads.
- Commercial exploitation of forests or purchase of equipment for such operations in primary or advanced stage humid tropical forests;
- The production or trade of wood or other forest products that do not come from sustainably managed forests;
- Marine and coastal fishing practices that use explosives in their activity, large-scale pelagic fishing with driftnets and with nets longer than 2.5 km or with small meshes, harmful to vulnerable and protected species in large volumes and harmful to biodiversity and marine habitats;
- Trade in goods without presenting the necessary export or import licenses or other evidence of transit authorization from the countries of export, import and, where applicable, transit;
- Activities that are illegal under laws, regulations or ratified international conventions and agreements relating to the protection of biodiversity resources or cultural heritage.
- Activities that, although consistent with a country's legal and/or regulatory framework, can generate particularly significant adverse impacts on people and/or the environment;

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<sup>20</sup> The relevant international conventions and agreements include the United Nations Consolidated List of Products Whose Consumption or Sale Has Been Banned or Subjected to Strict Restrictions, or Which Have Been Withdrawn from the Market, or Have Not Been Approved by Governments; the Rotterdam Convention on the Prior Informed Consent Procedure Applicable to Certain Pesticides and Hazardous Chemicals in International Trade; the Stockholm Convention on Persistent Organic Contaminants, and the WHO Recommended Classification of Pesticides by Hazardousness. The list of pesticides, herbicides and other hazardous substances subject to bans or withdrawal measures is available at: <http://www.pic.int/Portals/5/download.aspx?d=UNEP-FAO-RC-CONVTEXT-2019.Spanish.pdf> .

<sup>21</sup> On the UNEP website you can access a list of the chemical compounds regulated by the Montreal Protocol, along with information on the signatory countries and the deadlines for their withdrawal.

<sup>22</sup> You can access the list of these species on the CITIES Secretariat website.

<sup>23</sup> Available at: <https://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-s.pdf>

- Manufacture or trade in arms, ammunition and other military goods/technology;
- Production or trade of alcoholic beverages (except beer and wine), tobacco or drugs;
- Gambling companies, casinos and equivalent enterprises, and the trade related to pornography and prostitution;
- Contribution to money laundering, terrorist financing, tax evasion and fraud;
- Production and distribution of, or investment in, media that are racist, anti-democratic or that promote discrimination against a person, a group or a section of the population;
- Activities prohibited by the country's legislation or other legally binding agreements regarding genetically modified organisms;
- Production and trade of palm oil, unless it comes from producers and companies that have<sup>24</sup> an internationally recognized certification<sup>25</sup> ;
- Soy production in the Amazon region or trade in soy produced in that region, unless it comes from producers with internationally recognized certification<sup>26</sup> ;
- Production or trade of radioactive materials<sup>27</sup> ;
- Production or trade of unalloyed asbestos fibers or products containing asbestos;
- All mining, processing and mineral extraction activities;
- Thermal coal mining and coal-fired power plants and associated facilities;
- Upstream oil exploration and development projects;
- Upstream gas exploration and development projects. In exceptional circumstances and on a case-by-case basis, financing of upstream gas structures will be considered where there is a clear benefit in terms of access to energy for the poor and reduction of greenhouse gas (GHG) emissions, projects consistent with national climate change objectives, and where the risks of retained assets are adequately analyzed.

## 5.2 PGASE/ESMF Monitoring and Evaluation Measures

The Environmental and Social Monitoring and Follow-up Plan should be detailed in the Operation phase of the Financing and will consider the details of the construction/implementation, operation, closure and post-closure phases of the Project, identifying the expected results, parameters to be measured, the measurement sites, the methods used and the periods/frequency at which the measurements will be made, the costs and the institutions responsible.

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<sup>24</sup> This includes producers and companies that have started the certification process.

<sup>25</sup> For example, the Round Table on sustainable palm oil.

<sup>26</sup> For example, the International Association for Responsible Soy.

<sup>27</sup> It does not apply to the purchase of medical or veterinary equipment, quality control (measurement) equipment and similar equipment where the radioactive source is minimal or adequately shielded.

**Responsible:** TA will be responsible for monitoring, and the PMU will be responsible for consolidating the results and making a critical assessment. If necessary, the construction company could be an agent for cataloging the indicators listed in the subprojects.

The following is an overview of the guidelines defined for monitoring and evaluating PGASE/ESMF programs.

The PMU should monitor the environmental and social performance of projects. The degree and manner of monitoring will be proportionate to the nature of the project, its social and environmental risks and impacts, and compliance requirements.

The PMU, with the support of TA, must draw up comprehensive monitoring reports on all the themes and programs planned in a managerial manner, and they must present:

- General progress report on the operation;
- Compliance with environmental and social aspects;
- Summary of incidents, accidents and non-conformities identified;
- Description of any remedial or corrective action that has been taken since the last monitoring report;
- It also provides an overview of complaints and claims channeled through the MQR<sup>28</sup> established for PROCASE II.

Where appropriate, the PMU may promote the involvement of stakeholders and third parties, such as independent experts, local communities or NGOs, to complement or verify its own monitoring activities.

In general, monitoring will include recording information to track performance and establishing relevant operational controls to verify compliance and progress in meeting the requirements set out in this ESMP for the project.

Based on the results of the monitoring, the PMU will identify any necessary corrective and preventive actions, which should be incorporated into the ESMP. The PMU will implement the agreed corrective and preventive actions, in accordance with the modified ESMP or the relevant management instrument, and will monitor and disclose these actions.

The PMU will facilitate access and visits to the project site for IDB and IFAD staff or consultants representing them. The PMU will notify the IDB and IFAD immediately of any incident or accident related to the project that has, or may have, a significant adverse effect on the environment, affected communities, the public or workers. The notification shall provide sufficient details of the incident or accident, including deaths and serious injuries. The PMU must immediately adopt measures to resolve the incident or accident and prevent any recurrence, in accordance with national legislation and IDB and IFAD requirements.

Monitoring will be aimed at the timely follow-up of PGASE/ESMF measures, since it is essential that their progress and bottlenecks are clearly identified and controlled in order for them to run smoothly. To this end, quantitative indicators will be established, covering the process of implementing the actions, verifying the effectiveness, efficiency and efficacy of the actions, as well as qualitative ones that include, for example, satisfaction with the processes and assistance received, clarity of the information provided, among others.

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<sup>28</sup> Complaints and Claims Mechanism, which is the system implemented by the executive agency to deal with complaints from society.

The PMU will be responsible for the monitoring process with the support of TA companies and contracted supervisors. This process includes:

- Preparation of data collection instruments;
- Data collection with the Environmental and Social Supervision;
- Data systematization and analysis;
- Definition of corrective actions.

Monitoring will be carried out in the office for the project documentation to be assessed, whether related to environmental licensing or to legal occupational health and safety issues. *On-site* monitoring will also be carried out at the projects, construction sites, production project areas and their areas of direct influence to check for possible impacts or non-compliance, or even situations where there is a risk of occurrence.

### 5.2.1 Monitoring and Evaluation Indicators

This section presents the initial proposal of indicators that will be observed through the monitoring and evaluation of the ESMP mitigation programs. These indicators may be revised and/or supplemented as the necessary.

Below are the main indicators that will be addressed in monitoring. Basically, quantitative indicators are proposed that should be monitored on a monthly basis by the PMU, by recording and controlling activities and their results. Specific instruments will be developed and implemented to carry out the monitoring, as well as creating a database (a simple, easy-to-use system) to consolidate and extract the data.

It should be noted that only indicators related to the measures set out in the Subproject's specific ESMP should be monitored. The monitoring program should also be aligned with the Logical Framework and the PROCASE II M&E team.

**Table 7 - Monitoring and Evaluation Indicators**

Environmental and Social Program	Indicators	Target	Source of information
Stakeholder engagement	- Number of participants in community consultations and meetings - Number of institutions that provided input to consultations	- Increase the percentage of participants in the Stakeholder Matrix - Increase the percentage of female participants	To be determined
Complaints management mechanism	- Number of complaints by type - Service deadline Number of complaints with pending resolution	- reduce the number of unresolved complaints - Reduction in the average monthly number of complaints over time	To be determined
Environmental and health education	- Number of participants in environmental and health education actions; - Number of community actions	- 4 project-oriented actions per year	To be determined
Waste management	- Volume of waste generated - Volume of waste going to landfill	- Reduction in the percentage of waste going to landfill.	To be determined
Mitigation of temporary social and economic impacts	- Number of parties affected by temporary impacts of the work or project	- Reduction in the number of parts affected by temporary impacts	To be determined

Environmental and Social Program	Indicators	Target	Source of information
Preservation of cultural heritage (where applicable in accordance with the project's ESIA and ESMP)	<ul style="list-style-type: none"> <li>- Number of cultural sites affected/rescued</li> <li>- Number of cultural sites destroyed by activities</li> </ul>	<ul style="list-style-type: none"> <li>- 100% of identified sites rescued</li> </ul>	To be determined
Contingency and risk reduction	<ul style="list-style-type: none"> <li>- Number of emergencies</li> <li>- Response time</li> </ul>	<ul style="list-style-type: none"> <li>- reducing the number of emergency situations</li> <li>- reduction in the average response time</li> </ul>	To be determined
Environmental and Social Control of Works (when civil works are involved in the project)	<ul style="list-style-type: none"> <li>- Number of Non-Conformities (by type)</li> </ul>	<ul style="list-style-type: none"> <li>- Reduction in the number of non-conformities</li> </ul>	To be determined
Hiring labor	<ul style="list-style-type: none"> <li>- Number of local workers hired</li> <li>- Number of women hired</li> </ul>	<ul style="list-style-type: none"> <li>- increase in the number of local workers hired</li> <li>- increase in the number of women hired</li> </ul>	To be determined
training and awareness	<ul style="list-style-type: none"> <li>- Number of workers trained</li> </ul>	<ul style="list-style-type: none"> <li>- 100% of workers trained</li> </ul>	To be determined
Code of conduct	<ul style="list-style-type: none"> <li>- Number of complaints of embarrassment, harassment or racial / cultural or gender-based slurs with workers who were successful</li> <li>- Number of DDSs addressing the topic of conduct with employees</li> </ul>	<ul style="list-style-type: none"> <li>- reduction in the number of successful complaints of embarrassment, harassment or racial/cultural or gender-based insults against workers</li> <li>- 1 DDS per month on the subject of the code of conduct</li> </ul>	To be determined
Occupational health and safety	<ul style="list-style-type: none"> <li>- Number of days without an accident at work</li> <li>- Number of accidents with fatalities</li> <li>- Average number of days off work due to health and occupational problems</li> </ul>	<ul style="list-style-type: none"> <li>- Increase in the number of days without an accident at work</li> <li>- Zero fatal accidents</li> <li>- Reduction in the average number of days off work</li> </ul>	To be determined
Control and inspection of suppliers	<ul style="list-style-type: none"> <li>- Primary chain supplier evaluation form</li> </ul>	<ul style="list-style-type: none"> <li>- increase the performance evaluation score of the suppliers in the primary chain</li> </ul>	To be determined
Implementation, operation and closure of construction sites and support areas (when civil works are involved in the project)	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control of Works indicators</li> </ul>	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control targets for the works</li> </ul>	To be determined
Erosion control	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control of Works indicators</li> </ul>	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control targets for the works</li> </ul>	To be determined
Protection of legally protected areas	<ul style="list-style-type: none"> <li>- Legally protected areas affected by the works</li> <li>- Compensation area</li> <li>- Recovered area</li> </ul>	<ul style="list-style-type: none"> <li>- Biodiversity net profit (compensated or recovered area/affected area&gt;1)</li> </ul>	To be determined

Environmental and Social Program	Indicators	Target	Source of information
Reducing and mitigating community discontent	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control of Works indicators</li> <li>- According to the indicators of the Complaints Management Mechanism</li> </ul>	<ul style="list-style-type: none"> <li>- According to the Environmental and Social Control targets for the works</li> <li>- According to the goals of the Complaints Management Mechanism</li> </ul>	To be determined

## 5.2.2 Auditing

The objective of the audit is to identify significant environmental and social issues of the project or existing activities, and to assess their current status, specifically with regard to compliance with the requirements of the IDB MPAS and IFAD Standards.

The indicative description of the audit involves:

- (a) Executive Summary: Concisely address important conclusions and set out recommended measures, actions and deadlines.
- (b) Legal and Institutional Framework: Analyze the legal and institutional framework for the existing project or activities, including the issues listed in PDAS1;
- (c) Project description:
  - Concisely describe the existing project or activities, as well as its environmental, social, geographical and temporal context, and any associated facilities.
  - Identify the existence of any plans already developed to address specific environmental and social impacts and risks (e.g. land acquisition or resettlement plan, cultural heritage plan, biodiversity plan).
  - Include a detailed map showing the site of the existing project or activities and the proposed site of the project in question.
- (d) Environmental and Social Issues associated with the project: The analysis will consider the main risks and impacts of the project as determined in the ESIA. In addition, the audit will analyze issues not covered by the Safeguard Policies, insofar as they represent important risks and impacts in the context of the project.
- (e) Environmental and Social Analysis: The audit will also assess:
  - (i) the possible impacts of the proposed project (considering the audit findings concerning the project or existing activities); and
  - (ii) the ability of the proposed project to comply with the requirements of the Safeguard Policies.
- (f) Proposed Environmental and Social Measures: Based on the audit findings, this section will define proposed measures for aligning conduct. These measures will be included in the ESMP for the proposed project.

The measures usually covered in the audit include:

- specific actions necessary to comply with the requirements of the Safeguard Policies;
- measures and corrective actions to mitigate the potentially significant environmental and/or social risks and impacts of the project or existing activities;

- measures to avoid or mitigate the possible risks and negative socio-environmental impacts of the proposed project.

The minimum periodicity of the audit will be annual, with the possibility of it being carried out by an internal or external team (contracted).

### 5.3 Disaster and Climate Change Risk Management Plan

A Disaster and Climate Change Risk Management Plan (PGRD) should be drawn up, a system that guides actions for risk management and in the event of an emergency. This system should effectively identify the types of disasters to which the area of influence of the Projects that make up the Project is subject.

The PGRD could be supported by contributions from the guidelines and measures set out in the Targeted Adaptive Assessment document<sup>29</sup> (TAA), which was developed as part of the preparation of PROCASE II.

*A single PGRD can be drawn up for the whole of PROCASE II, differentiating between the types of subprojects and environments in which they are inserted, in order to cover all the disaster risk situations considered moderate and high. This is a macro document for the project, which should receive contributions and additions as the subprojects evolve and are drawn up. For the specific ESMP for each Subproject or Set of Subprojects, the specific risk monitoring and management measures presented in the general PROCASE II ESMP should be selected.*

**Responsible:** The PMU should draw up a specific PGRD for PROCASE II sub-projects, with the support of TA, based on this Plan and with local information on the specific risks linked to the environment and the type of investment. Institutions and government agencies should be called upon to act jointly to deal with the crisis (Civil Defense, environmental agencies, etc.).

**Target audience:** In the event of measures being triggered, the target audience for mitigation will be all the actors and stakeholders related to the Subproject.

The guidelines for emergency response preparation, including the Contingency and Risk Reduction Plan, the Disaster and Climate Change Risk Management and Assessment Plan, Monitoring, Preventive and Corrective Actions and the Action Plan, are described below.

It is important to note that the Disaster Risk Management Plan also takes into account the risks to which the community may be exposed.

Risk awareness is one of the four foundations of the Sendai Framework. The Sendai Framework for Action was defined at the Assembly of the UN Office for Disaster Risk Reduction, held in Sendai, Japan, in 2015. The Framework continues the actions defined by the Hyogo Framework for Action, establishing guidelines for local governments to invest in developing the resilience of cities.

The four priorities of the Sendai Framework are: (i) understanding disaster risk, (ii) strengthening disaster risk governance in order to manage it, (iii) investing in disaster risk reduction for resilience, (iv) increasing disaster preparedness in order to respond effectively and be efficient in recovery, rehabilitation and reconstruction.

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<sup>29</sup> This is a document required under IFAD's SECAP for project preparation.



Disaster and climate change risk management must involve instruments that help predict emergency situations, prevent emergency situations, mitigate and respond to emergency situations and continuously monitor them.

The risks identified in the AASE for the Project refer to the following, according to the situation of the project and the area of insertion:

- Flooding;
- Mass slippage;
- Droughts;
- Rain;
- Forest fires.

These risks are linked to certain environments, climatic seasons and regions in the state of Paraíba, as in the case of droughts (more significant in the semi-arid region) or landslides (characteristic of mountainous areas with high slopes).

To this end, risk management must include a Risk Analysis and Prioritization (RAP) covering disaster risk management actions, emergency response and contingency actions, monitoring of subproject areas, preventive actions and corrective actions.

The following are guidelines for preparing these instruments.

### **Risk Analysis and Prioritization**

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Considering the knowledge base presented by the IDB (2019), the Disaster and Climate Change Risk Analysis (DRA) addresses the disaster and climate change risk assessment for the Project based on the analysis of 3 (three) components or basic risk factors:

- **Threat:** Refers to phenomena of natural origin that pose a threat to the population or property and can therefore cause damage, economic loss, injury and loss of life. In other words, it is the danger itself, i.e. the type of event that can cause damage and destruction;
- **Exposure:** This refers to the spatial and temporal coincidence of people or goods (physical and environmental) and natural hazards. The exposure component therefore considers communities, assets, services or populations located in the area of influence of natural hazards exposed to threats and with the potential for damage;
- **Vulnerability:** Refers to how susceptible an entity is to being harmed or damaged. In the case of assets, systems and people, it is their intrinsic, internal, individual and combined characteristics that make them susceptible (or, conversely, resistant) by nature to suffering recurring damage from a threat.

Vulnerability is defined in terms of the potential to be affected by natural hazards alone.

Therefore, in the context of ARD development, disaster risk and climate change comprise the result of the coexistence of a threat (influenced by slowly and rapidly evolving threats of climate change, if applicable) and an asset (infrastructure, equipment, etc.) or a population (homes, businesses, etc.) that are not only exposed to this risk, but are also vulnerable to being harmed by it.

The ARD considers the preliminary assessment of geological risks such as mass movements (landslides) and hydro-meteorological risks such as floods and droughts.

As far as possible, the ARD should collect all information from studies, projects and official documents in the Project's area of influence relating to disaster risk and climate change.

A wide variety of studies and technical documents should be used as a database for the Project's Disaster and Climate Change Analysis (DCA). All these materials, together with stakeholder interviews, subsidize the construction of the Project's risk baseline from which the potential risks and expected impacts for each of the projects to be carried out are assessed.

This collection of information also reflects, if recorded, how and to what extent risk reduction and management measures have already been incorporated into PROCASE II sub-projects. This information contributes to composing the scenario for evaluating and identifying possible deficiencies and proposing structural and/or non-structural measures, especially in the field of developing this Disaster Risk Management Plan (PGRD).

Based on baseline data compiled from the region where the projects are located, field studies and interviews with local actors, the main threats that could cause disasters and damage to the projects and their environments:

- Rising temperatures and heat waves;
- Tropical storms, including situations of heavy rain or strong winds;
- Flooding
- Droughts;
- Landslides;
- Fires;

In the risk assessment developed at ARD, a methodological approach is considered which incorporates, for each threat, the analysis of 8 assessment attributes, which are listed below:

- Magnitude or geographical extent of the damage;
- Frequency of occurrence;
- Effects of climate change;
- Impacts on infrastructure operations and projects;
- Impacts on workers;
- Impacts on surrounding communities (or business impact);
- Impacts on the environment;
- Effects of project implementation.

From the application of the methodology described, the prioritization of the Project's threats should be achieved according to the final result of the qualitative risk analysis.

The implementation of the project's risk management and control measures must take into account the important criteria obtained through the qualitative risk analysis, with the aim of prioritizing threats that pose a high and moderate risk to projects.

## Procedures and guidelines for the Disaster and Climate Change Risk Management Plan

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This section presents procedures and guidelines for the construction of the Disaster and Climate Change Risk Management Plan, with the aim of guiding decision-making on the subject of risk management in the different phases of project implementation.

The PGRD should be considered a fundamental instrument for implementation by the borrower. This plan is a practical tool that provides organization and guidance for the evaluation of strategies and measures (structural and non-structural) aimed at the prevention and contingency of risks associated with disasters and climate change in a broader spatial and social context that includes not only communities potentially affected by the projects, but also the public bodies and authorities involved in risk management.

As with the risk assessment matrix, presented in the context of the risk analysis (ARD), the preparation of the Risk Management Plan (RMP) also considers the preparation of a single instrument covering the Project as a whole.

The Risk Management Plan must be organized according to the following structure:

- **Threat-Objective:** Indicates the threat to which the strategy of the proposed approach and action measures refers. There may be strategies and measures that have a broader scope of action, with the aim of controlling/containing more than one threat at the same time.
- **Risk Summary for the Project:** This field contains a summary of the risk assessment carried out under the ARD, highlighting the main points that led to the risk rating assigned to each of the threats.
- **General Measures and/or Resilience Actions:** Describes the general strategy/approach proposed to manage and control the risks associated with a given threat or set of threats and details the concrete measures and actions that should support the implementation of the proposed strategy/approach.
- **Typology:** Defines the type of strategies and control measures that are proposed for a given threat or set of threats. Basically, the strategies are expected to be:
  - **Structural:** including engineering measures that involve the actual execution of works and the application of physical control devices, such as the implementation of drainage structures, the containment of slopes, the structural reinforcement of buildings, etc.
  - **Non-structural:** include measures related to the implementation of systems, programs and lines of action and contingency for the management of identified risks. This group also includes actions that highlight the participation of stakeholders, the community in the project area, institutional coordination, training of workers and decision-makers.
- **Implementation Period:** Refers to the estimated time for the implementation of a given measure, which can be:
  - Short term: up to 6 months;
  - Medium term: 6 months to 2 years;
  - Long term: from 2 years.
- **Implementation Stage:** This refers to the stage at which the strategies and measures envisaged in the project horizon are expected to be implemented: planning, execution (or construction) and operation.

- Accountability and stakeholder participation: Identifies the roles and responsibilities for implementing the proposed strategies and measures, as well as preliminarily pointing out the need to contract external support, the participation of relevant stakeholders and/or institutional coordination with entities that can contribute to the desired objective.
- Follow-up and Monitoring: Describes the approach to be planned for the follow-up, supervision and monitoring of the proposed control strategies and measures.

### **Disaster Risk Monitoring System**

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A Risk Management and Monitoring System must be developed and implemented with the aim of assisting the Risk Management teams in the areas where the PROCASE II Subprojects or set of Subprojects are being implemented.

This tool must make it possible to map, monitor, inform, alert, control, prepare and finally propose solutions to the identified risk.

#### **Early warning system**

The early warning system should work in conjunction with the actions and tools made available by institutions and bodies working on the issue of combating disasters, such as the Civil Defense of the State of Paraíba and the Secretariat for Infrastructure and Water Resources (SEIRHMA), sharing the monitoring of risks and the systematization of data and information essential for Risk and Disaster Management.

SEIRHMA already has an alert system with the following services available that could be part of the PROCASE II monitoring system:

- Website with the system accessible to all citizens;
- Information system with weather forecast mapping, rainfall, reservoir volume and meteorological data;
- System for sending civil defense alerts via SMS;
- Disaster action plan;
- Safe meeting points and escape routes;
- Emergency call-outs in case of need (fire department, police, SAMU, environmental crimes, missing persons registration);
- Emergency kits.

### **Risk Management and Emergency and Disaster Response Preparedness**

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Bearing in mind that the execution of the Subprojects may be paralyzed during periods of extreme weather events, the risk "*delay in the execution of projects due to climatic factors*" is identified, which could hypothetically be classified with a low probability and medium impact, resulting in a low level of risk and thus not requiring a contingency or mitigation plan according to the risk management procedure, in which case only management and monitoring actions are required.

The applicable controls involve observing a rainfall period according to the historical record in the Subproject execution schedule in order to identify unproductive periods above the historical record for the same period.

A geological risk analysis must be carried out on the sites prospected for the implementation of projects that present environments with associated risks. If the result

of the risk analysis and the defined subproject alternative indicate the need, a specific procedure should be drawn up for monitoring the stability of slopes and structures during the installation and operation phases.

The objectives of risk management and emergency response preparation may involve:

- Prevent or control operational emergencies, disasters or possible accidents that may occur during the implementation and operation of the Subprojects;
- establish measures to respond in a timely, efficient manner and with the necessary resources to fires, accidents, disasters, attacks and any other emergency that may arise;
- prevent the consequences of a major event (fire, spillage of dangerous products) from resulting in damage to life and human resources; and
- control and monitor the Subproject's equipment and facilities during the implementation phase through periodic inspections.

For the operation of emergency responses, it is suggested that a Contingency Plan be prepared, proposing to typify three levels of emergency and whose quality of response is appropriate to the seriousness of the situation:

- Grade 1 emergencies: these are emergencies that affect only one area of operation and can be controlled with the resources of that area;
- Grade 2 emergencies: these are emergencies which, by their nature, always require other resources from other areas, which will be activated automatically;
- Grade 3 emergencies: these are emergencies that, due to their characteristics, magnitude and implications, require immediate, massive and total intervention by internal and external resources.

The Contingency Plan proposes the development of activities and actions that coincide with the Labor Management Plan (PGL) established in this PGASE/ESMF.

The contingency plan must include the following specific information:

- Emergency procedures;
- Communication procedures;
- Organization of the emergency committee;
- Actions to respond to accidents at work, fire and explosions; and
- Actions to respond to disasters (floods, landslides, etc.)
- Risk management measures in the event of flooding
- Risk management measures in the event of a landslide
- Management measures in case of risk of droughts and fires
- Meeting point and warning devices in case of emergency;
- Identification of external stakeholders (civil defense, environmental agencies, hospitals, health workers, community leaders);
- Definition of emergency kits;
- Systematic training and simulations

In the event of a crisis in emergency and disaster situations, a management report should be generated for the purposes of monitoring and continuous improvement of processes, containing:

- Description of the occurrence and its relation to the works;
- Description of problems and concerns;
- Delimitation of the affected area and the area at risk of being affected;
- Time of occurrence before assistance;
- Time taken to attend the incident;
- Damages reported;
- Response Actions;
- Replacement/Reconstruction/Reactivation actions for the affected processes.
- Calling in internal and external teams and authorities;
- Monitoring results;
- Critical Analysis and Continuous Improvement.

In Annex 7.2a re some examples of procedures for common types of incidents and accidents in similar sub-projects. These procedures can be converted into action sheets - including examples and illustrative drawings - so that the teams have easy access to the information, considering the appropriate adaptations to be made as a contribution to the PROCASE II PGRD to be developed.

## 5.4 Waste Management Program

The Waste Management Program is divided into Construction Waste (to be applied mainly during the construction phases) and Agricultural Production and Processing Waste, to deal with specific waste.

**Responsible:** TA will be responsible for implementing and monitoring the waste management actions to be carried out by the construction companies, under the supervision of the PMU. TA will also be responsible for monitoring whether there has been a reduction in the use of pesticides in the areas where the Subprojects are being implemented.

### 5.4.1 Construction Waste

Construction waste(RCC) will be generated mainly during the construction of the Project, from the construction of the new infrastructures and from soil handling in the excavation and earthmoving activities.

Due to the specific nature of waste, construction is a potentially environmentally degrading activity. Construction waste management is essential to ensure that this waste is properly disposed of, with a view to using the resources used in construction and adopting more sustainable practices.

Excavation and earthmoving work will generate solid waste of various kinds. Construction also produces construction waste, which must be disposed of in a planned manner.

It is therefore necessary to implement a program that can properly manage this waste, avoiding environmental impacts due to the improper disposal of these materials.

## Objective

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The aim of this program is to define criteria and establish minimum guidelines for the management of construction waste, which forms a volume of surplus and disposable material.

The specific objective is to define criteria for optimizing, reducing, reusing, storing, handling, transporting, treating and disposing of waste, with a view to better management and less impact on this material.

With the aim of reducing the generation of construction waste, CONAMA Resolution No. 307 of 2002 states that generators should aim first and foremost at not generating construction waste (RCC) and, in order of priority, at reducing, reusing, recycling, treating waste and the environmentally appropriate final disposal of rejects. As such, construction waste may not be disposed of in urban solid waste landfills, in dumping grounds, on slopes, bodies of water, vacant lots<sup>30</sup> or in areas protected by law.

## Procedures and Guidelines

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Follow the recommendations of the ABNT NBRs:

- 10.004 - Classification of Solid Waste
- 10.005 - Waste leaching procedures
- 10.006 - Waste solubilization procedures
- 10.007 - Waste sampling procedures

Waste treatment measures must take into account:

- Establish waste management priorities from the outset of activities based on an understanding of the potential environmental, health and safety risks and impacts, and taking into account the generation of waste and its consequences;
- Establish a waste management hierarchy that includes: prevention, reduction, reuse, recovery, recycling, removal and finally waste disposal;
- Avoiding or minimizing the generation of waste, as far as possible, where the generation of waste cannot be avoided, but recovering and reusing waste;
- When the waste cannot be recovered or reused, treat, destroy and dispose of it in an environmentally sustainable way.

## Scope/Activities

A Construction Waste Management Plan (PGRCC) must be developed for each project or set of projects. This PGRCC must be drawn up by the construction company with the support of TA, following the roadmap in which it must describe the actions relating to the characterization, handling, segregation, packaging, identification, storage, collection, internal and external transport, treatment and final disposal of all waste generated during the execution of the work, as well as the training of those involved in the execution of the plan. The PGRCC must follow at least CONAMA Resolutions 307/02, 348/04, 431/11, 448/12, 469/15, with the respective ART. The construction contractor must present a technical manager who will implement the PGRCC.

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<sup>30</sup> Except in cases where there is an earthworks permit and authorization from the owner.

The PGRCC must also include:

- The possibility of replacing raw materials or inputs with less hazardous products or toxic materials, or with those where processing generates lower volumes of waste;
- The application of manufacturing processes that convert materials efficiently, providing higher product output yields, including the modification of production process design, operating conditions and process controls;
- Establishment of good cleaning and operating practices, including stock control to reduce the amount of waste resulting from outdated, off-specification, contaminated, damaged or excess materials needed by the plant;
- Institution of procurement measures that recognize opportunities to return usable materials, such as containers, and that prevent excessive ordering of materials;
- Minimizing the generation of hazardous waste by implementing strict waste segregation to avoid mixing non-hazardous and hazardous waste to be managed;
- Recycling and Reuse:
  - Evaluation of waste production processes and identification of potentially recyclable materials;
  - Reuse of quality soils removed from construction sites, carrying out management that reduces the generation of residual soils from excavation and earthmoving processes;
  - Identification and recycling of products that can be reintroduced into the manufacturing process or industry and activity on site;
  - Investigation of external markets for recycling by third parties and industrial processing operations located in the neighborhood or region of the installation (e.g. waste exchange);
  - Establish recycling targets and formal tracking of waste generation and recycling rates;
  - Training and incentives for employees to meet objectives.
- Treatment and disposal:
  - If waste is still generated after the implementation of feasible waste prevention, reduction, reuse, recovery and recycling measures, the waste must be treated and disposed of and all measures must be taken to avoid potential impacts on human health and the environment. The management approaches selected must be consistent with the characteristics of the waste and local regulations, and may include one or more of the following strategies:
    - On-site or off-site biological, chemical or physical;
    - Treatment of waste material to make it non-hazardous before final disposal;
    - Treatment or disposal in permitted facilities specially designed to receive the waste. Examples include: composting operations for non-hazardous organic products, appropriately designed landfills or incinerators designed for the respective type of waste; or other methods known to be effective in the safe and final disposal of waste materials, such as bioremediation.
- Hazardous Waste Management:
  - Make a complete inventory of all harmful materials used in the project that includes an assessment of the types of materials and their potential risks to human health or the environment;



- Always separate from non-hazardous items;
- If the generation of hazardous waste cannot be avoided, its management must focus on preventing damage to health, safety and the environment, in accordance with the following principles: Understand the potential impacts and risks associated with managing any risks generated throughout its life cycle; Ensure that contractors handling, treating and disposing of hazardous waste are legitimate reputable companies, licensed by agencies and following good industry practice for the waste being handled; Ensure compliance with local standards and international regulations;
- Waste storage: Hazardous waste must be stored in such a way as to prevent or control accidental releases to air, soil and water resources in an area where:
- Waste is stored in such a way as to avoid mixing or contact between incompatible wastes, and allows inspection between containers to monitor leaks or spills. Examples include sufficient space between incompatibles or physical separation with containment walls or curbs
- Store in closed containers away from direct sunlight, wind and rain;
- Secondary containment systems must be built with appropriate materials so that the waste being contained is not lost to the environment;
- Secondary containment must be implemented where liquid waste is stored in volumes greater than 220 liters. The available volume of secondary containment must be at least 110 percent greater than the waste stored, or 25 percent of the total storage capacity (whichever is greater), at that specific site;
- Provide adequate ventilation where volatile waste is stored;
- Special management actions, conducted by employees who have received specific training in handling and storing hazardous waste, including: Providing readily available information on chemical products, including labeling each container to identify its contents;
- Limit access to hazardous waste storage areas to employees who have received appropriate training;
- Providing workers with Personal Protective Equipment (PPE) to limit exposure to toxic materials;
- Clearly identify (label) and demarcate the area, including documenting its location on a facility map or site plan;
- Carrying out periodic inspections of waste storage areas and documenting the findings;
- Prepare and implement spill response and emergency plans to deal with accidental spills, and include the preparation of incident and accident reports;
- Avoid underground storage tanks and hazardous waste pipelines;
- Comply with the protocols for transportation and disposal/treatment for the proper handling of the respective materials by all those involved in the Project who handle such materials.

The implementation and execution of the approved PGRCC will be the responsibility of the contractor, with due supervision by the PMU team, and must be evidenced by reports on the execution of the PGRCC and the Construction Waste Inventory, environmental licenses for transportation and disposal, including the ART of the person responsible for the execution of the PGRCC.

The activities provided for in this Program and which must be included in the PGRCC are:

- Waste identification, segregation and characterization;
- Waste Quantification/Inventory;
- Sampling;
- Classification;
- Determining the alternative destination, treatment, reuse, reprocessing, recycling and disposal;
- Waste valuation;
- Supplier evaluation;
- Handling and Transportation.

The waste generated must be classified into one of the categories described below:

**Class A:**

Waste that can be reused or recycled as aggregates, such as:

- Construction, demolition, renovation and repair of paving and other infrastructure works, including earthworks;
- Construction, demolition, renovation and repair of buildings: ceramic components (bricks, blocks, tiles, cladding panels, etc.), mortar and concrete;
- The process of manufacturing and/or demolishing precast concrete parts (blocks, pipes, curbs, etc.) produced on construction sites.

**Class B:**

This is waste that can be recycled for other uses, such as plastics, paper, cardboard, metals, glass, wood and plaster.

**Class C:**

This is waste for which no economically viable technologies or applications have been developed that would allow it to be recycled or recovered.

**Class D:**

Hazardous waste comes from the construction process, such as paints, solvents, oils and others, or those contaminated or harmful to health from demolitions, renovations and repairs to radiology clinics, industrial facilities and others, as well as roof tiles and other objects and materials containing asbestos or other products harmful to health.

**Segregation/Sorting**

Among these activities, waste must be sorted into different classes, and which waste requires exclusive separation. Segregation is essential because it facilitates the subsequent stages, considering that this work is carried out directly at the source of generation, removing the need for subsequent, possibly more costly segregation. It also saves time when sending waste for treatment and final disposal.

Class A waste should be segregated from the rest. As for Class B waste, it is suggested that it be separated by type of waste, given the possible need for different companies to

be responsible for treatment and final disposal, especially gypsum, which was initially categorized as Class C waste, but given the publication of CONAMA Resolution No. 431 of 2011, is now part of Class B.

Unfortunately, CONAMA Resolution 307 of 2002 does not give examples of Class C waste, but it is assumed that brushes, unused sandpaper and glass wool waste fall under this description. It is therefore suggested that such waste be segregated from the rest.

Class D hazardous waste, due to its characteristics of flammability, corrosivity, reactivity, toxicity, pathogenicity, carcinogenicity, teratogenicity and mutagenicity, presents a significant risk to public health or environmental quality, according to Law No. 12.305 of August 2, 2010 and ABNT NBR 10004:2004 (ABNT, 2004). Due to these characteristics, this waste must be separated from non-hazardous waste in order to avoid contamination, as well as so that processes such as recycling and eventual reuse are not compromised.

### ***Packaging***

Packaging must ensure that waste is separated as planned in the segregation stage, as well as facilitating transportation from the construction site to treatment and final disposal. The devices defined for packaging must be compatible with the type and quantity of waste, with the aim of preventing accidents, the proliferation of vectors, minimizing odors, loading.

Plastic bags of varying sizes should be used in different garbage cans for each type of waste. These devices should be used to store Class B waste (paper, plastic and light materials such as uniforms, gloves and boots). The storage area must be covered.

Mobile or fixed bays with partitions for temporary storage should be used for Class B, C and D waste.

Stationary skips with a capacity of around 5 m<sup>3</sup> are suitable for packaging waste such as Class A waste, as well as wood, which is classified as Class B waste. They must be removed from the site by dump trucks.

In areas where domestic waste is generated (Class B), the use of common waste garbage cans is recommended.

### ***Transportation***

The transport stage involves removing waste from its place of origin to transfer stations, treatment centers or directly to its destination. It is important to implement transport logistics for fixed construction sites, providing adequate access, timetables and control of the entry and exit of the vehicles that will remove the properly packaged waste, in order to combat the excessive accumulation of waste and improve local organization.

Transport companies must have an environmental license for this specific activity and all transportation of materials must be documented, with tracking of the origin, destination, type and quantity of materials.

### ***Treatment and disposal***

The waste treatment stage involves actions designed to reduce the quantity or polluting potential of solid waste, either by preventing the disposal of waste in an inappropriate place or by transforming it into inert or biologically stable material.

Given the priorities, when the treatment alternatives for reuse and recycling have been verified and finally result in tailings, they must be disposed of.

An essential premise is that any company providing services that is involved in this process of treatment and final disposal of waste from the Project must present all the appropriate and valid documentation for the activity, such as environmental licensing and the appropriate authorizations to operate the proposed solution.

Waste must be treated according to its classification:

- Class A

Cement, mortar and ceramic component waste must be sent to transshipment and sorting areas for construction waste and bulky waste if it is to be reused. This is where the segregated materials are sorted, temporarily stored, transformed or removed for proper disposal. They can also be sent to Class A waste landfills to reserve material for future use.

In the case of soil removal, preference should be given to using it on the site itself. If this is not possible, the soil can be reused in the recovery of contaminated soils, landfills and earthworks of abandoned quarries, used in works that require landfill material, or even sent to Class A waste landfills.

- Class B

Waste such as metal, plastic, paper, cardboard and glass should be sent to recycling plants. As for wood, you should check whether it is possible to reuse the pieces, even if they have been damaged, by cutting them up properly so that they can be used elsewhere. If it is not possible to use them on site, the wood, free of contaminants such as paints and varnishes, can be used to generate energy or as a raw material for other civil works.

- Class C

Class C waste cannot be recycled or recovered. It must therefore be sent to industrial landfills for non-hazardous and non-inert waste.

- Class D

Hazardous waste must be sent to industrial landfills, which have the technology to minimize the environmental damage caused by liabilities.

### **Sampling**

Sampling solid waste is an operation of fundamental importance, because the result of an analysis carried out on the sample is only of value if that portion of the waste taken for analysis represents as accurately as possible the composition and properties of the whole it represents.

Sampling is important in order to have a precise and adequate classification of the waste, especially to be sure of those defined as class I by NBR 10.004 (Hazardous Waste).

Sampling should be carried out as soon as the waste is generated, and for waste stored in the open air it should be collected at a depth of more than 15cm.

#### **5.4.2 Agricultural Production and Processing Waste**

Agricultural production and processing has a particular set of waste products that need specific management - there are products that are considered hazardous (pesticides or *manipueira*, which comes from the pressing of cassava dough in flour mills). There is also waste that can be recycled and should therefore be disposed of (for example, plastics, packaging for non-hazardous products, among others), and finally organic waste (peelings, pomace, pruning waste, among others).

## **Objective**

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The aim of this program is to define criteria and establish minimum guidelines for waste management activities in Agricultural Production and Processing.

The specific objective is to define criteria for optimizing, reducing, reusing, storing, handling, transporting, treating and disposing of waste, with a view to better management and less impact on this material.

## **Procedures and Guidelines**

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- It is important to segregate waste in kitchens and processing areas, for example by not combining organic waste with material that can be recycled (plastics, long-life packaging, etc.).
- Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.
- For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizers, natural pesticides, among others.
- It is important for TA to show communities the viable alternatives for disposing of waste properly, depending on its nature.

## **Hazardous Waste**

The main dangerous products are related to the pesticides that may be used. The sub-project will aim to reduce the use of these products by introducing agro-ecological practices, with a view to transition and replacement with natural inputs, although this process will be gradual.

Therefore, monitoring should be carried out to verify the effectiveness of reducing the use of this type of input in production. Monitoring should include indicators, interviews and photographic records that show the effectiveness of actions to combat the use of pesticides and chemical pesticides in the investment areas.

- In the case of Subprojects involving processes that generate *manipueira*, the following issues must be observed:
  - Manipueira should not be directed to collective or individual sewage treatment systems;
  - Disposal should not be directly into rivers, lakes or bare earth;
  - A Manipueira biodigestion process should be used, which could also provide natural gas;
  - Techniques involving the appropriate use of manipueira as an agricultural pesticide can also be used.

## **Production waste**

ATER should train rural producers and monitor the actions taken to manage production waste. To this end, the following guidelines should be adopted when training beneficiaries and monitored:

- It is important to segregate waste in kitchens and processing areas, for example by not combining organic waste with material that can be recycled (plastics, long-life packaging, etc.).

- Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.
- For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizer (compost), natural pesticides, among others.
- It is important for TA to show communities the viable alternatives for disposing of waste properly, depending on its nature.

It should be noted that all monitoring must gather evidence to support the respective report to be sent to the PMU, including indicators, photographic records, inspection forms, among others.

## 5.5 Water and Effluent Quality Monitoring Program

This program focuses on the collection and evaluation of water and effluent samples from water collection systems and the quality of effluents treated by the systems in place. It also includes monitoring the quality of water resources in the area of influence of civil works to ensure that there is no impact from construction activities locally.

**Responsible: TA**, together with the construction companies, will be responsible for monitoring water and effluent quality under the supervision of the PMU.

### Objective

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The aim of this program is to guarantee the natural and healthy conditions of the aquatic environment of water resources, in order to observe possible influences caused or pre-existing in springs and aquifers, foreseeing possible needs for actions that guarantee the quality of the environment, the water supply and the treated sanitary effluent.

The quality of the water in the catchment, the quality of the treated water, the quality of the effluent discharged and the situation of the spring or surrounding environment where the effluent is discharged or drained should be monitored.

### Procedures and guidelines

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#### ***Monitoring the Quality of Water for Public Supply***

The reference for the quality standard will be the maximum levels defined by CONAMA Resolution 357/2005 and CONAMA 430/2011 for class 2 fresh waters, i.e. those that can be used in this way:

- Class 2:
  - Supply for human consumption, after conventional treatment;
  - The protection of aquatic communities;
  - Primary contact recreation, such as swimming, water skiing and diving, according to CONAMA Resolution 274 of 2000;
  - The irrigation of vegetables, fruit plants and parks, gardens, sports and leisure fields, with which the public may come into direct contact; and
  - Aquaculture and fishing.

In addition to the local parameter, verification analysis should also be carried out on the IFC parameters, as presented above.

We also suggest considering the use of a system (automated or not) to monitor the collection points. The system should be able to display well data ranging from basic information such as its location (georeferenced map), name, as well as more complex information such as flow rate, results of physical and chemical analysis, geological and construction profile, digitized construction report, scaling, pumping test and aquifer test (in the case of wells).

The suggested system should be used to monitor the water supply, including pyrometry and macro-measurement. This system should provide information on the measurement of flow, pressure, time of measurement, etc.

These systems should provide subsidies for monitoring surface water quality.

### ***Monitoring the Quality of Basins in the Sewage Release Area***

In order to comply with good practices and international standards, the water quality conditions defined for the classes in Section II of Conama 357/2005 (and its amendment No. 397/2008) and CONAMA 430/2011 will be taken as a basis, considering the coliform parameters in accordance with CONAMA 274/2000.

The measurement of the physical-chemical-bacteriological parameters of the water must be carried out by a specialized analytical laboratory that has all the equipment necessary to carry out the tests, duly certified by INMETRO (National Institute of Metrology, Standardization and Industrial Quality - parameters in table 2), or recognized by the competent environmental agency.

Samples must be collected, preserved and analyzed in accordance with the technical standards established by ABNT NBR 9898/1987 and the *Standard Methods For The Examination Of Water and Wastewater* (APHA, 1995). The reports issued by the laboratory must contain a technical analysis of the results, showing the behavior of the parameters measured and their implications for the quality of the environment, always comparing them to the baseline results (first analyses), which will be determined before the interventions begin and at least during the recommended periods.

It will be the responsibility of the relevant sector to publish the results and draw up and publicize an annual Water Quality Report for the Project, which clearly indicates the evolution of the indicators measured throughout the execution of the Subproject, correlating their positive and negative variations to verified or probable causes, whether or not associated with the works and systems implemented. The report should contain recommendations/conclusions that allow those involved in the socio-environmental management of the Subproject to plan actions aimed at minimizing adverse impacts and boosting positive impacts.

Monitoring should be carried out periodically (monthly, quarterly, biannually, to be defined) through strategically placed points in the communities. The person responsible for providing the results of this monitoring will be TA and the measurement parameters will be as follows: Hydrogen Potential - pH, Water Temperature (°C), Electrical Conductivity, Turbidity, Hardness, Total Nitrogen, Thermotolerant Coliforms, Biochemical Oxygen Demand - BOD, Chemical Oxygen Demand - COD, Total Phosphorus.

A baseline should be built for this monitoring, checking the *ex-ante* and *ex-post* situation in order to verify the evolution of improvements in the quality of the water body and the basin and to identify possible emergencies due to sewage contamination in the surrounding environments.

## 5.6 Biodiversity Management, Protection and Restoration Plan

A Natural Habitats Management and Restoration Programme is required when there is a risk of impact on "modified habitats", "natural habitats" and "critical habitats", together with "legally protected areas and internationally and regionally recognized areas of biodiversity value", which may include habitats in any of these categories. This situation requires a differentiated risk management strategy for habitats, based on their values and susceptibility. It also takes into account the existence of ecosystem services.

**Responsible:** TA will be responsible for implementing management, protection and restoration actions, as appropriate, under the supervision of the PMU.

According to the results of the Strategic Social and Environmental Assessment (AASE), there is a risk of affecting habitats of various kinds, although the exact definition and location of the PROCASE II subprojects is not known, which may or may not trigger this Plan depending on the design of each subproject and the constraints of its area of insertion.

This program provides for the necessary actions to deepen the biodiversity assessment studies in the field and specific actions to mitigate and compensate for natural habitats expected to be affected by the eventual suppression of vegetation for the implementation of infrastructure and, above all, in the recovery of areas provided for in the project's productive development plans.

### Objective

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The aim of this Plan is to ensure that PROCASE II does not affect biodiversity by resulting in a net loss in areas of natural habitat and that it achieves net gains in those biodiversity values for which a critical habitat has been designated.

PROCASE II sub-projects are not expected to be implemented within known critical habitats, but they may be planned in surrounding areas, close to these habitats, making it important to implement measures to avoid indirect consequences for the sub-project in these areas, such as the cutting down of species, the advance of deforestation, etc. In some infrastructure deployment situations, there may be a need to cut down isolated native and protected species, requiring measures to avoid or, where this is not possible, compensate for these situations. This Plan is in line with the proposal of these guidelines, in order to achieve the project's objectives and in compliance with the IDB's PDAS6 of the MPAS.

### Procedures and Guidelines

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With the aim of protecting and conserving habitats and the biodiversity they support, the mitigation hierarchy includes biodiversity offsets. Offsets will only be considered as a last resort, after technically and financially feasible prevention, minimization and restoration measures have been applied and residual adverse impacts remain.

All studies that result in the identification of risks and impacts should consider adopting a mitigation hierarchy, involving solutions that consider the hierarchy in the following order of priority: (i) prevention measures; (ii) minimization measures; (iii) rehabilitation measures; and (iv) compensation measures. It will be very important to monitor and follow up on the regeneration of SAF areas, and it is also important to note the risk of affecting isolated tree species for all structures involving civil works.

A biodiversity offset will be designed and implemented to achieve measurable, additional long-term conservation outcomes that are reasonably expected to result in no net loss and preferably a net gain for biodiversity. In the case of an offset used as mitigation for



residual adverse impacts on any area of critical habitat, a net gain is required. The design of a biodiversity offset should adhere to the "comparable or better" principle and will be carried out in accordance with International Good Industry Practice<sup>31</sup>.

**Criteria for Identifying Natural or Critical Habitats**

The identification of the existence of natural or critical habitats must take into account:

- habitat of significant importance for critically endangered, endangered, vulnerable or near threatened species;<sup>32</sup>
- habitat of significant importance for endemic and/or restricted-range species;
- habitat that supports globally significant concentrations of migratory species and/or congregational species;
- highly threatened and/or unique ecosystems;
- areas associated with the main evolutionary processes;<sup>33</sup>
- areas that are legally protected or internationally recognized as having high biodiversity value.

The following table provides a consolidation matrix of the criteria for determining critical habitats.

**Table 8 - Consolidation of critical habitat identification arguments<sup>34</sup>**

Criteria	Identification feature
<p><b>habitat of significant importance for critically endangered, endangered, vulnerable or near threatened species;</b></p>	<p><i>Trichechus manatus, Touit surdus, Myrmeciza ruficauda, Picumnus fulvescens, M. ruficauda</i> and <i>Xipholena atropurpurea, Iodopleura pipra, Alouatta guiba clansans</i> (White-winged Macaque), <i>Alouatta guiba clans</i> (White-winged Macaque), <i>Xipholena atropurpurea</i> (White-winged Macaque), <i>Iodopleura pipra</i> (White-winged Macaque) <i>ruficauda and Xipholena atropurpurea</i> (white-winged anambee), <i>Iodopleura pipra</i> (little anambee), <i>Alouatta</i></p>

<sup>31</sup> Good International Industry Practice (GIP) is defined as the exercise of professionalism, diligence, care and foresight that can reasonably be expected of qualified and experienced professionals carrying out the same type of activity, under identical or similar circumstances, at a global or regional level. The outcome of this exercise should result in the project using the technologies best suited to the specific circumstances of the project (Assessment and Management of Social and Environmental Risks and Impacts: World Bank Environmental and Social Framework, 2017).

<sup>32</sup> As listed in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. The determination of critical habitat based on other listings is as follows: (i) if the species is listed nationally/regionally as threatened or critically endangered, in countries that have adhered to the IUCN guidelines, the determination of critical habitat will be made on a project by project basis in consultation with competent professionals; and (ii) in cases where the categorizations of nationally or regionally listed species do not correspond well to those of the IUCN (for example, some countries list species as generally "protected" or "restricted"), an assessment will be carried out to determine the justification and purpose of the listing. In this case, the critical habitat determination will be based on this assessment.

<sup>33</sup> This can include reserves that meet the criteria of IUCN Protected Area Management Category I to VI; World Heritage Sites designated by natural or mixed criteria, areas protected by the RAMSAR Convention on wetlands; World Biosphere Reserve core areas; areas on the UN Lists of National Parks and Protected Areas; sites listed in the World Database of Key Biodiversity Areas; and other sites that meet the requirements of the IUCN Global Standards for the Identification of Key Biodiversity Areas 2016.

<sup>34</sup> These characteristics constitute an example of completion in the identification of critical habitat and are sourced from the results of the Project's AASE.

	<i>guariba clamitans</i> (Guariba monkey); <i>Euphractus sexcinctus</i> (armadillo).
<b>habitat of significant importance for endemic and/or restricted-range species;</b>	-
<b>habitat that supports globally significant concentrations of migratory species and/or congregational species;</b>	<i>Picumnus fulvescens</i> (Tawny Piculet), <i>Crypturellus noctivagus</i> (Yellow-legged Tinamou), <i>Touit surdus</i> (Golden-tailed Parrot), <i>Carduelis yarrellii</i> (Yellow-faced Siskin), <i>Xipholena atropurpurea</i> (White-winged Cotinga), <i>Myrmeciza ruficauda</i>   (Scallop Anthill)
<b>highly threatened and/or unique ecosystems;</b>	-
<b>areas associated with the main evolutionary processes;</b>	-
<b>areas that are legally protected or internationally recognized as having high biodiversity value.</b>	Biological Reserve, Area of Ecological Interest, KBA, native formations of the Atlantic Forest and mangroves.

Note: Critical Habitat should only be considered if there is a direct impact or risk of impacts arising from the actions of the Subproject or its consequences.

Source: AASE PROCASE II, 2024

If a Natural or Critical Habitat is identified, the susceptibility to impacts from the implementation/operation of the Subproject must be assessed, according to the results to be demonstrated in the Subproject's ESIA. Should this situation arise, a Biodiversity Action and Management Plan should be drawn up, in accordance with the following guidelines.

### **Biodiversity Action and Management Plan**

The analyses carried out in the AASE resulted in the identification of risks of disturbance in areas of modified or natural habitats. Such habitats can represent the presence of natural environments, which is rarer in areas that are already anthropized, and so-called modified habitats, which are areas that may contain a large proportion of plants and/or animal species of non-native origin, and/or where human activity has substantially modified the territory's primary ecological functions and species composition.

Modified habitats can include, for example, areas managed for agriculture, forest plantations, coastal zones and reclaimed wetlands. Apps of rivers that have suffered human intervention and are de-characterized can be characterized as modified habitats, which is closely related to the mitigation and compensation concerns and requirements of protection agencies.

On the other hand, natural habitats can be characterized as critical habitats, making it necessary to draw up BAPs. Given these definitions, it is important that PROCASE II focuses the selection of areas for project implementation on places where the environment has already been modified by human action, thus avoiding the need to implement related measures.

In the event of a risk of affecting Natural or Critical Habitats, the borrower must take the following measures to mitigate and/or compensate for activities related to the Subproject that impact or may impact such habitats, measures to be carried out in the phase preceding the implementation of the Subprojects:

- a) carrying out a study to evaluate viable alternatives from a technical and financial point of view for the design of the project in the affected areas, which will lead to a reduction or, whenever possible, no suppression of vegetation or risks of occurrence, prioritizing the preservation of endemic species or species of symbolic or cultural value;

- b) evaluation of ecosystem services, according to the methodological details presented below.
- c) in situations where suppression is unavoidable, drawing up a floristic inventory and, if necessary, a fauna study.
- d) verification and analysis of the presence of priority sites for conservation, according to international organizations (KBA, AZE, IBA, IPA, Ramsar, World Heritage sites, Biosphere Reserve)<sup>35</sup>
- e) Assessment of connectivity between habitats and ecological corridors, mainly to check for new corridors that can be promoted by restoring areas.
- f) Assessment of habitat vulnerability (desertification, continuous loss of vegetation cover, etc.)
- g) identification of areas of importance for animal reproduction and spawning;
- h) checking for the presence of endangered species and species on the International Union for Conservation of Nature (IUCN) red list.
- i) implementation of appropriate mitigation and compensation measures, based on a Biodiversity Compensation Management Plan.

### ***Evaluation of ecosystem services***

It is important to conceptualize that the environment is not only a source of natural resources for economic development, but also a provider of "free" services that feed the development process itself (CONSTANZA et al, 1997). The notion that ecosystems provide benefits to society is then conceptualized as ecosystem services (HASSAN et al, 2005).

The evaluation of ecosystem services must therefore work from the perspective that these are aspects of ecosystems used (actively or passively) to produce quality of life for a certain community (FISHER et al, 2009)<sup>36</sup>.

It is assumed that there are no services without beneficiaries, so there is only a service if there is a relationship with society, even indirectly. In other words, if there is no such relationship, there are only ecological processes in the area studied.

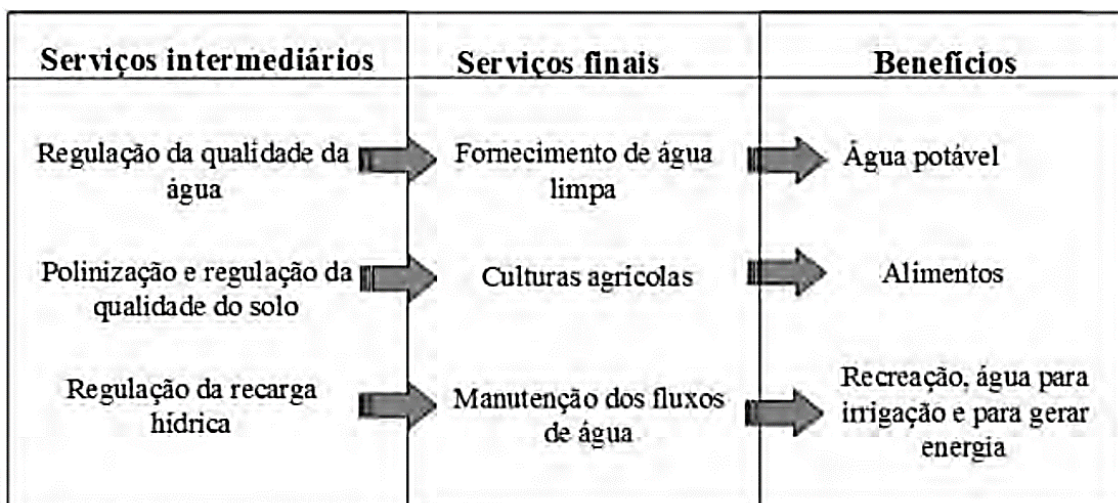
Evaluation must therefore take this concept into account. In summary, the following figure shows the chain of availability of natural resources for the benefit of the community with practical examples.

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<sup>35</sup> KBA = Key Biodiversity Area; AZE = Alliance for Zero Extinction; IBA = Important Bird Areas; IPA = Important Plan Areas;

<sup>36</sup> BRENDAN FISHER, R. KERRY TURNER, PAUL MORLING. Defining and classifying ecosystem services for decision making. *Ecological Economics* 68, 2009. 643-653p.

**Figure 2 - Difference between intermediate and final ecosystem services**



Source: Adapted from Fisher et al (2009).

Thus, the first stage of the evaluation should involve a diagnosis that considers the identification and characterization of:

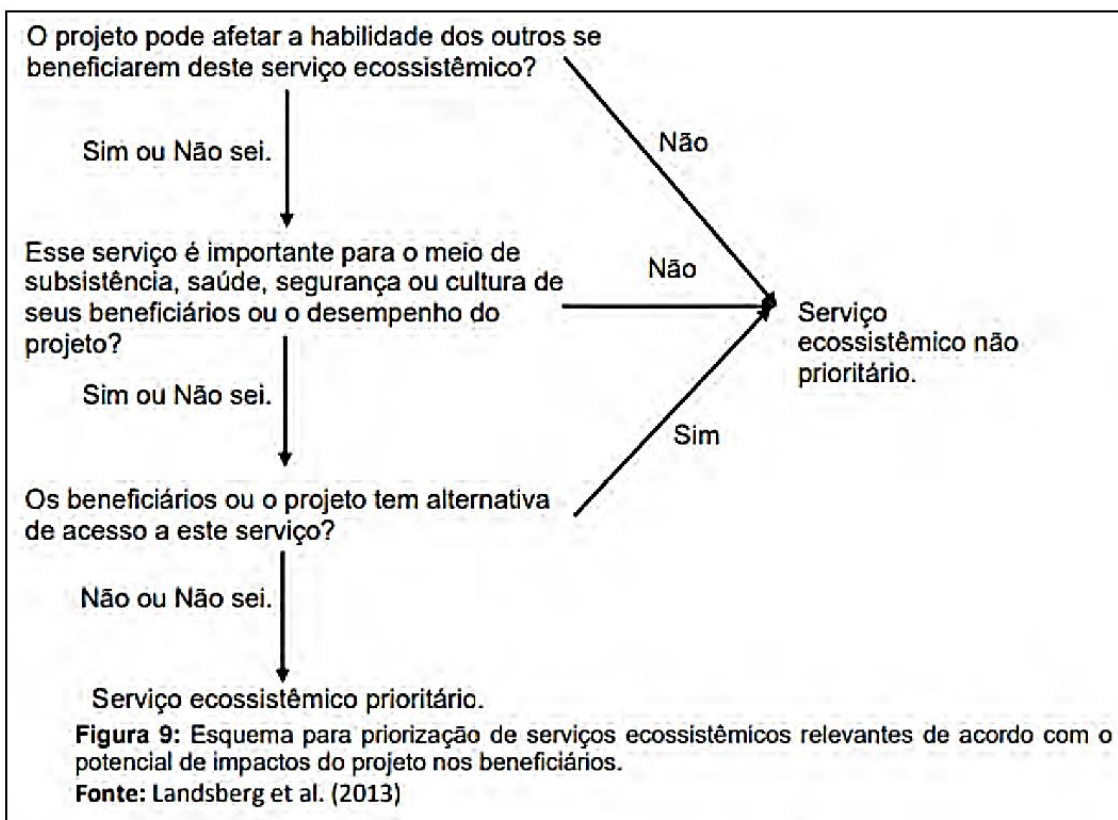
- Natural resources available in the area;
- Surrounding communities that can use the spaces economically or culturally, in an artisanal or traditional way.
- Correlation between the available resources and the economic and cultural practices of the communities should result in the identification of ecosystem services<sup>37</sup>.

The following stages of the study must then be carried out:

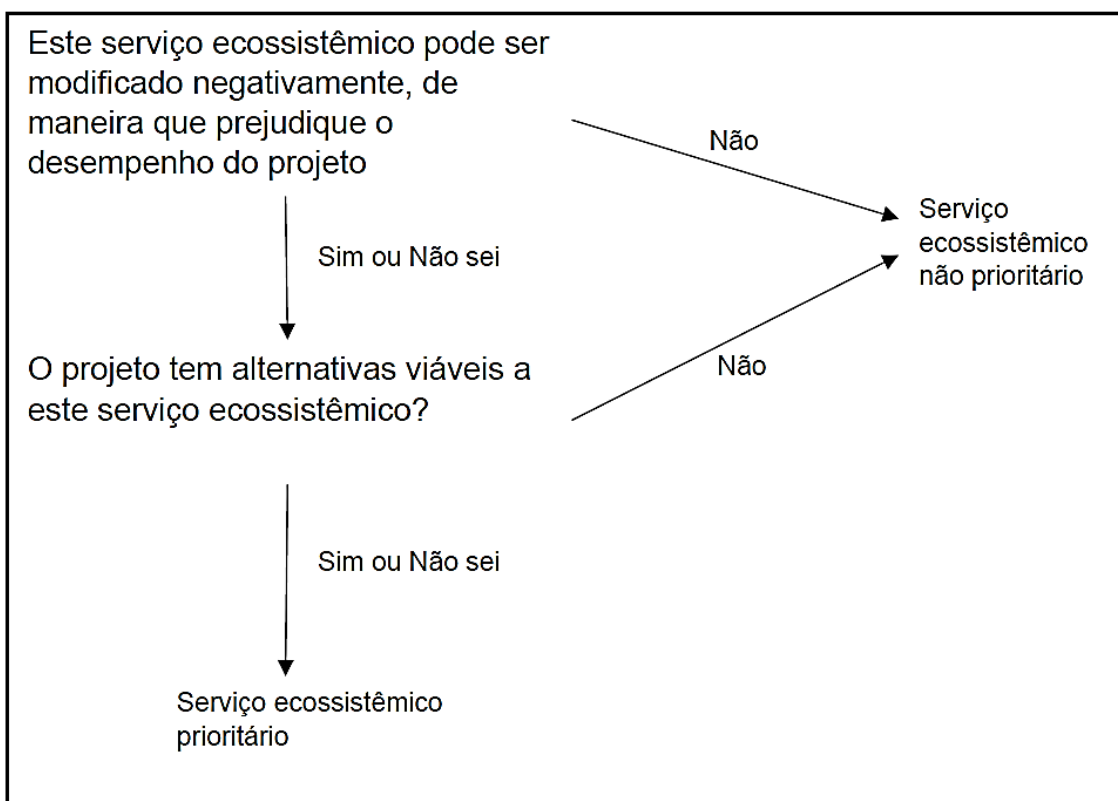
- Prioritization of relevant ecosystem services, with the following logic:
  - Approach according to project impacts and beneficiaries of ecosystem services<sup>38</sup>.

<sup>37</sup> In the case of SAF, it is understood that these correlations will be promoted.

<sup>38</sup> FLORENCE LANDSBERG, MERCEDES STICKLER, NORBERT HENNINGER AND JO TREWEEK. Weaving Ecosystem Services into Impact Assessment. Available at: <<https://www.wri.org/research/weaving-ecosystem-services-impact-assessment>>. Accessed on: October 10, 2021.



- Approach according to the project's operational risks



- The prioritization must present an assessment of the significance of the point of view:

- Technical experts who are developing the study;
- Communities' perspective, requiring consultation with this focal group of interested/affected parties.
- Definition of the scope and information needed to evaluate ecosystem services:
  - Ecosystem affected (including in the case of positive impacts);
  - Potentially impacted ecosystem service;
  - Potentially affected benefit;
  - Potentially affected beneficiary.
- Establishing benchmarks for prioritizing ecosystem services:
  - Ecosystem service;
  - Does the project have the potential to affect this S.E. (Systemic Service)?
  - This S.E. is important for the beneficiary's health, safety or way of life;
  - Is it possible to visualize spatial alternatives for accessing the S.E.?
  - Is S.E. a priority?
- Assessment of project impacts and dependencies on the priority of ecosystem services:
  - Priority ecosystem service;
  - Beneficiaries affected;
  - Project activity;
  - Impact on the ecosystem;
  - Impacts on beneficiaries.
- Mitigation of impacts and management of project dependencies in relation to prioritized ecosystem services:
  - What mitigations or compensations are proposed;
  - What is the community's choice among the mitigation and compensation options offered?
  - Definition of a monitoring program for both negative and positive risk situations (promotion of new ecosystem services).

### ***Compensatory Measure***

If vegetation is suppressed, this will be necessary:

- Define the need and proposal for compensation for the use of areas in natural or critical habitats, considering vegetation recovery in natural or modified habitats to be defined within the scope of the surveys and presented in the Biodiversity Compensation Management Plan;
- Compensation for ecosystem resources (to be defined in the Biodiversity Action and Management Plan).

### ***Minimum content of the Biodiversity Action and Management Plan - BAP***

The PAB must include the following elements:

- Scope and objectives.
- Legal framework.
- The relationship between the PAB and the environmental and social management system (SGAS) and the approach to other planned environmental and social action plans.
- Summary of project description and impacts.
- Summary of the biodiversity baseline and identification of the BAP targets.
- Actions to be taken to achieve the objectives, which may include in the case of negative affectation:
  - Preservation measures
  - Minimization measures
  - Restoration measures
  - Compensation measures
- Management and administration of the PAB.
- Monitoring, indicators and evaluation included in projects with a positive impact on the environment.
- Schedule and costs.

### **Measures to prevent invasive alien species**

The intentional or accidental introduction of exotic or non-native species of flora and fauna into areas where they are not normally found can pose a significant threat to biodiversity, as some exotic species can become invasive, spreading rapidly and destroying or negatively competing with native species.

PROCASE II has project proposals that involve the use of species that, although exotic to the biome, are species that have been adapted to the environment for many years, including being part of the dynamics and ecological function and local ecosystem services. This is the case with some forage species, such as the palm, for example, which, despite not being native to the Atlantic Forest or Caatinga biome, is fundamental to the entire ecological and agroforestry system found in the region where the project operates.

In this case, exotic species possibly considered for use must meet the following criteria:

- (i) have potential for the social, economic and cultural development of vulnerable or traditional rural communities;
- (ii) be a species fully adapted to the Atlantic Forest or Caatinga biome (species that are already widely used and that have accumulated knowledge about their interaction with native vegetation, this knowledge can be the practical knowledge of the families that produce and/or form the local agroforestry);
- (iii) not being an invasive or predatory species (species that can cause native species to take over territory, such as leucaena, which spreads very widely and quickly, suffocating the surrounding forest and reducing the capacity for local recovery and gene exchange);
- (iv) preferably those that play an ecological role in the recovery of the forest or soil (species that enable interaction with the surrounding vegetation, for example by acting as pioneers and providing protection for secondary

species of the Atlantic forest or that can serve as food for local fauna, without causing risks);

- (v) are not toxic to local insects, especially those that work in local pollination - with a focus on native bees.

The intentional introduction of new alien species (not currently established in the country or project region) will not be permitted, unless done in accordance with the existing regulatory framework for such introduction. Notwithstanding the above, deliberate introduction of exotic species that present a high risk of being invasive should not be allowed, regardless of whether such introductions are permitted in accordance with the regulatory framework. Any introduction of exotic species will be subject to a risk assessment (part of the Environmental and Social Assessment) to determine the invasive potential.

Measures should be implemented to prevent possible accidental or unintentional introductions, including the transportation of substrates and vectors (such as soil, ballast and plant materials) that could harbour invasive alien species.

When invasive alien species are already established in the region of the proposed project, the necessary procedures must be taken to prevent them from spreading to areas where they have not yet become established. Whenever possible, measures should be taken to eradicate such species from natural habitats where they have management control.

The best practices in the management and control of exotic species in the Subproject areas should be incorporated into the training courses for Rural Producers.

### **Monitoring the Actions Taken**

- A monitoring plan should be drawn up for reclaimed areas (e.g. app that have had intervention), in order to assess the impacts of possible changes in natural water dynamics.
- Annual reports on the monitoring of interventions in natural and modified habitats, with photographic records, must be submitted.
- An annual report on the monitoring of environmental compensation and recovery areas must be submitted. Increases in new compensation areas as a result of intervention sections not foreseen in the project should be duly evidenced and discussed in this document.

The monitoring report should present the results of the monitoring and maintenance of the area, with a view to achieving due compensation and net environmental gain:

- Mowing activities;
- Crowning and replacement of saplings;
- Pest control;
- Seedling size;
- Monitoring the colonization and diversification of fauna and flora;
- Maintenance of staking/tutoring;
- Fertilization;
- Drainage channel maintenance,
- Fence maintenance.



### **Team composition**

The borrower must ensure that the teams for biodiversity baseline studies (AIAS or PAB) include specialists in the field of biology or ecology, and for situations related to ecosystem services, they must include professionals with knowledge of socio-biodiversity issues.

### **Permanent Preservation Areas**

Subproject support areas and civil works must respect the limits and avoid interfering with Permanent Preservation Areas. Project implementation areas (PIRs) should focus on improving environmental quality, both in physical and biotic aspects, in permanent preservation areas. The implementation of SAFs may eventually be associated with APP areas<sup>39</sup>, one of the objectives of which is to restore them. It is therefore important that service roads are installed in such a way as to reduce interference in APP as much as possible and that the projects contribute to a net gain in vegetation cover.

As a guideline for the Subprojects in APP, below are guidelines based on the legal guidelines given by the Brazilian Forest Code and the Rural Environmental Registry (CAR). These are guidelines for agroforestry systems in APP:

- Agroforestry activities carried out by rural family producers in APPs are considered to be of social interest, and are described as sustainable agroforestry practiced on small properties or rural family possessions or by traditional peoples and communities, provided that they do not de-characterize the existing vegetation cover and do not harm the environmental function of the area;
- These are considered by law to be low environmental impact activities that can be implemented in APPs, as long as they involve agroforestry and sustainable, community and family forest management, including the extraction of non-timber forest products, as long as they do not de-characterize the existing native vegetation cover or harm the environmental function of the area.
- Areas can be restored by planting native and exotic species in an agroforestry system, subject to the following parameters:
  - The planting of exotic species should be combined with regionally native species;
  - The area recomposed with exotic species may not exceed 50% (fifty percent) of the total area to be recovered;
- interspersed planting of woody, perennial or long-cycle exotic species with regionally occurring natives may be carried out on up to fifty percent of the total area to be restored on small properties or rural family holdings;
- It is permitted to build in APP housing for family farmers, remnants of quilombola communities and other extractive and traditional populations in rural areas, where the water supply is provided by the residents' own efforts;
- The planting of native species that produce fruit, seeds, nuts and other plant products is permitted, as long as it does not involve the suppression of existing vegetation or harm the environmental function of the area;

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<sup>39</sup> These APPs are related to riverbanks and other types of APPs, such as springs, steep slopes and hilltops, are not considered in Procasse II.

- Provide for the CAR of the area in order to formalize the use and zoning of the property with the use of APP for the respective purposes.

### **Prevention and Mitigation of Impacts to Flora and Fauna**

These actions bring together measures to prevent and mitigate impacts on flora and fauna that could be affected by the Subproject. They involve simple procedures, mostly relating to the construction company, teams of workers from the construction companies, and also TA, which should be an agent overseeing the activities.

- Impacts relating to the removal of vegetation for the establishment of support areas must be prevented or minimized;
- Attention should be paid to increased noise levels that could influence the behavior of wildlife;
- Whenever possible, the opportunity should be taken to retrieve biological information;
- A reduction in wild animal hunting practices should be promoted;
- Measures must also be applied to protect ecosystem services and sensitive habitats, establishing criteria for the management of flora and fauna, and establishing measures to control exotic and invasive species.

### **Vegetation Suppression and Cleaning Control**

This control aims to prevent the suppression of vegetation in areas not planned for direct intervention by the Subprojects and in areas where suppression is necessary, and to ensure that all woody material resulting from this action is removed. These guidelines relate specifically to actions that include works that may require the suppression of vegetation and land clearing for the implementation of infrastructure (social technologies). These precautions must be taken by the construction companies contracted under TA supervision.

- The removal of vegetation should only be carried out under environmental authorization and accompanied by a qualified technical professional, with ART, equipment registered with IBAMA and full compliance with the conditions of validity of the authorization.
- It must be ensured that only the areas that are essential for the implementation of the project are the target of intervention and vegetation suppression, and it is necessary to check the Subproject, respect the topographical limits defined in the field and supervise the activities by the TA team;
- There are no restrictions on the suppression of exotic species, especially those with invasive characteristics;
- The search for woody material for activities such as building structures for the life and work of producer families should focus on trees that have fallen naturally, exotic species, especially invasive species, or species with compromised phytosanitary status.

### **Erosion Control and River Siltation**

The aim of these actions is to identify and analyze the causes and situations in which erosion processes and land destabilization occur, in order to prevent situations that could compromise the natural habitat and water bodies.

The environmental control procedures for soil movement and drainage services will include the adoption of preventive, mitigating and corrective measures to control erosion and siltation and contamination of watercourses that may be affected by the Subprojects involving civil works. The following guidelines are therefore envisaged:

- Reduce areas with exposed soil to the minimum possible and, when unavoidable, these areas should be protected by temporary measures such as covering with a blanket, plant material, grasses and, depending on the situation, the installation of sediment retention measures;
- Install temporary drainage devices to allow water to drain away without causing erosion and carrying material to the lower levels;
- Correct or stabilize, in the shortest possible time, all the erosive features that have appeared in the project area;
- Projects to implement production systems, especially in APP areas, should respect the contour lines and slopes of the land, harmoniously seeking to contribute to increasing soil stability.

## 5.7 Stakeholder Communication, Consultation and Engagement Program

In the process of preparing each project, a meeting must be held with the communities on the scope of the project before work begins, in accordance with the recommendations of the IDB and IFAD Safeguards Policies.

It is important to note that the procedures presented below, as well as the entire Stakeholder Engagement process to be carried out under PROCASE II, must follow the guidelines and recommendations contained in the item **Significant Consultations** of the IDB's PDAS10. The engagement and consultation process should also ensure the involvement of vulnerable communities and LGBTQIAPN. These should be identified and listed in the Stakeholder Matrix whenever they are present in the project areas.

**Responsible:** TA will be responsible for implementing the communication, consultation and engagement actions, with the support of the PMU, including the structure and monitoring of the Complaints and Reparations Mechanism (MQR).

### Target audience

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It covers all segments of the population directly and indirectly affected, as well as those interested in the planned interventions. This contingent will have to be identified and detailed before the works begin, and updated during the process of implementing the projects. Associated with this parameter, another of a physical or geographical nature will also be considered, which will also define the area of coverage:

- **Direct Audience:** considering two subtypes of audiences in this case:
  - The direct beneficiaries of the Subproject are the institution (association, cooperative, etc.) and its members and community members who are willing to participate in the Project.
  - Directly affected by the works, encompassing the population and economic activities located in the area required for the implementation of infrastructure, which may suffer the impacts of the construction period. This refers to the population and activities that will be directly affected by the works (roadblocks, traffic detour, interruption of essential services, dust and noise, movement of workers, among others).

- **Indirect Public:** the population of the surrounding area indirectly affected by the implementation of the Subprojects and those interested in the Project, as well as active governmental and non-governmental institutions and media outlets, normally established in the municipality where the Subproject is located.

In general, the target audience includes all the actors and stakeholders in the Subproject:

- Workers involved in implementing the Subprojects;
- Company(ies) responsible for carrying out the sub-projects;
- Company(ies) responsible for the Management, Supervision and Inspection of the Works and Subprojects;
- Associations, cooperatives and other institutions benefiting from the Subproject;
- ATER institutions that could offer services within the scope of the Subproject;
- Affected Population;
- Neighboring population;
- Beneficiaries;
- Circulating Population;
- Community representatives;
- Civil Society Organizations;
- Secretariats and departments of the municipality;
- Communication vehicles.

### **Procedures and Guidelines for Social Communication in the Stakeholder Consultation and Engagement Process and in the Monitoring of the MQR**

- (i) **Stakeholder engagement:** Stakeholder engagement is the basis for forming solid, constructive and receptive relationships, which are essential for the successful management of a project's socio-environmental impacts. Stakeholder engagement is an ongoing process that may involve, to varying degrees, the following elements: stakeholder analysis and planning, information disclosure and dissemination, consultation and participation, grievance mechanism and ongoing reporting to affected communities. The nature, frequency and level of effort of stakeholder engagement may vary considerably and will be proportional to the risks and adverse impacts of the project and the phase of project development.
- (ii) **Stakeholder Analysis and Engagement Plan:** The PMU should identify potential stakeholders in its actions and consider how external communications can facilitate dialogue with all stakeholders. When projects involve physical elements, aspects and/or facilities specifically identified as having the likelihood of causing adverse general socio-environmental impacts to Affected Communities, the developer will identify these Affected Communities. The PMU will develop and implement a Stakeholder Engagement Plan scaled according to the risks and impacts and the phase of project development, and will be adapted to the characteristics and interests of the Affected Communities/Beneficiaries. Where applicable, the Stakeholder Engagement Plan will include differentiated measures to enable the effective participation of people identified as disadvantaged or vulnerable. Where the stakeholder engagement process relies substantially on community representatives, the PMU will make all reasonable efforts to ensure that such persons do in fact represent the views of the Communities and can be relied upon

to faithfully communicate to their constituents the results of the consultations. In cases where the exact location of the project is not known, but its implementation is expected to have significant impacts on local communities, the PMU will prepare a Stakeholder Engagement Framework as part of its management program, describing general principles and a strategy for identifying Communities and other relevant stakeholders, as well as a plan for an engagement process, which will be implemented as soon as the location of the project is known.

- (iii) Disclosure of information: Disclosure of relevant project information helps Communities and other stakeholders understand project risks, impacts and opportunities. The developer will provide Communities with access to relevant information on: the purpose, nature and scale of the project; the duration of the proposed project activities; any risks and potential impacts to such communities and the planning of relevant mitigation measures; the planned stakeholder engagement process; and the grievance mechanism.
- (v) Consultation: Where Communities are subject to identified risks and adverse impacts caused by a project, the PMU will undertake a consultation process in order to provide Communities with the opportunity to express their views on the project's risks, impacts and mitigation measures and to enable the client to analyze and respond to them. The extent and degree of engagement required by the consultation process should be proportionate to the risks and adverse impacts of the project and the concerns expressed by the Communities. Effective consultation is a two-way process that should begin at the earliest stages of the socio-environmental risk and impact identification process and continue uninterrupted as risks and impacts emerge; be based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information in the local language(s) and in a format that is culturally appropriate and understandable to the Communities; focus on the inclusive engagement of those directly affected as opposed to those not directly affected; be free from external manipulation, interference, coercion or intimidation; allow for meaningful participation, where relevant; and be documented. The PMU will adapt its consultation process to the language preferences of the communities, their decision-making process and the needs of disadvantaged or vulnerable groups.<sup>40</sup> If the actors involved are already engaged in this process, they must provide adequate and documented proof of such engagement.
- (vi) Informed Consultation and Participation: In the case of projects with potentially significant adverse impacts on affected communities, the PMU will carry out an Informed Consultation and Participation (ICP) process that will use the steps described above under Consultation and result in the informed participation of affected communities. ICP requires a more in-depth exchange of views and information, as well as organized and interactive consultation, leading to the client's incorporation into its decision-making process of the views of the communities regarding issues that may directly affect them, such as proposed mitigation measures, benefit sharing and development opportunities, and implementation issues. The consultation process should: capture the views of men and women, if necessary through separate forums or engagements; and reflect the different concerns and priorities of men and women regarding impacts, mitigation mechanisms and benefits, if appropriate. The PMU will document the process, particularly the measures taken to avoid or minimize risks and adverse impacts for

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<sup>40</sup> In this case, a CLPI (Free, Prior and Informed Consent) process must be carried out, documented through reports that include attendance lists, individually signed agreements and, when involving traditional and indigenous communities, follow the parameters established in ILO 169.

the communities, and inform affected people how their concerns are being considered.

The PMU must inform project-affected communities about the mechanism as part of their engagement process and ensure that the mechanism addresses concerns in an immediate, transparent and culturally appropriate manner and is easily accessible to all segments of the impacted communities. The synergy between legal requirements, PDAS10 and the ISO 14063 guidelines therefore make up the tripod of sustainability in the communication process.

The project must be presented in appropriate language, providing objective information on the main characteristics of the project, its stages and basic timetable, detailing the impacts that will be caused by the implementation and start-up of the project, as well as the measures to be implemented to mitigate and compensate for these impacts.

In order to achieve the objectives effectively, the work should address the following topics:

- Information - This involves a set of communication actions and instruments aimed at informing the different audiences about the characteristics of the project and its technical and construction specifications, benefits, associated impacts, the adoption of mitigating measures and the development of socio-environmental actions. It should be part of the dissemination of PROCASE II, through its institutional channels.
- Articulation - This covers interaction and communication actions developed with the aim of establishing a constructive relationship with regional and local public opinion, government institutions and, above all, with the local population, its representative bodies and leaders.
- Monitoring and Evaluation - This involves the process of monitoring, organizing, archiving and evaluating social communication actions in their activities of providing information and capturing and responding to society's concerns.

In order to incorporate the defined criteria, these are important items to consider when building the Social Communication strategy:

- Language - Each audience demands a different language, which is why cultural diversity must be taken into account;
- Standardization - At the same time, some concepts must be common to all profiles. The use of logos, letterheads and other graphic elements should also reflect the unity of certain concepts. Standardization helps to identify and strengthen the institutional image;
- Coherence - All texts and publications developed must maintain institutional coherence, always seeking to be guided by the communication team responsible.
- Democracy and Freedom of Expression - The plurality of interpretations and positions must be guaranteed, as must freedom of choice and expression. In certain political and social contexts, situations of reprisal must be combated, including guaranteeing the right to anonymity.
- Periodicity - Communicating actions requires, by definition, periodicity, otherwise the credibility and continuity of the information management mechanism will be damaged. Communication actions must be planned in such a way as to make the process perennial in the long term.

Finally, it is important to note that communication can take place in three ways:

- Active Form: the entrepreneur is the sender of the message, using one-way information tools (e.g. newsletters, pamphlets, advertisements).
- Passive: the public is the sender of the message, received through established communication channels (ombudsman, non-interactive channels, employees and workers, website).
- Dialogic Form: promoted through channels that foster an interactive *on-time* dialog between the parties (public consultations, interviews, planning workshops).

Most of the activities are structured in an active way and can include a dialogic way whenever they involve events that involve interaction with the public. The passive form is well-established in the mechanisms for managing public demonstrations.

Once it has the information to be disseminated, the PMU will systematize the content and apply it through communication actions, taking into account, as a minimum:

- Definition of the key messages that respond to the interests, desires and expectations of the interested and affected parties;
- Selection and training of interlocutors who will support the dialog with each interest group;
- Definition of a routine for sharing and discussing information;
- Internal alignment meetings between the entrepreneur's various interface areas;
- Development and implementation of a system for recording information and comments on each issue;
- Definition and monitoring of indicators on the effectiveness of the established dialog strategies.

Social communication activities must begin before the actual start of implementation and be intensified during the project's construction works. It is therefore a long-term project that includes both planning and structural activities.

Below are the activities defined for Stakeholder Engagement, comprising the basic essential actions.

### **Activity 1 - Defining the project's communication strategy**

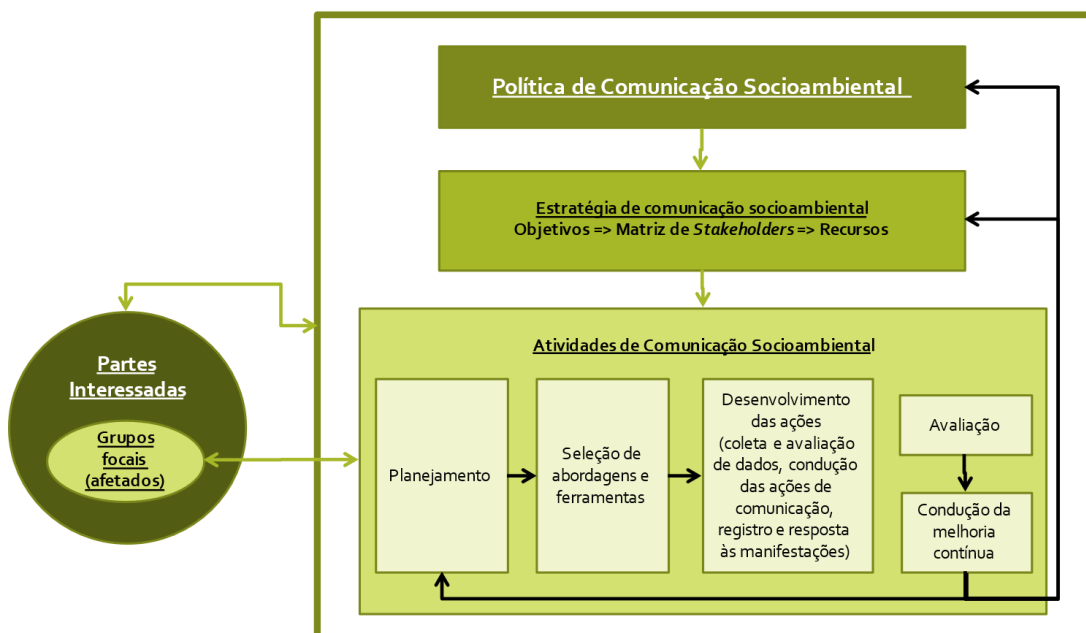
The communication strategy will be based on an organization based on ISO Standard 14063. The standard defines environmental communication as the process of sharing information on environmental issues between organizations and their stakeholders. In this program, the aim is to broaden the concept established in communication to include social issues as well as environmental ones, giving it the socio-environmental concept that encompasses human beings as part of the environment.

Socio-environmental Communication will seek to build trust, credibility and partnerships to raise awareness among stakeholders and those affected by the project, as well as using the information in the decision-making process for continuous improvement of the project design. From the perspective of ISO 14063, alignment is proposed between the principles, policy, strategy and environmental communication activities, in a flow of interaction as shown in the following figure<sup>41</sup>.

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<sup>41</sup> CAMPOS, M. K. S. Fiesp - International Seminar "ISO trends in international environmental standardization and Brazil's actions", Environmental Communication in Brazil and the potential application of the ISO 14063 standard. FIESP. São Paulo, 2007.

**Figure 3 - Organization of the Communication Strategy**



Source: Adapted from ISO 14063.

The social and environmental communication policy will be integrated into the SGAS policy itself.

The social and environmental communication strategy should set out the objectives, identify the stakeholders, clarify the agenda and deadlines for the planned communication decisions and finally contain a commitment to allocate the appropriate resources for its implementation<sup>42</sup>.

### **Characterization of the target audience and local media**

In the stage prior to the start of the works, a general characterization of the target audience will be made, identifying the main social organizations and their leaders, as well as the main means of communication in the area.

All interested parties must be identified, establishing the target audiences for disseminating information about the works. The main groups are listed below:

- Group A - Project beneficiaries;
- Group B - populations and activities located less than 100 meters from infrastructure deployment areas;
- Group C - civil society organizations and institutions representing specific groups with profiles identified in groups A and B;
- Group D - society in general.

<sup>42</sup> PEREZ, E.S. Environmental Communication in the ISO 14063 Standard. Noviental. WordPress, January 2011. Available at: <https://noviental.wordpress.com/2011/01/05/a-comunicacao-ambiental-na-norma-iso-14063/>. Accessed on: November 2021.



## **Structuring communication tools**

Define the content to be used in the materials to be used in contacts with the different target audiences, i.e. leaflets, videos, press *releases*, among others that can be produced in accordance with the dissemination pieces defined. The definition of materials and content should include suggestions from the expropriation teams, so that they also respond to the concerns of the population and activities that may be affected.

## **Visual and communication identity of the enterprise**

All pieces of information must be standardized with a specific visual identity.

## **Activity 2 - Stakeholder matrix and planning**

This action promotes the analysis of the current situation, defines goals, selects the target audience, establishes the geographical scope and identifies the environmental information pertinent to its communication.

The most relevant socio-environmental issues of interest to stakeholders (priority issues) related to the project should be identified and understood.

The next step is to set social and environmental goals, i.e. to decide what you want to achieve with your social and environmental communication actions. The goals must be monitored in order to assess whether the objectives have been met. In general, the social communication area already has a structure and established goals that should be taken into account when detailing communication actions.

The interested and affected parties must be selected so that communication is targeted, taking into account the possibility of conflicting or diffuse interests. It is therefore essential to draw up a *Stakeholder Matrix* during the planning phase.

The Stakeholder Matrix should allow for the identification of segmented focus groups. Different places, languages, cultures and habits may require segmented communication by profile or geographical space, considering that the aspects and impacts on the environment and society addressed by a strategy to prevent and mitigate these impacts should be communicated using qualitative and quantitative data.

Once the *stakeholders* have been identified, communication strategies will have to be established that can positively influence the relationship with the interested parties. To do this, it will be necessary to define the relevant topics for each group, the company's interlocutors who are able to establish and maintain dialogue, the opportunities for recording and evaluation that will make it possible to improve practices from party to party, as well as the monitoring tools.

## **Stakeholder mapping**

The SA 8000 Standard, which deals with Social Responsibility, defines "stakeholders" as "Individuals or groups interested in or affected by the social performance of the organization and/or its activities". In this context, for social communication it is assumed that *stakeholder* and interested party have the same meaning<sup>43</sup>.

Stakeholders are therefore people, groups and/or organizations that may be mobilized, actively involved in the project, or those whose interests or expectations may be affected,

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<sup>43</sup> SAI - SOCIAL ACCOUNTABILITY INTERNATIONAL. International Standard: Social Accountability 8000. New York, 2014. 17p

positively or negatively, by the outcome of the execution or completion of the actions developed in the project.

An in-depth knowledge of all the publics in the area of influence sometimes eliminates and/or avoids the social liabilities that may be generated, guaranteeing that the project is inserted in a safe, respectful and assertive manner.

Therefore, when taking on a particular action for a group or even a specific actor, it will be necessary to monitor the effects and changes that the action will bring about for other groups or actors. As the PMU establishes contact and begins the process of involvement and engagement, it must also systematically observe the effects of the action and the reconfiguration of these relationships. This requires the definition of communication strategies aligned with the needs of each *stakeholder* group.

In this way, interested parties or *stakeholders* will be mapped, consolidating a Matrix containing minimum contact details, type of representation, location, etc. The Matrix should be constantly updated and should serve as a contact management tool, including as a source for the calls, invitations and various newsletters that should be made throughout the communication process.

This matrix should serve as the basis for communication and engagement actions, and should also be available to those responsible for implementing the project, including the contractor and works supervision;

As a model stakeholder matrix, the following structures illustrate the basis to be established for the minimum collection of related information:

**Table 9 - Suggested General and Local Stakeholder Registration Form**

Location / Project						Date	
Complex	Nº according to Table Type of Organization	Name or company name	Complete Address	City	Contact representative	Telephone	e-mail

Stakeholder Classification Number	Type of Organization (this list does not necessarily represent the universe of types of organization and they do not necessarily have to be included in the register if they are not relevant)
1	Public or private organizations defending the interests of stakeholders, including public entities (PROCON, Public Prosecutor's Office, others), and associations or private entities with recognized representativeness;
2	State authorities with direct jurisdiction over the activities;
3	Federal authorities with direct jurisdiction over the activities;
4	Regional politicians working in areas of interest to the Organization,
5	Local (municipal) authorities, limited to those who have a direct influence on the Unit's activities (Mayors, Secretaries of Urban Planning and/or Public Works, Secretaries of the Environment, others);
6	Entities responsible for the protection of indigenous peoples and/or traditional populations in the concession area;
7	Entities and/or NGOs working to protect historical and architectural heritage (archaeological remains, historic centers, listed areas, etc.);
8	Basin Committees, Environmental Protection Area Management Committees and other environmental resource management entities operating in the Unit's concession area;
9	Fire department, civil defense, hospitals and others to be potentially activated in the event of emergency situations;
10	Neighborhood associations and/or local leaders representing the population;
11	Regional business leaders;
12	Entities representing the rural business sector;
13	Entities representing the urban business sector (trade associations, rotaries, etc.);
14	Environmental non-governmental organizations operating in the concession area;
15	Social non-governmental organizations operating in the concession area,
16	Trade union organizations in the electricity sector;
17	Representatives of the local and regional press;
18	Suppliers / service providers;

Stakeholder Classification Number	Type of Organization (this list does not necessarily represent the universe of types of organization and they do not necessarily have to be included in the register if they are not relevant)
19	Employees (including trade union leaders, members of CIPAs and others with functions in the collective interest of the Unit's internal staff).
20	National trade associations of interest to the organization
21	Environmental and/or social non-governmental organizations with national/international operations;
22	Academic institutions and/or research centers working in areas related to the organization's activities.

**Table 10 - Local Institutional Matrix**

LIST OF LOCAL INSTITUTIONS, COMPANIES, ORGANIZATIONS AND PUBLIC FACILITIES IN THE AREA SURROUNDING THE PROJECT WORKS												
WORK FRONT												
Id	Institution	Description (Institutional or Community Representation)	Representative	Phone	E-mail	Invitations	Address / location	Date of update	Municipality	Interested in Project Information?	Are you an opinion leader / influencer in your representation?	Observation
					-							
					-							

**Table 11 - Matrix of Government Institutions**

GOVERNMENT INSTITUTIONS											
Id	Institution	Description	Representative	Telephone	E-mail	Invitations	Date of update	Municipality	Interested in Project Information?	Are you an opinion leader / influencer in your representation?	Observation
					-						

### **Activity 3 - Selection of socio-environmental communication tools and approaches**

In this activity, responsibilities and internal and external participation in the communication process are defined in an Action Plan designed to detail the communication actions, the media and tools used, as well as the content and approaches of the activities.

At this stage, the Social and Environmental Communication Action Plan should be produced in line with Environmental and Social Management.

In general, the PMU should adopt a proactive communication policy, favoring face-to-face communication and participatory community relations actions, which provide prompt clarification for both parties and the interaction necessary for the relationship between the parties to mature.

The selection of communication tools and approaches should take into account the most effective ways of engaging the target audience, allowing for differentiated and complementary actions such as public and community meetings, individual visits, institutional contacts, assistance from the local media office and the production and distribution of various information materials.

The tools and approaches established in this Programme are organized into categories, which are described below.

#### ***Dissemination***

Diffuse or mass dissemination, which includes social media/internet, should be understood as support channels for dissemination and not as the main tools for dissemination, communication and education. Although these media play an important role in launching ideas, concepts and data, they are fast-absorbing communication vehicles.

This action will involve managing the PMU's institutional profiles and disseminating information via telecommunications.

It is recommended that groups and *mailing lists* be set up from the social network contact catalogs, which should be incorporated into the Stakeholder Matrix (specific group of social network contacts). The *mailing list* will be used to send information and newsletters via social networks.

Examples of electronic media / social networks to be used include:

- Instagram
- Facebook
- YouTube
- Corporate website

It is suggested that the content to be covered in these electronic media and social networks include topics on:

- the environment and respect for nature;
- region of insertion and infrastructure / project design;
- legal requirements;
- events on the Environmental and Social Programs agenda;

- good practices in local activities and compliance with socio-environmental constraints;
- responses to protests and emergency response when necessary.

Electronic Media: for electronic media (social networks, electronic newsletters, among others), it is recommended to publish newsletters at least every two weeks.

### **Press Office**

It is important that the main actions planned for the project are publicized in a positive and informative way through journalistic channels, so that the information has a wide reach. The press can be a great ally in disseminating information, given its informative nature, and the initiatives can be low-cost if the stories are broadcast in a journalistic manner in the media.

In the meantime, it is important to make an effort to liaise with a press office, providing press *releases* and giving reports and interviews to clarify and disseminate information to the community through press channels.

The press *release* is one of the most important tools used by the press office. It is a short, objective text used to inform the media about a fact or event.

Press office: it is recommended that *press releases* be issued every 6 months with information on projects. It is also recommended that interviews be conducted with media outlets on an annual basis.

### **Information booklets**

Within the scope of the project, it is also recommended that information booklets and other materials be produced to support the TA team, in order to disseminate the contents of good practices in the implementation of Productive Plans and the management and use of sanitation systems.

This content may also be available electronically in a repository on the institution's social networks and websites.

Information booklets: it is recommended that at least one booklet be produced for each beneficiary family, with an additional 10% for random distribution in the communities, in order to promote the actions and practices more widely in the project's locations.

### **Complaints and Manifestations Management System**

In line with the requirements for compliance with the Safeguard Policies, in the context of PROCASE II, mechanisms will be made available to deal with the population's doubts and complaints, making it possible to establish a flow of information between the executing agent and the affected/benefited local population and enabling specific concerns about impacts and socio-environmental measures, production plans, implementation and operation of sanitation systems to be addressed and resolved in a timely manner. These resources will be structured and deployed in such a way as to target communication precisely, monitor the transmission of key messages and assess the reaction of stakeholders, anticipating obstacles or problems.

It is important to highlight the need for the following process of critical evaluation and continuous improvement in the complaints management process with the following actions:

- Evaluate the reporting structure and decision-making procedure considering the roles and responsibilities of contractors and the PMU in managing stakeholder complaints.
- Review and ensure that the registration and follow-up systems of the Complaints Mechanism accurately document complaints as they are received.
- Ensure that complaints are treated confidentially when necessary or when required by the complainant.
- Ensure the identification of repeated or similar concerns that indicate deficiencies in socio-environmental management and possible non-compliance with IDB and IFAD Policies.

In terms of complaints and information disclosure mechanisms, the PMU already has relationship channels, communication channels and service channels that will be incorporated into the PROJECT's Complaints and Claims Management Mechanism.

The **relationship and service channels** are part of the set of instruments for communicating with the population that are available both within the structure of the PMU and through the State Secretariat for Family Farming and Semi-Arid Development - SEAFDS, to which the PMU belongs:

- 8 Regional Offices and their WhatsApp;
- PROCASE II telephone number: (83) 32149248
- SEAFDS service channel:
  - Phone: (83) 3214-9247
  - E-mail: [agriculturafamiliar@seafds.pb.gov.br](mailto:agriculturafamiliar@seafds.pb.gov.br);
- General Ombudsman of the Paraíba State Government:
  - Telephone: 0800-021-2310
  - E-mail: [ouvidoriageral@casacivil.pb.gov.br](mailto:ouvidoriageral@casacivil.pb.gov.br)/
  - Website: <https://ouvidoriapb.pb.gov.br/register>

The **communication channels** include:

- Internet and social media, such as Facebook - [www.procasse.pb.gov.br](http://www.procasse.pb.gov.br) , and Instagram <https://www.instagram.com/procassepb/>
- Communication Secretariat - SECOM, involving: Mass Media and Press Office (radio, press); Advertising; Digital Communication and Citizen Information System.

These channels will filter and channel complaints to the PMU's technical team, which will be responsible for managing the PROJECT's complaints.

### **Regional Offices**

Each of PROCASE II's 8 Regional Offices are strategically located in municipalities that have regional centralities in the Rural Territories, providing not only face-to-face assistance, but also a telephone number, WhatsApp and e-mail. All these channels will be incorporated as part of PROCASE II's Complaints Management Mechanism.

The following table shows the addresses of the regional offices:

**Table 12 - Possible addresses for Regional Offices**

MUNICIPALITY	Address
João Pessoa	Avenida Rio Grande do Sul, nº 1.345, Bairro dos Estados, Edifício Evolution Business Center, 16º andar, CEP: 58.030-021
Campina Grande	Av. Jorn. Assis Chateaubriand, 2630, Estacao Velha, Edifício do CDRM, CEP: 58.105-421
Cuité	Av. Petrônio Figueiredo, 811-859, Jardim Planalto, Edifício da Casa da Cidadania, CEP: 58.175-000
Sumé	Rodovia BR-412, 425, Centro, Edifício do NEXT/UFCG, CEP: 58.540-000
Patos	Rua João da Mata, 90, Centro, CEP: 58.700-080
Sousa	Rua Emídio RIPes, 84, Centro, CEP: 58.802-270
Catolé do Rocha	Av. Deputado Américo Maia, 37, Centro, CEP: 58.884-000
Itaporanga	Rua Elvidio de Figueiredo, S/N, Margens PB 386, Bairro Loteamento João Silvino, CEP: 58.780-000

Source: PROCASE, 2024.

For face-to-face assistance at the Regional Offices, the response times are:

- Immediate: in the prompt clarification of doubts;
- Emergency: 48 hours, when the situation requires a rapid response and could cause a risk to the life or physical integrity of people or the infrastructure/project, or severe (irreversible) environmental damage;
- Up to 10 days for cases that cannot be answered promptly. In these situations, the questions will be forwarded to the PMU, which will contact the department responsible for responding and getting back to the complainant. If the responsible department still has no response, the PMU will assume responsibility and seek the necessary response or solution, clarifying the situation to the complainant and specifying how much more time will be needed to return with the definitive response.

### **PROCASE II website**

The PROCASE website (<https://www.procasse.pb.gov.br/>) contains various channels for contacting people, providing information, raising concerns and lodging complaints.

It also provides access to the Transparency Portal with detailed information on the company, its investments, contracts, income and expenses, management reports, account statements and financial operations.

The "Contact Us" section provides specific channels for citizens in general, as well as an electronic form for registering complaints.



Figure 4 - Proc case website



Source: <https://www.proc case.pb.gov.br/>

Figure 5 - Proc case website: Contact Us

### Mande sua mensagem

Form fields for contact information:

- Nome \*
- Email \*
- Assunto
- Mensagem

Enviar

**PROCASE**  
Projeto de Desenvolvimento Sustentável do Cariri, Seridó e Curimataú  
Avenida Rio Grande do Sul, nº 1.345 no 16º Andar do Edifício Evolution Business Center, CEP 58.030-021, Bairro dos Estados, João Pessoa- Paraíba.  
Telefone para Contato: (83) 32149248



Source: <https://www.proc case.pb.gov.br/contato>

### Social Media - Facebook and Instagram

Social media is mostly used as a channel for disseminating information about developments, launches and events. As it allows interaction with the target audience, information on access to services is also provided.



Within the framework of the Project, the operation of these platforms or any new profiles created specifically for PROCASE II or at local level by the municipalities should follow the same logic. When complaints or doubts about the project are identified, the managers of these networks must activate the flow of the complaints system through the official channels. In other words, no complaints or grievances can be dealt with or resolved on social media. These channels can receive and advise complainants on the correct channels for submitting their complaints.

**Figure 6 - Social Media**



Source: <https://www.instagram.com/procasepb>

**Other communication and complaint channels:**

Complaints channels - IDB

The IDB's own channels are also part of the Complaints Mechanism:

- IDB Complaints Protocol: [quejas@iadb.org](mailto:quejas@iadb.org)
- Website: <https://www.iadb.org/pt-br/quem-somos/enviar-uma-alegacao/reclamacoes-ambientais-e-sociais>

Independent Consultation and Investigation Mechanism (ICIM):

The Independent Consultation and Investigation Mechanism (MICI) is a structure of the IDB Group, independent of the Bank's management and project teams, which deals with environmental and social complaints from communities potentially affected by the Group's operations. This independence allows it to act impartially and seek solutions with all the parties involved (the communities claiming affections; the IDB Group, as the financier of the operation; and the borrower (company or government) in charge of executing the project).

For more details, see: <https://www.iadb.org/pt/mici/o-que-e-o-mici>

Requests can be sent to the MICI Office in Washington, D.C. or to any IDB Representative Office (marked "For the attention of: MICI Office"), from where the request will be forwarded to the MICI Office.

MICI's address is:

- Independent Consultation and Investigation Mechanism, Inter-American Development Bank, 1300 New York Avenue, NW, Washington, D.C. 20577, United States.
- E-mail: mecanismo@iadb.org
- Phone: 202-623-3952; Fax: 202-312-4057

### **Stakeholder Meetings and Consultations**

During project implementation and pre-implementation, community meetings and consultations may take place as part of the stakeholder engagement process. These meetings may be triggered by the community for collective demands, by the construction contractor (to provide specific information, such as the start of a new work front or temporary interruptions to the road system, for example) or by the PMU.

It is important to emphasize that even at these meetings, there will be an opportunity to make a statement, which should be recorded and dealt with through the system for responding to complaints and claims, including queries on any matter related to the Project, and a *Aide Memoire* (meeting minutes) should always be drawn up, including the contact details of the person making the statement, the date, time, place, descriptions and referrals. A technician or communicator, or a duly trained representative, should always be the person who captures these complaints. All those involved should be aware of their role in order to advise the public or the applicant to register with this professional.

In the case of all employees and service providers involved in the works and implementation of the projects, they should always be informed of the professional or channel responsible for dealing with complaints, including at internal meetings, training sessions and any other situations that may arise. This professional or channel responsible for communication must always be identified in the various situations.

All manifestations made through meetings, workshops or customer service channels must be recorded, and the information consolidated in a report with the following items:

- Location;
- Date and time;
- Subject Related to the Demonstration;
- Identifying and Contacting the Manifestor;
- Manifestation in full;
- Expected solution;
- Indication of the person responsible for the solution;
- Estimated turnaround time.

The primary objective of the meetings and consultations is to establish a channel of communication with the communities affected/benefited directly by the works, building a process of exchanging information that (i) enables the executor and other teams involved in the Project to get to know the particularities of the communities involved, as well as their needs, making it possible to improve the work and its relationship with society; and, (ii) present the Project and its impacts to each affected community, with the aim of bringing information to the public about what these projects actually mean in their daily lives.

Prior to holding Significant Consultations, the developer should identify the priority issues that society demands in order to anticipate information and responses and conduct a

more productive process for all parties involved. Some of these priority issues that may arise at this consultation planning stage include:

- Increased movement of people and cars;
- Risk of accidents;
- Discomfort to communities;
- Land situations;
- Features of the development;
- Use of agroecological systems versus non-sustainable systems;
- Noise, dust and odors;
- Charging for tariffs and services.

Another key instrument for holding meetings and consultations is the effective use of the Stakeholder Matrix to call for and mobilize meetings with the community. Consultation can cover different audiences or be carried out by focus group, and should involve everything from government institutions to the directly affected/benefited public.

The parties directly affected by the works should be called upon in four different ways:

- Active contact (via telephone/WhatsApp);
- Face-to-face "door-to-door" approach, with distribution of an information folder or booklet.

These instruments should briefly cover: (i) the scope of the project; (ii) the expected impacts of the project phases; (iii) the date and information of the public consultation event; (iv) the best practices envisaged in the projects. A Consultation Plan will be drawn up to organize the meetings and consultations:

- Number of meetings and consultations to be held;
- Definition of the objectives and scope of each request;
- Defining the audience for each election;
- Date, time and place of the election;
- Calling and mobilization mechanisms;
- Provision of infrastructure (transport, food, premises, equipment, etc.);
- Forms of distance transmission (social networks, Youtube, Microsoft Teams, among others);
- Presentation script;
- Accessibility;
- Attention to gender, diversity and vulnerability.
- Strategies for dealing with pandemic situations, such as Covid-19.

After each meeting, a report should be drawn up containing at least the minutes of the meeting, the public involved, the attendance list, the photographic record, the report, the comments and responses.

It is recommended that a community consultation be held in an easily accessible location, preferably in the community itself. It is also recommended that, before the project begins to be implemented, a consultation be held with institutional *stakeholders*, consisting of

civil society organizations, NGOs, institutes, foundations, universities, the City Council and its Secretariats.

### **Activity 5 - Employee training**

Training for employees responsible for social and environmental communication activities must be planned and carried out.

In addition to the employees directly involved in communication activities, the topic of communication should be included with all the workers involved in the project, including subjects such as official citizen service channels, non-violent communication, and proper posture in community communication. This activity can be included in the DDS and worker training processes.

Training is recommended at the start of project implementation and continuous retraining once a year.

### **Activity 6 - Communication in the Response to Socio-environmental Emergencies and Accidents**

This activity involves planning emergency and accident communication actions to be used in the situations that may arise.

This activity should be part of the ESMP for each sub-project, with an accident protocol as part of the action plan.

Extreme and critical situations require extraordinary and immediate communications, which often involves providing reliable and timely information to the community.

The process of immediate and efficient communication can promote the timely activation of authorities and agents who may be involved in resolving the emergency, as well as alerting and contingency situations with the community, providing security for people's integrity.

The communication system for emergency response must contain specifications and guidelines for:

- Procedures and contact with health care systems for the care of victims;
- Procedures and contact with Civil Defense to deal with extreme situations;
- Procedures and contact with the municipal environmental department and the state government;
- System for warning/activating community representatives;
- Training community leaders in emergency actions and communication channels for emergencies;
- Contact list of all residents to call in the event of an emergency;
- Publication of relevant information on social networks and broadcast media to disseminate emergency measures to society;
- Public relations services to publicize the project's image and social responsibility.

### **Activity 7 - Structuring and Operating the Database, Monitoring and Evaluation**

The PMU will have to structure and maintain an information mechanism with an organized record of all communication actions, the demands that have arisen during the planning period, the works and the start-up of the interventions. This includes requests

from different sources, such as the press, PMU departments, contractors and call centers. This system should provide the PMU with the tools to identify, systematize and continuously organize information on:

- The types of demands and claims, their intensity and location;
- The solutions and referrals made;
- The image of the entrepreneur in his efforts to meet demands and achieve results.

The database must be properly modeled so that it can provide information on demands, services provided and deadlines, as well as providing information for preparing a management report on complaints and protests. It should also provide relevant information for the preparation of summary reports using indicators to be defined.

### **Procedures and Guidelines for Stakeholder Consultations**

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For each consultation held, a report must be submitted with a record of the discussions, a list of participants, the methodology used, photographic and/or audiovisual records and, in the case of compensation negotiations, the duly signed agreement document.

Scheduling and calling the community should always be carried out by the PMU, calling on social actors, active organizations and the population interested in and/or affected by the process, according to prior identification and analysis of the actors and interested parties. The venues must always contain all the sound and image/projection infrastructure needed for the presentation, and must be located in the areas closest to or accessible to the stakeholders (affected public), being easily accessible to the population.

The different stakeholders should be identified, including people affected by the project and other interested parties. Special attention should be paid to project-affected people who, due to their circumstances, may be at a disadvantage or vulnerable (people who may be more likely to be affected by project impacts and/or less able to take advantage of project benefits).

Broad community participation must be guaranteed and proven. This means that the event must be widely publicized, calling on the population to take part, as well as being held in a place that is easily accessible to the population, on a date and at a time that is convenient for people to attend. It should be noted that the Significant Consultations must take place regardless of whether or not local government organizations demand a Public Hearing.

The network of contacts should consolidate a *mailing list* of social actors and the parties affected by the project. The participation of local leaders, bodies and businesses, as well as the resident population, should be envisaged. Dissemination should be reinforced through radio, newspapers, advertisements, sound bites, social media groups etc.

Residents of the region affected/benefited by the project should be called upon and mobilized through the distribution of leaflets or other efficient means of communication in the area surrounding the interventions, and/or door-to-door calls to people directly benefited/affected.

A basic presentation of the project and an invitation to take part in the consultations should be publicized.

Government entities and social organizations, as well as representatives of civil society, can be invited by e-mail, telephone or other means, always making sure that the invitation is formally registered.

Consultations should follow the following minimum script:

- **Part 1:** Reception of participants, welcome and signing of the attendance list.
- **Part 2:** The Consultation will begin with a brief opening, with information about the event's program. At this point, the organizations promoting the Consultation will also be introduced.
- **Part 3:** The project will then be presented briefly and objectively, in plain language that is accessible to the general public and with the aid of audiovisual resources that make it easier for those present to understand. A qualified representative will make the institutional and project presentation. Members of the planning, engineering, environmental and social teams will complete the group of experts to explain the project. The project's objectives and justifications, its description and its technological and locational alternatives will be discussed.
- **Part 4:** Social and environmental experts will provide a summary of the results of the diagnosis of the area of influence of the project; a description of the possible impacts of the implementation and operation of activities; a description of the expected effect of the planned compensation measures in relation to the impacts, mentioning those that cannot be avoided; and the program for following up and monitoring the impacts, indicating those responsible for carrying them out.
- **Part 5:** After the presentation, a space will be opened for the public to speak. This is the moment for people to express their perception of the project, their doubts and expectations. It is an opportunity to clarify any questions that arise, while at the same time trying to capture the local reality from the participants' point of view. At this point, the questions that can be answered by the participants will be answered, and those that can't be answered will be given a forecast of how they will be answered.
- **Part 6:** The stipulated process for incorporating the notes made by the participants will be presented and the results will be published.
- **Part 7:** Finally, the communication channels for dialog and resolving issues will be presented, and the event will be thanked and closed.

**Note 1: The consultation will be recorded with minutes, recordings, photographs for documentation and later revision of the material. Technological resources for remote communication shall be made available.**

All communication involving activities such as calling the community, broadcasting the Public Consultation, disseminating data, collecting information, gathering stakeholder feedback and answering questions must include technological tools for remote communication.

Suggestions for remote communication technologies and actions include:

- **Social networks** (Facebook, Instagram, for example);
- **Tools developed for videoconferencing.** The webinar is a good option, offering a tool for sharing information and knowledge online in a modern and relevant way. This type of tool works through a live broadcast, in which an expert presents their knowledge on a given topic and interacts with the users watching. Examples of tools available for videoconferencing include Microsoft Teams, Skype and Google Meeting.
- **File repository.** The executor's own website can function as a file repository, where the interested party can view or download relevant files, whether through download *links*, file and map reading systems or *streaming* audiovisuals.



- **Registration of interested parties via website forms** and online survey systems, including *smartphone/iphone* and internet *browser* applications.
- **Quick communication apps (chat)**, such as WhatsApp, Messenger, Telegram, among others.

**Remote communication as the only alternative in the event of a crisis or contingency situation**

In the event that interested parties are unable to attend, the possibility of holding the Public Consultation remotely should be assessed, using internet transmission, presentation and participation systems. The use of this resource should encourage community participation in a democratic and meaningful way.

**Stakeholder Engagement and Participation Initiatives in Vulnerable Communities**

Communication actions should also focus on raising awareness among the families involved in the project so that they become allies in the good practices set out in the Production Plans and in adhering to the proposed sanitation system in order to prevent the project from being drained:

- Include in the communication themes guidance to the beneficiary groups on the limits of the project's service and its viability based on investment estimates and planning and the availability of physical and financial resources;
- Include in meetings and communication processes topics to raise awareness among families and communities about good practices and the risk to human health and the environment from unsustainable practices and lack of sanitation;
- Ensure the functioning of the complaints mechanism so that complaints or related information are effectively answered and acted upon for the proper functioning and implementation of PROCASE II sub-projects;
- Encourage the use of the complaints mechanism to report divergent situations;
- Keeping an eye on the areas where projects are being implemented in order to identify unsustainable practices and help disseminate good practices;
- In line with the communication actions, the PMU, the City Council and the companies contracted to carry out the projects must maintain a schedule in line with the project implementation actions;
- Communication and engagement with the surrounding community so that they can act as watchdogs to protect the areas. Topics such as the importance of not reoffending and improving the environmental and social quality of neighborhoods should be involved;
- Free, Prior and Informed Consent (FPIC) must be applied as a formal instrument that favors respect for culture and tradition, and must be applied under the terms of ILO-169 for traditional communities;
- Specifically in the case of indigenous communities, FUNAI must be consulted and authorized, in addition to Free, Prior and Informed Consent (FPIC).

## 5.8 Environmental and Health Education Program

The Environmental and Health Education Program (PEAS) is an integrated set of proposals, actions and methodologies for local environmental education. It will be aimed at the population directly benefiting from the Project, with special attention to the most vulnerable communities, young people, women, people with disabilities, LGBTQIA+, PCT (quilombolas, indigenous people, artisanal fishermen and gypsies), with the main objective of transforming environmental concerns into practice, based on the issues experienced by the local population in their daily lives.

**Responsible:** TA will be responsible for implementing environmental and health education actions in conjunction with the PMU.

**Target audience:** Rural producers and the benefiting community.

This PEAS covers the environmental and health education that encompasses the Project's actions. These actions are already provided for in the PIRs as activities linked to the investment plans.

It should be noted that the lack of basic knowledge of environmental and health education is often at the cause of serious problems of contamination of water resources and public health, as well as unnecessary pressure on ecosystems. The program is justified by the guidance to be given to the directly affected and benefited community regarding the most correct measures and attitudes to be adopted in order to prevent accidents, preserve public health and maintain a healthy and aesthetically pleasing environment.

It is also worth noting that one of the positive effects of the project is the prospect of a considerable improvement in the living conditions of the population that will benefit from the implementation of the projects.

### Objective

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To make it possible for the population to be aware of the importance of the actions of the Project in question, involving and raising awareness in the community through socio-environmental actions that contribute to the sustainability of the project, making the community a partner in the conscious use of sanitation infrastructure and the best practices adopted, through the involvement of the community in the actions.

The PEAS will have to include specific actions to sensitize and raise environmental awareness among the population. A wide-ranging environmental education program that provides new patterns of behavior, based on the proposed interventions, becomes imperative if one of the project's objectives is to be achieved, which is to improve the population's quality of life.

The PEAS should act transversally, in some cases absorbing the suggested measures, such as those in the biotic environment, relating to preventing and combating hunting, animal escapes, accidents with venomous animals, etc. The issue of sewage and garbage and the importance of their proper disposal should also be included.

### Procedures and Guidelines

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The focus should be on content related to: (i) water quality, sanitation and domestic solid waste; (ii) care and maintenance of septic tanks; (iii) care of the soil; (iv) risk of waterborne diseases and vectors; (v) prevention of accidents at work, occupational diseases and sexually transmitted diseases; (vi) Permanent Preservation Areas - APP; (vii) risks related to the use of pesticides, herbicides and agrottoxins; (viii) environmental

benefits of using agroecological systems; (ix) respect for river channels so that they are not embanked or strangled.

It is proposed to apply environmental education and educommunication as an investment and as strategic tools to promote training processes aimed at understanding the local socio-environmental reality and problems, and to disseminate information and raise awareness among the population about the issues addressed by the project. It should be used as a tool for participatory and democratic training, providing for constant dialog in the communities involved.

Specifically, the environmental awareness projects are aimed at training residents as environmental community agents and promoting ongoing environmental awareness actions in the area (workshops and partnerships between NGOs, schools and the community in general, planting, joint efforts to maintain public spaces, etc.), taking into account the close link between the environmental issue, the transformations resulting from urban programs and the challenges of collective-collaborative management of the area.

Promoting socio-environmental actions in the community should also be part of the ESMP. Projects aimed at the most vulnerable people and heads of household that contribute to the sustainability of the project, making the community a partner in the conscious use of the sanitation infrastructure and the best practices adopted.

It is recommended that the TA contracted to implement the subproject promote environmental education actions in partnership with municipal governments to avoid overlapping activities, optimize investments in environmental education for sustainability and expand its results.

In addition, communication for environmental education must follow the criteria of approaches that take into account the appropriate language for each audience, taking into account cultural diversity; standardization that, at the same time, some concepts must be common to all profiles; coherence in the texts and publications developed, always seeking to be guided by the best communication practices; the preservation of democracy and freedom of expression, so that the plurality of interpretations and positions are guaranteed, even combating situations of institutional or community reprisal, also guaranteeing the right to anonymity.

### **Activities**

The activities linked to the PEAS are also provided for in the PIRs to be implemented. In any case, environmental and health education actions must permeate all the communities benefiting from PROCASE II.

Actions linked to aspects of health and environmental education related to the Subprojects should include proposals for:

- Promoting new habits regarding the conservation of water supply systems and sewage collection and treatment, as well as agroforestry systems and the use of ecological practices for rural production.
- Include issues related to waste disposal, conservation of protected areas, and the integration of the area into the landscape.
- Prepare material, together with the social communication team, that demonstrates the importance of this recovery for the population's quality of life, pointing out conservation and maintenance actions.
- Draw up a calendar of events and their respective agendas for the specific population in the municipalities, working on themes relating to environmental issues.

- Develop actions and practices that promote the maintenance and upkeep of the housing units and infrastructure installed;
- Disseminate and promote practices to avoid irregularities in the installed infrastructure, such as the connection of the rainwater network to the sanitary sewage network, or modifications to sanitary facilities;
- Disseminate good practices for the rational and sustainable use of water, energy and sewage systems.
- Prepare material on good practices for dealing with cesspools, so that they operate in good working order. It should be noted that the main problem that can occur is the cesspool clogging up due to the accumulation of material, and the necessary cesspool cleaning service should be carried out.
- Material should also be prepared to deal with the grease trap installed in kitchen areas to prevent contamination of the pit, including cleaning instructions and information on proper use (e.g. don't pour oil down the sink or toilet!).
- Publicize good practices and the health and environmental benefits of using sustainable practices in agriculture and restrict the use of pesticides and herbicides;
- Holding mini-courses with the different local training groups to implement innovative practices in dealing with the environment;
- Preparation of educational material such as posters, leaflets, booklets and other materials containing guidance on the proper use of infrastructure equipment.

## 5.9 Energy Efficiency Plan for Projects and Facilities

The energy efficiency plan for new buildings and facilities is important for reducing consumption and increasing the efficiency of facilities. According to the Ministry of the Environment, buildings are responsible for 50% of electricity consumption in Brazil.

**Responsible:** TA will be responsible for carrying out the guidelines set out in this Plan together with and under the supervision of the PMU.

**Target audience:** Construction companies will be the target audience for receiving the appropriate guidelines to be considered in the construction process. Rural producers will be the target audience for guidance on the proper operation and maintenance of the systems.

### Procedures and guidelines

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In order to implement the energy efficiency plan for buildings that are still in the pipeline, the following measures should be adopted as a minimum:

- Use of efficient light bulbs, such as LED technology, whenever there is availability and a market for replacement parts and viable system maintenance.
- Better use of natural light.
- Use of materials that provide better thermal comfort, reducing the use of heaters and air conditioning, for example, floors or ceilings that are compatible with the local climate, sizing of windows and positioning of areas that provide ventilation.
- Water reuse system.

The measures established in a building's energy efficiency project can vary according to the use of the space.

In the project implementation phase, energy efficiency is closely linked to the use of equipment with electric or fuel motors, which requires specific consumption measurements and assessments.

Therefore, energy efficiency in construction will include some more specialized actions, such as:

- Correctly dimension the electrical engineering project, both in the construction phase and in the housing and facilities projects.
- Check and correct leakage points and water loss in the site's supply system.
- Implement a water reuse system and use rainwater in the Subproject (e.g. water for irrigation, washing facilities and heavy machinery, among others).
- Control electrical disturbances that increase energy consumption.
- Avoid running electrical or combustion machinery and equipment unnecessarily.
- Look for the most energy-efficient equipment on the market.
- Switch off light bulbs in rooms that are rarely used or unoccupied.
- Adjust the luminance index and control the excess or lack of lighting in the various rooms.
- Carrying out maintenance on the machines to avoid malfunctions, which increase consumption, periodically checking that the ignition devices are adequate, as well as the alignment of the engines, noise and vibrations and proper lubrication.
- It is preferable to use machines and equipment at 75% to 90% of their rated power, using motors that are properly sized to the needs of the operation, including calibrating the appropriate speed for use.
- Seek to maintain the constancy and quality of the power supply so that there is no voltage variation, maintaining balance in the three phases.
- Implementation of filters that can correct disturbances in the quality of the power supply, fluctuations, electromagnetic interference, etc.
- The photovoltaic panels used must be properly maintained and cleaned so that they maintain their full production capacity.
- It is also suggested, if possible, to evaluate and certify green projects using systems such as LEED Certifications<sup>44</sup> or EDGE<sup>45</sup>.

## **Greenhouse Gases - GHG**

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It is difficult to obtain accurate data on greenhouse gas (GHG) emissions for the Project, especially prior to project implementation, since most emissions from this type of project are related to construction and operation activities that are relatively small in scope (community kitchens, small-scale production, collective and individual water and sewage treatment systems, among others).

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<sup>44</sup> <https://www.gbcbrazil.org.br/certificacao/certificacao-leed/>

<sup>45</sup> <https://edgebuildings.com/>

The main operational emission of this type of project is assumed to be the use of electricity associated with infrastructure improvements. There should also be indirect emissions associated with the increase in solid waste and wastewater that feeds collective and individual treatment systems in the communities covered by the Project.

Thus, it is worth highlighting the measures suggested to reinforce the commitment to be made to the actions outlined, such as:

- Where possible, the use of LED lighting equipment, achieving 50% energy savings, longer equipment life and a significant reduction in maintenance costs. It is important to analyze the availability of suppliers, parts and maintenance services close to the implementation sites to ensure that this measure is feasible;
- Reforestation and green areas: provided for in the project to recover environmental and risk areas, preventing erosion and increasing the capture of carbon emissions.

The nature of the developments must be taken into account, with the expansion of agroforestry and crops that can help sequester CO<sub>2</sub> and also the fact that part of the electrified systems will be powered by photovoltaic panels, reducing pressure on the public system.

## 5.10 Contaminating Products Management and Control Plan

The aim of this Plan is to define criteria and establish minimum guidelines for the management and control of contaminating products. It is important to consider that **contaminating products** have the potential to pollute the environment, but only if they are used or stored incorrectly.

**Responsible:** TA will be responsible for implementing, guiding and monitoring rural producers on measures to control and manage contaminating products used in sanitation systems or that come from production processing processes. The measures must also be supervised by the PMU.

### Procedures and Guidelines

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#### **Contaminants related to the operation of sanitation systems**

The most widely used form of disinfection in water supply systems around the world is that which uses chlorine or chlorine-based products as disinfectant agents. It was massively introduced in the last century in water treatment as a complement to the filtration process that was already known and used, thus constituting a technological revolution in water treatment. (Funasa, 2014)

The basic process of chlorination consists of using chlorine-based chemicals to inactivate pathogenic micro-organisms in water. In addition to its basic function, chlorine is a powerful oxidizer and thus reacts with a large number of organic and inorganic substances present in water, such as removing hydrogen sulphide gas, iron and manganese (Funasa, 2014).

Chlorine can cause serious burns and in its gaseous form can have major health impacts.

How chlorine is stored will depend on which product in the chlorine family is used:

- Sodium hypochlorite;
- Bleach.

Care in storage and handling should involve:

- Containers must be properly closed when stored and kept in a dry place accessible only to adults responsible for their use;
- It should be used in accordance with the recommendations and should not exceed the recommended measures. In the event of an accident involving excess product in the water, the contents of the tank should be discarded.

### **Contaminants related to processing**

Possible contaminants from processing are mainly related to the cleaning products and the edible oil ("cooking oil") to be used.

- Cleaning products should be stored in a suitable place, not near food (especially fresh food);
- Its use must follow the manufacturer's specifications and the use of the indicated PPE, especially gloves, must be observed;
- The oil should be stored in a dry place, the packaging should be inspected to avoid leakage, expired oils should not be disposed of directly into the sewage system and should be considered kitchen waste.

## **5.11 Traffic Program**

The nuisance caused by the intensification of vehicles, including the transportation of materials or waste generated in the projects, must be mitigated with effective actions.

Situations involving the interruption of traffic for long periods can occur due to the characteristics of road systems and the risk of accidents. Accidents can have an increased impact on traffic because they involve the transportation of dangerous products and contaminants, which justifies the need for precautionary measures and emergency response specific to these cases.

In addition, care should be taken in areas where vehicle access could be compromised in the event of flooding at crossings in rural areas.

**Responsible:** The TA, PMU and construction companies are responsible for implementing traffic safety and management measures for workers who drive or use motor vehicles and who are respectively involved in their activities.

**Target audience:** Workers from the institutions involved in implementing the Subproject.

### ***Objectives***

- Avoid road closures;
- Reduce the risk of accidents;
- Acting effectively and quickly in the event of accidents.

### ***Procedures and guidelines***

In order to achieve the objectives set, the measures set out below are necessary:

#### **Signposting of construction sites and movement of machinery and equipment**

The signage consists of a set of signs and devices with their own visual characteristics, with the function of ensuring the safety of users, passers-by and workers and the fluidity

of traffic in the areas planned for the transportation of surplus material and waste. The purpose of these signs is to:

- Correctly warn all users about transport interventions, routes and timetables;
- Provide precise, clear and standardized information;
- Regulate traffic and other cars to reduce the risk of accidents and congestion;
- Ensure the continuity of paths and access to adjacent buildings;
- Provide guidance on new paths;
- Protect the project, workers and road users in general;
- Reduce the risk of accidents; and
- Reduce the discomfort caused to residents and the general population in the area affected by the intervention and transportation routes.

In order to be effective, signage must meet the following parameters:

- Be placed in a legible position and condition during the day and at night, at a distance compatible with traffic safety;
- Any obstacle to the free safety of vehicles and pedestrians, both on the road and on the shoulder and sidewalk, must be duly and immediately signposted;
- In the event of an accident, signs and specific measures must be adopted to prevent passers-by from coming into contact with the accident site;
- Any work or event that may disturb or interrupt the free movement of vehicles and pedestrians, or put their safety at risk, may only be started with prior authorization from the traffic body or entity with jurisdiction over the road or transport route, and the person responsible for carrying out or maintaining the work is obliged to provide signs.
- Clean and in good condition;
- Keep the shapes and colors unchanged, both during the day and at night;
- Standardized dimensions and graphic elements;
- It should always be placed so that it is easy to see;
- Be implemented according to uniform criteria and in such a way as to induce correct user behavior;
- To be implemented before the road works begin;
- It will be completely withdrawn when the activities come to an end.

### Deviations

Traffic detour is the transfer of part or all of the flow from one road to another, establishing a new route. The detour should only be adopted once its necessity and convenience have been proven, and a thorough study is required to choose the new routes. It can be mandatory, when it is a detour that all vehicles must follow, or alternative, when the new route is a recommendation for certain destinations.

Before traffic is diverted, the best routes for transporting hazardous and waste products must be planned. These routes should take into account the appropriate conditions of the road system for the passage of heavy vehicles, avoid more crowded areas, give preference to expressways and determine alternative routes.

Traffic detour projects must comply with the following basic guidelines:



- Use of lanes with the same characteristics as the blocked lanes;
- Use, for alternative routes, of short routes that are close to the original route;
- Preservation, whenever possible, of residential areas and roads where there are schools, hospitals and other pedestrian attractions;
- Guaranteed access to homes and businesses;
- Minimal alteration to the circulation scheme of the roads involved and their crossroads;
- Assessment of interference with bus routes;
- Preserving, wherever possible, the original bus route and its pick-up and drop-off points, or at least not moving them too far apart.

### Accidents and Occurrences

In the event of an accident, especially with material at risk to humans, the following basic measures should be adopted, but not limited to:

- Drivers must receive specific training with guidance and guidelines in the event of accidents and spills of dangerous products and victims;
- Transport equipment and trucks must always be properly signposted and follow the prerogatives and regulations of the local Traffic Department;
- Equipment and trucks must be equipped with a coating suitable for the type of product being transported, in order to avoid leaks;
- If the road is obstructed in the event of an accident, arrange for the vehicle to be removed to avoid aggravation and collisions. In the case of accidents without victims, it is not necessary for the traffic authorities to be present to arrange removal;
- Collect information from the drivers and vehicles involved, as well as information about the place and time of the accident.
- Signpost the area so that other drivers understand what has happened;
- In the event of an accident involving victims or leaks, keep the vehicle at the scene without attempting to remove it;
- Keep the victims at the scene of the accident until the rescue services arrive;
- In the event of a spill or leak, isolate the area and remove people from the site by blocking access for vehicles and pedestrians.
- Eliminate or keep away possible sources of fire.
- Protect watercourses and water supply, sewage and drainage systems by never directing spilled material into these places.
- Restrict the affected area with absorbent barriers, rags, cloth, sand or sawdust.
- If soil, water courses and bodies, sewage systems or drainage systems are affected, notify the local environmental agency and authorities immediately.
- To remove the spilled material, recover as much of it as possible by pumping it into a suitable container, duly identified and prepared for packaging and transportation.
- Avoid using water or solvents for cleaning.

- Collect all materials that come into contact with the spilled material, store them in suitable containers and identify them. Finally, send them for proper recovery or disposal for treatment and proper disposal according to the class of waste.

### Training workers

All workers from the companies responsible for implementing the Subproject, i.e. employees of the PMU, TA and construction companies, who will be involved in driving motor vehicles should receive training in defensive driving and first aid. The training sessions should cover the reality of the work environment, such as rural roads, highways, weather conditions and risky driving situations.

## 5.12 Labor Management Plan

Safety, hygiene and occupational health care for people working on the PROCASE II construction site will be restricted to employees of the contracted company and workers from other companies that may provide services for this contractor.

The following provisions set out the minimum conditions and requirements that must be followed by the contractor and any subcontractors and must be the subject of procedures that guarantee excellence in Occupational Safety, Hygiene, Medicine, Living and Environmental Management, and must cover, without distinction, the entire workforce and facilities of the contractor and any subcontractors placed at the disposal of the projects.

As a priority, these procedures must comply with current federal, state and municipal legislation and the applicable standards, procedures and instructions issued by public bodies with powers to regulate these issues. They should also include the categories of workers in situations of vulnerability, such as women, people with different gender identities or sexual orientations, people with disabilities, children (of working age, in accordance with IDB PDAS 2 and IFAD Standard 5) and migrant workers, workers hired by third parties and primary supply workers.

This implies the obligation to comply with any Collective Bargaining Agreements signed with trade unions, associations or trade associations.

**Responsible:** TA, PMU and construction companies are responsible for implementing labor management measures with the workers involved in their activities.

**Target audience:** Workers from the institutions involved in implementing the Subproject.

This document sets out the requirements for the living conditions (including accommodation, meals and transportation) of the Contractor's employees, stressing that, for those migrating from other regions, the conditions to be offered must be decent and compatible with the employee's hierarchical level.

Job creation and income generation through financing programs based on international environmental and social policies and agreements must go hand in hand with the protection of workers' fundamental rights. Having conditions that foster a solid relationship between the worker and the employer is key to the sustainability of any initiative and fundamental to improving quality of life.

In recent decades, labor risks and impacts, such as workplace bullying, precarious working conditions for migrants, child and forced labor, and occupational health and safety, have been at the forefront of development cooperation. The COVID-19 pandemic has further exposed these risk factors in global supply chains. The IDB's MPAS and

IFAD's Standards directly address the conditions of the labor force involved in the projects of its Credit Operations, including full-time, part-time or temporary, seasonal or migrant workers.

These Safeguard Policies emphasize the need for fair treatment, non-discrimination and equal opportunity for all, and support commitments to eradicate child and forced labor, promote safe and healthy work, and protect workers' health. It also supports the principles of freedom of association and collective bargaining and guides how to establish, maintain and improve relations between workers and employees in funded projects.

In order to manage occupational risks and impacts, the following guidelines must be followed:

- Respect national legislation and defend international labor rights, based on ILO and UN conventions;
- Combating child labor and forced labor, taking into account the minimum age of 16 and combating modern slavery such as work in conditions of servitude, practices of withholding documents, hiring fees or imposing debts;
- Implement labor management procedures to mitigate risks through a Labor Management Program (LMP).

### **General**

#### **Auxiliary or Complementary Rules**

Compliance with the requirements of this Program does not exempt you from full compliance with Brazilian legislation on Occupational Health and Safety, in particular compliance with Ordinance 3.214/78 of the Ministry of Labor and its Regulatory Standards, state and municipal legislation and their technical instructions in force, as well as those that deal with the subject and come into force after the service is contracted.

#### **Definitions**

- ASO - Occupational Health Certificate.
- CA - Certificate of Approval.
- CIPA - Internal Accident Prevention Committee.
- CONTRACTOR - company hired to carry out Projects.
- PPE - Personal Protective Equipment.
- PCMSO - Occupational Health Control Program.
- PPRA - Environmental Risk Prevention Program.
- PGR - Risk Management Program<sup>46</sup>
- PT - Work Permit.
- SESMT - Specialized Service in Safety Engineering and Occupational Medicine.

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<sup>46</sup> As of February 2021, the PCMAT - Work Conditions and Environment Program for the construction industry has been replaced by the PGR - Risk Management Program, according to the revision of NR-18 published on 10/02/2020. For more details see: <https://www.gov.br/trabalho-e-previdencia/pt-br/composicao/orgaos-especificos/secretaria-de-trabalho/inspecao/seguranca-e-saude-no-trabalho/ctpp-nrs/normas-regulamentadoras-nrs>

## **Procedures and guidelines**

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### **Occupational Health and Safety**

#### **Responsible for Safety, Health and Environmental Affairs**

Companies contracted to implement projects must formally appoint an employee to be responsible for occupational safety, hygiene and health matters.

#### **Legal conditions**

Contractors must submit the following documents to the Service Provider Administrator responsible for the contract:

- Occupational Health Medical Control Program;
- A copy of the Occupational Health Certificates for each employee who will be working on the project;
- Environmental Risk Prevention Program;
- Working Conditions and Environment Program;
- Registration form for the Contractor's employees accompanied by a copy of the employee registration form;
- Occupational Health Procedure Work Permit.

#### **Excessive noise**

Everyone working in an environment exposed to excessive noise must have a health assessment including audiometry (valid for twelve months) and the appropriate PPE.

#### **Respiratory protection**

All people working on the site who need to wear respiratory protection equipment appropriate to the level of protection required (including any type of mask) must have a health assessment that includes spirometry (valid for twelve months).

#### **Working at Height / Confined Space**

All people who will be working on site, performing activities at height and/or in confined spaces must follow the PCMSO and comply with NR 33 and 35 issued by the MTE.

#### **Mobile Machine Operation**

All people who will be working on site, carrying out activities using mobile machinery (forklifts, tractors, trucks, trailers, cranes, winches and the like) and/or drivers must comply with the PCMSO.

NOTE: For all Occupational Health Procedures, a copy of the employees' Occupational Health Certificate (ASO) must be presented, specifying the tests carried out.

#### **Vehicles**

Equipment, tools and/or materials used in the execution of the work/services may be transported in vehicle bodies. People may not be transported in their bodies.

Vehicles must be driven by a legally qualified person and be in good condition, in accordance with the applicable legislation.

#### **Personal Protective Equipment**

It is the contractor's responsibility to provide its employees free of charge with PPE for permanent and basic use (safety helmets, safety shoes and safety glasses) as well as other PPE that may be necessary according to the nature of the services. The PPE to

be used in the contractor's tasks must be based on NR 6 of Ordinance 3214/78 of the Ministry of Labor and Social Security.

The delivery control of individual PPE must be duly updated and kept in the possession of the contractor, making it available for inspection by the Service Provider and any inspections by the competent bodies.

It is the contractor's responsibility to monitor the use of appropriate PPE by its employees, as well as training them in its use, safekeeping and conservation.

All PPE distributed must have a Certificate of Approval (CA) and copies of these documents must be kept at the Contractor's site and made available for inspection by the Construction Company's Environmental Team and any checks by the competent bodies.

The Inspection Department may carry out random checks on the quality and condition of the PPE, withdrawing from use any that fail, with the contractor being obliged to replace them at no cost to the employees.

Any PPE withdrawn from use by the Service Provider shall be rendered unusable and handed over to the contractor for proper disposal.

Helmets must bear the explicit identification of the Contractor.

All safety footwear must have metal components against falling materials, except when working with electricity, where the footwear must meet specific technical standards.

The earplug used must be of the shell type and, except in combined protection applications, disposable earplugs may be permitted.

Any and all PPE defined as disposable will be limited to a maximum of one day's use or, in the event of deterioration and/or immediate contamination, to a maximum of a single use, after which it must be discarded. Contractors' employees are not permitted to use PPE that is not supplied by them and/or to use PPE of any kind discarded by the Service Provider.

### Uniforms

The contractor must wear uniforms, preferably standardized and with the contractor's identification.

### Construction site

If a construction site is required, the contractor must submit a plan of all the necessary support buildings, as well as a project or description of how these buildings will be built, with specifications for the materials (civil, mechanical, electrical).

### Materials Depot

The contractor must indicate on the site plan the areas set aside for the storage of materials to be used in the projects, whether built or not.

The materials to be used in the construction of civil works or installations must be arranged in such a way as not to hinder the transit of people, the circulation of materials, access to fire-fighting equipment, obstruct emergency doors and/or exits and not cause overloads in walls or slabs beyond those provided for in their sizing.

On raised floors, materials should not be stacked closer to their edges than the height of the stack, unless there are walls or protective elements. Pipes, rebar, profiles, bars, planks and other materials of great length or size must be arranged in layers, with spacers and retaining pieces, separated according to the type of material and the gauge of the pieces. Wood removed from scaffolding, siding, forms and shoring must be stacked after the nails, wires and lashing stPIRs have been removed or rebated.

Welding gas containers must be transported and stored properly, in compliance with the regulations on the transportation and storage of flammable products.

Toxic, flammable or explosive materials must be stored in isolated, appropriate and marked/identified locations, in accordance with current legislation. Inventories must be kept available for inspection by the service provider.

### Signage/Area Isolation

The contractor's premises must be signposted to:

- Identify the support sites that make up the construction site;
- Indicate exits with signs and/or arrows;
- Maintain communication through notices, posters or similar;
- Warn against the danger of accidental contact with moving parts of machinery and equipment;
- Warn about the risk of falling;
- Warn about the mandatory use of PPE, specific to the activity carried out, with the appropriate signs and warnings near the workstation;
- Identifying access, vehicle and equipment movements on site;
- Warn against the risk of workers passing through where the ceiling height is less than 1.80m (one meter and eighty centimeters);
- Identify places with toxic, corrosive, flammable, explosive and radioactive substances.

For any and all activities carried out outside the contractors' sites, adequate isolation is required to prevent uninvolved people from accessing the work area, as well as signaling to drivers of various vehicles. These must be provided by means of area isolation pedestals, made of material that facilitates transportation, to be used in conjunction with zebra stPIRs or demarcation screens.

### Fire Protection

The contractor is obliged to equip its facilities or facilities located in the project areas with the necessary fire-fighting equipment, in accordance with current state and federal legislation.

All employees working on the project must be trained in the correct use of portable fire-fighting equipment, as well as respecting the areas exclusively designated for this equipment, and not obstructing passageways or access to it.

### Order and cleanliness

The contractor's premises must be organized, clean and unobstructed, especially in circulation routes, passageways and staircases.

Rubble and any leftover materials must be regularly collected and removed. When removing them, special care must be taken to avoid excessive dust and possible hazards.

It is forbidden to keep garbage or debris piled up or exposed in inappropriate places on the construction site, and it is also forbidden to burn garbage or any other material inside the construction site.

### Supervision

The Environmental Inspection of Projects to be carried out by the PMU will make inspections at any time at the sites where the Contractor carries out services.

Any irregularities found by the inspector and/or agent must be dealt with by the contractor, who must implement the corrections in accordance with the instruments set out in this document.

The Environmental Inspectorate will suspend any work that poses an imminent risk to the safety of personnel, equipment or the environment. Suspensions of work due to unsafe conditions do not exempt the contractor from the obligations and penalties of the contract clauses relating to deadlines and fines.

### Safety meetings

The contractor's employee responsible for the SESMT must attend periodic meetings on Safety and the Environment, to be scheduled by the Environmental Inspectorate.

On a monthly basis, the Contractors must send the following information for statistical purposes:

- Number of man-hours worked (including overtime);
- Number of days lost;
- Number of days debited;
- Number of typical lost-time accidents;
- Number of typical accidents without lost time;
- Training.

All employees must receive induction and periodic training to ensure that they can carry out their activities safely.

### Working in rural areas

Work carried out in the rural environment must follow the guidelines set out in NR-31, which aims to establish the precepts to be observed in the organization and environment of rural work, in order to make the planning and development of the sector's activities compatible with the prevention of accidents and illnesses related to rural work.

The guidelines set out in the aforementioned Standard are highlighted, which, among others presented in the full NR-31, must be complied with by the companies involved in implementing the Subprojects when in rural areas:

- Drawing up a Rural Work Risk Management Program (PGRT), which may use risk assessment tool(s) to be made available by the Special Secretariat for Social Security and Labor (SEPRT), to structure the PGRTR and draw up an action plan, taking into account the report produced by these tool(s), in accordance with the parameters established in the Standard;
- Creation of CIPATR and SESTR, equivalent to CIPA<sup>47</sup> and Specialized OHS Service for rural activities;
- Include in the list of PPE the use of sunscreen, repellents, hats with brims and, when necessary, gloves and leggings;

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<sup>47</sup> Internal Accident Prevention Committee

- Forage machines and other trailed equipment must have a reversing system among other safety devices supplied by the manufacturer, and the instructions for use and safety described in the operating manual, as established in NR-31;
- Training in the use of equipment and machinery must be given to users/operators;
- Lifting, transporting, loading, unloading, handling and storing products and materials must be carried out in such a way that the physical effort made by the worker is compatible with their safety, health and strength;
- Whenever technically possible and when it does not make the activity unfeasible, cargo handling should be carried out mechanically, using appropriate machinery and equipment;
- Buildings must be constructed taking into account accessibility systems and ease of access for workers moving materials, products and equipment, and must provide safety, thermal comfort, adequate ventilation, lighting and sunlight, anti-slip flooring where necessary, protection against damp and protection from the elements;
- Buildings must be constantly cleaned and disinfected;
- If dormitory accommodation is required for construction work, it must be provided:
  - a) the ratio of at least 3.00 m<sup>2</sup> (three square meters) per single bed or 4.50 m<sup>2</sup> (four square meters and fifty square centimeters) per bunk bed, in both cases including the circulation area and the closet, or alternatively beds separated by at least 1 m (one meter);
  - b) a number of beds corresponding to the number of workers housed in the room, with the prohibition of using three (3) or more beds in the same vertical position, with vertical and horizontal spacing to allow workers to move around safely;
  - c) beds with a mattress certified by INMETRO;
  - d) upper bunk beds with side protection and a ladder attached to the frame;
  - e) lockers with individual compartments for personal belongings;
  - f) doors and windows capable of providing sealing and security;
  - g) adequate lighting and ventilation;
  - h) waste collection containers; and
  - i) separation by sex.

### **Preparation and Presentation of the OHS Plan**

When drawing up the Occupational Safety, Hygiene, Medicine, Living and Environment Management Plan, the construction contractor must define, in conjunction with the Environmental Inspectorate (TA), the forms and *checklists* that will be used to assess the conditions established in the Plan for the environmental and safety conditions of workplaces and equipment.

The Environmental Supervision Unit (UGP) must set a deadline after publication of the contract signature for the submission of the Occupational Safety, Hygiene, Medicine, Living and Environment Management Plan to be supplied by the contractor, which will be implemented at the start of the project after approval by the Environmental Supervision Unit. If the Plan has not been submitted and approved, the issuance of the Work Order may be jeopardized. It is suggested that the Plan be submitted within 30 days.



### **Hiring Labor**

The Subprojects will provide a temporary boost to the labor market as a result of the demand for labor during the implementation stage of the projects.

Attention should be paid to the supply of jobs at this stage, prioritizing, where possible, the hiring of people close to the developments or local residents.

It is important to highlight the focus on gender equality in hiring employees, thus encouraging women to enter the job market.

The following strategies are envisaged for mobilizing and demobilizing the workforce during implementation:

- Publicizing training opportunities and vacancies, using regional media;
- Training, with the aim of providing the selected workforce with training that can be immediately absorbed and then facilitating the insertion of this workforce into the market once the projects have been implemented;
- Drawing up protection instruments for workers in vulnerable situations.

### **Workforce Training and Environmental Awareness**

All workers involved in the implementation of the project must receive training and environmental awareness and health education regarding the measures, precautions and environmental control procedures to be observed during the execution of the works, as well as their conduct in dealing with the surrounding community, in order to avoid possible conflicts.

The training should provide all employees with useful information on the following subjects:

- Notions of environmental legislation;
- Fire prevention;
- Emergency procedures (accidents, fire, etc.);
- Care for vegetation and fauna;
- Care for historical and archaeological heritage;
- Collection, packaging, storage and final disposal of waste;
- Use of safety equipment;
- Erosion prevention and control;
- Preventing pollution and contamination of water resources;
- Recognition of venomous animals and procedures in the event of accidents;
- Respect for the community, including tackling gender-based violence and sexual harassment;
- Reducing the risk of accidents and improving occupational and individual health conditions for site workers;
- Control of vector-borne diseases (waterborne, sexually transmitted, etc.);
- The necessary precautions and attitudes are taken to ensure that construction sites and work fronts do not harm the quality of the water or the flora and fauna, and that a respectful relationship is maintained with local communities.

## **Activities**

- Holding training courses in environmental and health education on a cyclical basis (at least once a year);
- Holding mini-courses with employees to implement innovative practices in dealing with the environment;
- Preparation of educational material such as posters, leaflets, booklets and others, containing guidance on the proper use of equipment and machinery, good relations with local residents and health and safety;
- Holding events on commemorative dates (environmental day, for example);
- Conducting the Daily Work Safety Dialogue - DDS;
- ATER, together with the PMU, must evaluate and approve the training programs and materials presented by the contractor.
- In addition to the integration course, apply training involving environmental and social issues, with annual refresher courses that are directly related to accident and near-accident metrics, not only in the PMU and TA (operational), but also on the Subproject implementation fronts. Incorporate topics such as: respect for the community, including gender, diversity, vulnerable populations and cultural aspects; labor rights and duties, community and worker protest management systems.

## **Code of Conduct for Employees**

Ethics is the ideal of human conduct that guides each human being in their decision about what is good and right for themselves and their lives in relation to their fellow human beings, with a view to the common good. Personal ethics and business ethics are inseparable in order to guarantee good practice and conduct when implementing projects.

The adoption of ethical principles and conduct based on a Code of Conduct is fundamental to ensuring that the contracted company, its managers and employees act in an integrated and coherent manner when conducting their relations and business with different audiences: clients, shareholders, investors, suppliers, partners, third parties, the government, the community and society in general.

As a goal, the code of conduct should be a standard of personal and professional conduct for all employees, collaborators and managers, regardless of the position they hold or how they are hired.

The code of conduct must include the following guidelines to be adopted by all employees, managers and contractors hired during the implementation phase of the Subprojects:

- Respect for society;
- Offering quality products and services;
- Promote sustainable development, education and environmental awareness, ensure the protection, preservation and restoration of water resources and the environment for present and future generations;
- Promoting equal opportunities, respect for diversity and professional development. Establishing relationships of trust and encouraging participation through communication and integration;

- To act fairly, legally, coherently, transparently, ethically and honestly in all practices and decisions;
- Act with professionalism, agility and efficiency, guaranteeing the quality of processes, services and products. Valuing shared knowledge, proactivity, creativity, innovation, simplicity and flexibility in the search for solutions;
- Acting with citizen awareness and responsibility in promoting the public good;
- To carry out its activities based on the principles of environmental prevention and precaution, in the pursuit of continuous improvement, not promoting practices that put the environment at risk;
- Promoting environmental education among the various stakeholders and society in general;
- To respond to the requests and complaints of the local population with the appropriate quality;
- Be patient and calm when dealing with people, especially complainants. It's important to remember that the work is disrupting local communities and this can cause stress.
- Respecting the diversity of its different audiences, assuming the commitment to carry out its activities in an impartial and unbiased manner, without favoritism of any kind, free from prejudice and any type of fraud, corruption and acts harmful to the public administration;
- Disclose transparent and objective information;
- Maintain open channels with the press, social networks and the various segments of society;
- Carrying out their role by ensuring an environment free from moral or sexual embarrassment of any kind; acting actively and preventively against gender-based violence, providing unconditional and unquestionable support and assistance to any victims.
- They must not follow practices or spread inaccurate information that increase the possibility of contagion of infectious diseases, including COVID-19, among workers or the surrounding population.
- Complying with the organization's normative instructions and legal precepts, assuming the commitment to communicate and ensure the dissemination of this knowledge and work orientation;
- To be responsible for everyone's health and safety, by complying with laws and internal regulations relating to Occupational Health and Safety, in order to preserve a healthy environment and quality of life for workers;
- Disclose information that contributes to the quality of work or of an institutional nature that is of interest to their subordinates;
- Do not use goods, services or employees for private purposes;
- To carry out their duties and activities in an ethical and transparent manner, ensuring an environment free of any favoritism for themselves or others, combating any form of bribery, corruption, kickbacks and acts harmful to national and foreign public administration.
- All workers must be instructed and released from work to take part in public vaccination campaigns;

- All workers should be instructed to behave appropriately on the way from home to work, in order to guarantee the peace and quiet of the local community;
- Only drinking water should be used for personal consumption;
- Toilets must be used properly;
- Under no circumstances will it be permitted to remove vegetation from the construction site or its surroundings without proper authorization;
- Drivers of machinery and equipment must strictly adhere to the planned routes and safe driving; and
- Graffiti is forbidden on the premises of the construction site, which must always be kept clean and tidy, as everyone's obligation.
- All workers must behave and conduct themselves appropriately with respect for other workers and the public, preventing and combating situations of harassment.

Other values may be added to the Code of Conduct, provided that they are necessitated by new realities or omissions, and must always be discussed with and approved by the PMU.

An explanatory course on what the Code of Conduct means and how it applies should be given to employees - including examples of good and bad practices involving their conduct.

Employees must be aware of the Code of Conduct and sign an acknowledgement, thereby increasing their sense of responsibility in their daily actions.

### **Code of Conduct for Contractors**

All contractors must submit a Forced Labor Performance Statement and a Forced Labor Declaration.

Companies will have to include the Forced Labor Declaration in the list of documents included in the bid or contract offer.

The Declaration of Past Performance on Forced Labor will require the contractor (including each consortium or Join Venture member), subcontractors, suppliers and/or manufacturers proposed by the construction company, to declare any contract in which it has been suspended or terminated, or other remedies or contractual sanctions applied, including performance guarantees, for reasons of non-compliance with forced labor obligations in the last 5 years.

The declaration should be adopted for companies contracted for works, subcontractors, suppliers and manufacturers in the main supply chain, being obliged to comply with contractual commitments, including terms:

- we agree that there will be no Forced Labor among employees, workers and any other person employed or contracted by us;
- we accept that the officials, employees, workers and any other person employed or contracted, are hired under working conditions that comply with the contractual obligations established in the Contract;
- we will include in our contracts with subcontractors/suppliers/manufacturers of [solar panels] [solar panel components] obligations to prevent Forced Labor among employees, officers, workers and any other person employed or engaged by the subcontractor/supplier/manufacturere;

- we will include in our contracts with Subcontractors/suppliers/manufacturers of [solar panels] [solar panel components], that Subcontractors/suppliers/manufacturers have the obligation to prevent Forced Labor in all contracts they enter into with their suppliers/manufacturers of [solar panels] [solar panel components];
- we will supervise our Subcontractors/suppliers/manufacturers of [solar panel] [solar panel components] in the implementation of the obligations to prevent Forced Labor among employees, officials, workers and any other person employed or contracted by them;
- we will require our Subcontractors/suppliers/manufacturers to notify us immediately of any incidents of Forced Labor;
- we will immediately notify the Employer of any incident of Forced Labor at the site or on the premises of the Subcontractors/suppliers/manufacturers [solar panel] [solar panel components];
- include in the periodic progress reports submitted in accordance with the contract, sufficient details of our compliance with forced labor obligations, including our subcontractors/suppliers/manufacturers; and we
- we confirm that the subcontractors/suppliers/manufacturers of [solar panels] [solar panel components] for this contract are (or are likely to be):

As a strengthening of the contractual clause, the following text should be attached to the contract:

The company contracted to implement projects, including its Subcontractors/suppliers/manufacturers, must not use or request forced labor. Forced labor is any work or service, not performed voluntarily, that is exacted from an individual under threat of force or penalty, and includes any type of involuntary or compulsory labor, such as slave labor, bonded labor or similar labor contracting arrangements.

No person who has been trafficked shall be employed or contracted. Trafficking in persons is defined as the recruitment, transportation, transfer, harboring or receipt of persons by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation.

In this regard, the contractor must:

- (a) include in contracts with Subcontractors/suppliers/manufacturers of [XXXXXXXX], obligations to prevent Forced Labor among employees, officials, workers and any other person employed or contracted by the Subcontractor/supplier/manufacturer;
- (b) include in contracts with Subcontractors/suppliers/manufacturers of [XXXXXXXXXX], that Subcontractors/suppliers/manufacturers include the obligation to prevent forced labor in all contracts they sign with their suppliers/manufacturers of [XXXXXXXXXX];
- (c) supervise Subcontractors/suppliers/manufacturers of [XXXXXXXXXX] in the implementation of the obligations to prevent Forced Labor among employees, officials, workers and any other person employed or contracted by them;
- (d) require its Subcontractors/suppliers/manufacturers to immediately notify Contractor of any incident of Forced Labor;
- (e) immediately notify the Employer of any incident of forced labor at the site or facilities of [XXXXXXXXXX] subcontractors/suppliers/manufacturers; and

- (f) include in the periodic progress reports submitted in accordance with the contract, sufficient details on compliance with forced labor obligations, including its subcontractors/suppliers/manufacturers.

### **Complaints Management Mechanism for Workers**

The grievance management mechanism for workers must ensure the operation of channels that can deal specifically with complaints from workers in the project's service chain. The channels must be prepared to deal with and/or direct complaints involving forced labor, harassment (moral/sexual), child labor, discrimination, or complaints about risks related to projects, society and workers.

In addition to the employees directly involved in communication activities, the topic of communication should be included with all the workers involved in the project, including subjects such as official citizen service channels, non-violent communication, and proper posture in community communication. This activity can be included in the DDS and worker training processes.

The following tools are proposed for the operation of a grievance management mechanism exclusively for workers:

- Allow workers to organize collectively through unions and associations, opening up space for necessary negotiations with representatives;
- Establish an exclusive channel (whatsapp, for example) for receiving complaints from construction workers;
- Train the service teams of the non-exclusive channels to deal with or direct workers' complaints to those responsible for the matter;
- Make it possible for contractors' workers to speak to the PMU's project/work supervisor;
- Handle and respond to complaints within 5 (five) days for non-emergency situations and 24 hours for emergency situations (cases of harassment, for example);
- Establish a due diligence process in the situations listed to mitigate situations generated by postures or processes established with contractors;
- Publicize the exclusive channels and processes available for workers to express their opinions on the training sessions held.

This mechanism must be established and detailed in an internal PMU procedure and disseminated/implemented with the contractor.

### **Control and supervision of suppliers in the primary supply chain**

Procedures for the control and inspection of suppliers in the primary supply chain must be applied. The procedures to be applied involve:

- Disseminating and making suppliers aware of the ESMP instructions and the importance of following its guidelines;
- Check all supplier documentation, including licenses, permits and OHS documentation;
- Carry out random, unscheduled supervision/inspection of suppliers' facilities and activities, observing compliance with the requirements set out in the ESMP, depending on the relevance of the activity.

### 5.13 Program to Control and Mitigate Temporary Social and Economic Impacts

The aim of this program is to establish socio-environmental management procedures for the Subproject aimed at preserving the habits, activities and rights of the community present in the areas of direct influence of the projects and, consequently, to avoid or reduce discontent among local residents.

**Responsible:** TA will be responsible for implementing the measures with the construction contractors who will have to carry them out. The PMU will supervise the implementation and results of the procedures carried out.

**Target audience:** Communities benefited/affected by the Subproject.

Sub-projects can generate discontent among the community, especially in areas where there is infrastructure that includes civil works, because they interfere with people's daily habits, comfort and privacy. As such, establishing management and control procedures can prevent or significantly reduce such disturbances, as will be shown below.

#### Procedures and guidelines

The procedures designed to avoid or reduce community dissatisfaction with the Project are shown in the table below.

**Table 13 - Procedures to avoid or reduce community dissatisfaction**

OCCURRENCE	DISCONTENT TO BE AVOIDED OR REDUCED	PROCEDURES
Delays in the execution of projects due to the lack of authorization from municipal bodies and specific licenses.	<ul style="list-style-type: none"> <li>□ Increased expectations from residents;</li> </ul>	<ul style="list-style-type: none"> <li>□ Ensure compliance with all formal requirements (Installation License; authorization to suppress vegetation; authorization from the body responsible for traffic; ownership of the intervention area; license for borrowing and dumping areas; etc.) that could lead to project embargoes or legal action;</li> </ul>
	<ul style="list-style-type: none"> <li>□ change in residents' plans and contingencies.</li> </ul>	<ul style="list-style-type: none"> <li>□ prior communication to residents about the start date and duration of projects, as well as any changes to the schedule and their causes.</li> </ul>
Location and construction sites, support areas and support equipment, transportation of materials, maintenance of machinery and equipment and traffic of trucks and heavy machinery.	<ul style="list-style-type: none"> <li>□ Incidents to third parties, contamination of the surroundings, excessive noise, dust, dumping of waste on roads.</li> </ul>	<ul style="list-style-type: none"> <li>□ The construction site should be located in areas that are more isolated from homes and commercial areas;</li> </ul>
		<ul style="list-style-type: none"> <li>□ on the project fronts, the movement of trucks and heavy machinery must be planned in such a way as to shorten the route, avoid damage to the service infrastructure (power distribution, drainage, water supply, etc.);</li> <li>□ soil transport buckets should be covered with a</li> </ul>

OCCURRENCE	DISCONTENT TO BE AVOIDED OR REDUCED	PROCEDURES
		<p>tarpaulin to prevent the spread of dust.</p> <hr/> <ul style="list-style-type: none"> <li><input type="checkbox"/> in rainy periods, to avoid "wheel tracks" of mud on the asphalt and the subsequent formation of dust, truck wheels should be washed;</li> <li><input type="checkbox"/> maintenance of machinery and equipment must be carried out in workshops or at licensed facilities;</li> <li><input type="checkbox"/> the parking and storage of any material in front of projects (e.g. machinery, pipes, metal structures, rebar, etc.) must be properly isolated and signposted; and</li> <li><input type="checkbox"/> handling of residents' complaints, in accordance with the Complaints Management Program.</li> </ul>
Support services.	<ul style="list-style-type: none"> <li>• Release of waste into the environment; and</li> <li>• Constraints for residents and employees.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Workers' meals should only be served in an appropriate place, isolated from the Project area and in the living areas at the work fronts;</li> <li><input type="checkbox"/> use of chemical toilets at project fronts when convenient;</li> <li><input type="checkbox"/> daily collection of all domestic and industrial waste from the project fronts, as well as transportation and correct disposal of this waste;</li> <li><input type="checkbox"/> response to community complaints;</li> <li><input type="checkbox"/> implementation of projects at the times established by municipal regulations.</li> </ul>
Execution of projects on public roads.	<ul style="list-style-type: none"> <li>• Incidents with the neighborhood.</li> </ul>	<ul style="list-style-type: none"> <li>• Prior communication to residents about the start of the project and its duration;</li> <li>• isolation of construction sites (if any) with siding or "cerkit" to avoid accidents with residents;</li> <li>• adequate signposting of the work or project;</li> <li>• installation of footbridges over the ditch to allow residents access to their homes;</li> <li>• installation of planks in the ditch to allow vehicle access to residential garages;</li> </ul>



OCCURRENCE	DISCONTENT TO BE AVOIDED OR REDUCED	PROCEDURES
		<ul style="list-style-type: none"> <li>• construction companies must respect the lifestyle of the community in the areas of influence of the projects. To this end, it is recommended that a code of conduct be drawn up for project employees;</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• interruption of projects during periods of heavy rainfall to avoid flooding, erosion and siltation;</li> <li>• Covering an open ditch at the end of the day;</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• response to residents' complaints.</li> </ul> <hr/>
	<ul style="list-style-type: none"> <li>• Incidents and damage to commercial activities, schools, churches, associations, clubs, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• to reduce project execution times as much as possible;</li> <li>• isolation of civil works (if any) with siding or fencing, to avoid accidents with passers-by;</li> <li>• adequate project signage;</li> <li>• will consider, together with the local authorities and those responsible for the institutions, the possibility of suspending activities during the project period, when necessary;</li> <li>• installation of planks over ditches to allow vehicles to access the parking lots of stores, churches, associations, clubs, etc;</li> <li>• construction companies must respect the lifestyle of the community in the areas of influence of the projects. To this end, we recommend paying attention to the code of conduct for project employees;</li> <li>• establishing, together with local authorities, special loading and unloading times at commercial establishments; and</li> </ul>

OCCURRENCE	DISCONTENT TO BE AVOIDED OR REDUCED	PROCEDURES
		<ul style="list-style-type: none"> <li>• response to community complaints.</li> </ul>
Conflicts with service providers.	<ul style="list-style-type: none"> <li>• Incidents and damage to residents with interruption of power, telephone, internet services, etc.; and</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the location of power, telephone and internet networks, etc., at service provider companies before the start of projects;• inform all project employees of the location of power, telephone, internet, water and sewage networks, etc.; and</li> </ul>
	<ul style="list-style-type: none"> <li>• Conflict with service providers.</li> </ul>	<ul style="list-style-type: none"> <li>• repair damaged sidewalks and sidewalks to a condition equal to or better than the previous project.</li> </ul>
Moving and operating heavy equipment.	<ul style="list-style-type: none"> <li>• Incidents with residents and structural damage to neighboring buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• noise generation should be reduced as much as possible by using efficient equipment, planning services that involve moving heavy equipment and isolating work areas;</li> </ul>
		<ul style="list-style-type: none"> <li>• prior inspection of poorly constructed residential and commercial buildings, to assess the risk of damage and structural rupture due to vibrations resulting from the movement and operation of heavy equipment;</li> <li>• reducing and fixing the speed of trucks and vehicles on project sites.</li> </ul>
	<ul style="list-style-type: none"> <li>• Nuisance to residents and surrounding businesses</li> </ul>	<ul style="list-style-type: none"> <li>• The construction company must comply with noise emission regulations.</li> </ul>
Excavation, soil movement and embankments	<ul style="list-style-type: none"> <li>• Neighborhood incidents; and</li> </ul>	<ul style="list-style-type: none"> <li>• prevent excavations and the movement of trucks and machinery from damaging adjacent properties; and</li> </ul>

OCCURRENCE	DISCONTENT TO BE AVOIDED OR REDUCED	PROCEDURES
	<ul style="list-style-type: none"> <li>• risk of damage to adjacent properties.</li> </ul>	<ul style="list-style-type: none"> <li>• the waste tips should be deposited and protected to prevent erosion and siltation of drainage systems and private properties.</li> <li>• Assessment of the site and intervention methods, before trenching and moving the soil removed from the trenches and backfill;</li> </ul>
Traffic detour and pedestrian traffic.	<ul style="list-style-type: none"> <li>• Impediment of movement; and</li> </ul>	<ul style="list-style-type: none"> <li>• Signposting of detour, entrances and exits;</li> </ul>
	<ul style="list-style-type: none"> <li>• restrictions on access to homes and businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• If sidewalks are interrupted, establish temporary fenced and signposted paths;</li> </ul>
		<ul style="list-style-type: none"> <li>• Provide temporary parking in the event that access to shops is interrupted;</li> </ul>
		<ul style="list-style-type: none"> <li>• advising truck drivers and other project vehicles on speed control and care when maneuvering on roads open to traffic;</li> </ul>
<ul style="list-style-type: none"> <li>• prior communication to residents and traders about detour and alternative routes; and</li> </ul>		
<ul style="list-style-type: none"> <li>• response to community complaints.</li> </ul>		

### **Control of Atmospheric Emissions and Noise**

The aim of this activity is to minimize atmospheric emissions from the operation of equipment and machinery during project execution, especially when civil works are involved, as well as to reduce the associated noise levels. It includes the regulation and ongoing maintenance of equipment such as the concrete plant, machinery and vehicles in general.

Practices should be adopted such as spraying water on aggregate piles, lanes and loads that could release particulate matter. As well as covering trucks with tarpaulin when they are loaded.

With regard to noise, preventive maintenance of equipment and machinery will be adopted. Physical barriers such as siding should be put in place whenever possible to reduce noise in the vicinity, in specific cases where the maximum permitted levels exceed the expected occurrence time and decibels.

### **Control of Atmospheric Emissions**

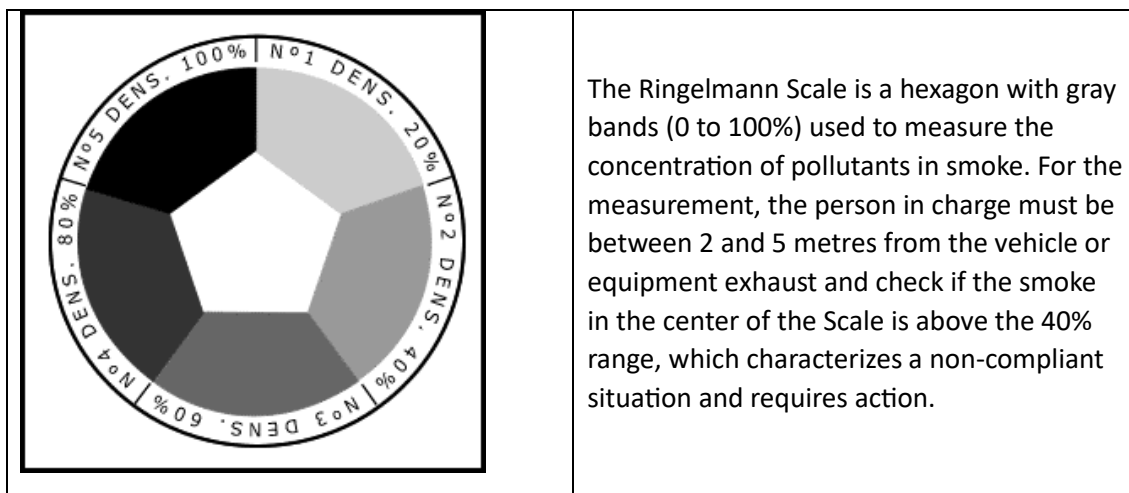
This concerns the control of emissions of particulate matter and gases into the atmosphere, which have the potential to cause damage to the environment, the health and safety of workers and the population in the areas of influence of the projects.

The procedures established for controlling atmospheric emissions are aimed at daily visual monitoring to control dust and smoke from diesel-powered vehicles and equipment used on the construction sites.

To reduce dust, water trucks should be used to spray water on the roads. The work fronts and construction sites should have simple equipment to reduce the amount of mud stuck to the wheels of the trucks, in order to avoid muddying local roads.

To monitor and control smoke emissions, the Ringelmann Scale can be used (figure below). This method is standardized in Brazilian environmental legislation by NBR 6.016/1986 (Diesel engine exhaust gas - Evaluation of soot content with the Ringelmann scale) and by IBAMA Ordinance No. 85 of July 14, 1996. When the concentration is above 40%, improvement measures and adjustments to vehicles and equipment should be required.

**Figure 7 - Ringelmann scale**



Black smoke monitoring for vehicles used in accordance with ABNT NBR 10736. In the event that high levels of pollutant emissions are found in combustion engines using the defined measurement methods (Ringelmann Scale), it is important to adopt emission assessment measures for diesel combustion engines, including assessment of NOx, SO2 and particulate matter, and to adopt measures to bring machinery and equipment into line with the parameters or to replace them.

According to the WHO<sup>48</sup>, when there is no legislation providing parameters for air emission limits, it is recommended to follow the air quality guidelines set out in their guidelines. The following table shows the emission guideline limits for small combustion plants (3MW to 50MW).

**Table 14 - Pollutant emission limits for combustion engines, according to WHO**

Substance	Liquid fuel	Gaseous fuel
Sulphur dioxide (SO2)	1.5 percent Sulfur or up to 3.0 percent Sulfur if justified by specific project considerations	N/A

<sup>48</sup> World Health Organization (WHO). Air Quality Guidelines Global Update, 2005.

PM 24-hour value is the 99th percentile

Substance	Liquid fuel	Gaseous fuel
<b>Nitrogen dioxide (NO<sub>x</sub>)</b>	1460 if diameter < 400mm (or up to 1,600 if justified to maintain energy efficiency). 1.850 diameter > = 400mm	200 (spark ignition) 400 (Dual Fuel) 1,600 (Compression ignition)
<b>Particulate Matter (PM<sub>10</sub>)</b>	50 or up to 100 if justified by specific project considerations	N/A

Source: WHO, 2005.

To prevent the generation of dust that could cause a nuisance to nearby residents, contractors must provide solutions such as water sprinkling systems in the work area during dry periods, whenever this proves necessary, using water trucks to wet down the areas handled by the project and which cause the suspension of particulate matter.

The following table shows some prevention and control actions that can be used in cutting and drilling services.

**Table 15 - Control and prevention measures in cutting and drilling services**

Generating Activity	Control measures
Bench cutting and drilling	<ul style="list-style-type: none"> <li>• Preferably carry out the work in a location isolated from the action of winds;</li> <li>• Use a sawdust collection device attached to the equipment;</li> <li>• In the case of large quantities of emissions, the activity can be carried out in a closed environment with an exhaust hood and filter.</li> <li>• Cutting/drilling with water (when equipment and material allow).</li> </ul>
Saw cut	<ul style="list-style-type: none"> <li>• As this is an activity with low emission potential, minimal controls such as cutting in a place protected from the wind and in a collection box that remains closed after use should be enough.</li> </ul>
Hand saws and drills	<ul style="list-style-type: none"> <li>• Use dust collectors attached to the equipment or vacuum/vacuum immediately after the activity or carry out the service inside collection bins or carry out the service with water, collecting the waste generated. Carry out the activity in a place protected from the wind.</li> </ul>
General	<ul style="list-style-type: none"> <li>• Use industrialized construction technologies whenever possible, avoiding cutting and drilling on site.</li> <li>• In the event of a large volume of cutting and drilling, draw up a cutting and drilling plan, rationalizing the activity. Example: production project for concrete formwork.</li> </ul>

Source: Resende, F. *Poluição Atmosférica por Emissão de Material Particulado: Avaliação e Controle nos Centes de Obras de Edifícios*, Master's Dissertation, Polytechnic School, USP, 2007.

### Noise Emission Control

Various activities envisaged in the context of the projects could generate changes in noise levels, including: in the construction area, earthmoving work and/or handling of construction waste, vehicle traffic, concreting, and in production activities, the use of motorized equipment.

Noise and vibrations from these activities should be minimized. It is important to control noise emitted by poorly regulated or poorly maintained motors. Equipment silencers should be routinely serviced to ensure that they continue to function properly. Work at night should be avoided.

If a Noise Report is required, it should be drawn up in accordance with the procedures described in NBR 10.151 - Noise assessment in inhabited areas for community comfort.

The vehicles and equipment to be used must be regulated and maintained in order to keep noise emissions under control.

In the event of noise complaints from the public, reduction measures and new measurements must be taken and the results communicated to the complainant.

A campaign should be carried out, before the start of the implementation of projects involving activities such as civil works, to measure noise at the intervention sites, together with the receptors considered sensitive when they exist. The use characteristics of the intervention sites, the main equipment planned and its noise emission characteristics should be taken into account, with the aim of ensuring the necessary compliance with current legislation: CONAMA 1/90, ABNT Standard NBR 10151 and corresponding municipal legislation.

Depending on the results of the preliminary assessment, measures should be planned to minimize and control the expected noise levels, such as restricting operating hours, siding, etc. Noise measurements in areas close to the project execution areas should be carried out again if there is a high incidence of complaints, at the discretion of the team responsible for socio-environmental inspection/supervision. The noise limits must comply with ABNT standard NBR 10.151, as shown in the table below.

**Table 16 - Acceptable noise levels, according to ABNT 10.151**

Noise limits according to ABNT NBR 10.151		
Predominant Land Use	Daytime	Evening
	dB(A)	dB(A)
Farm and ranch areas	40	35
Strictly urban residential area or hospitals or schools	50	45
Mixed area, predominantly residential	55	50
Mixed commercial and administrative area	60	55
Mixed recreational area	65	55
Predominantly industrial area	70	60

Source: ABNT 10.151

Note: If the pre-existing noise level at the site is higher than those listed in this table, then this will be the limit.

Noise control will be the responsibility of the companies contracted for the work and TA, the results of which must be presented to the PMU

In addition to the neighborhood impact that affects people's daily lives, the existing plant formations are a shelter for local fauna and could be indirectly affected by noisy activities.

#### 5.14 Gender Violence Prevention and Care Program

This program aims to act directly to combat gender-based violence in the project's areas of operation, with prophylactic and protective actions.

Sexual exploitation and gender-based violence have become a scourge throughout the country and bring insecurity to women, reducing their ability to enter the job market and often to access education. It's a storyline that traps some women in a vicious circle and often ends in violence and death.

**Responsible:** TA, construction companies and PMUs, as well as their workers, are responsible for preventing and dealing with gender-based violence. The TA must provide guidance and disseminate good practices, mechanisms and tools on worker conduct and how to act in the event of incidents to its workers and to the construction companies,

which must apply these measures. The PMU must also implement the measures with its employees and supervise the process throughout the chain of actors involved in implementing the Subproject.

**Target audience:** Workers from the institutions involved in implementing the Subproject.

## Objective

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From this perspective, the aim of this program is to protect and promote the social and economic development of women in the Project's areas of operation.

To achieve this, it is necessary to achieve:

- Building a common understanding of the meaning of Sexual Harassment (SH) and Sexual Exploitation and Abuse (SEA);
- The shared commitment to guidelines and behaviors of all those involved in the Project to prevent, report and respond with appropriate measures in the event of the occurrence of SA and/or SAEs;
- The understanding that violating an established code of conduct will result in disciplinary action and the activation of competent authorities.

## Definitions

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This program considers the following definitions, which should always be updated and widely discussed with employees, teams involved in the project and the community in general:

- **Sexual Harassment**<sup>49</sup> : Unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature.
- **Sexual Exploitation and Abuse**<sup>50</sup> : It is defined as any actual or attempted abuse in a situation of vulnerability, power (of the abuser) or trust, for the purpose of sexual satisfaction of the abuser, including, but not limited to, satisfaction, monetary, social or political profit, with the sexual exploitation of another<sup>51</sup> . **Sexual abuse**: "The actual or threatened physical intrusion of a sexual nature, whether by force or under unequal conditions or coercion".
- Distinction between **Sexual Harassment** and **Sexual Exploitation and Abuse**: while sexual **harassment** usually occurs between staff/employees of an organization or company and involves any unwanted sexual advance or unwanted verbal or physical conduct of a sexual nature, **Sexual Exploitation and Abuse** in turn prevails against a beneficiary or community member. The distinction between the two is important so that agency policies and staff trainings can include specific instructions on the procedures for reporting each.

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<sup>49</sup> Inter-Agency Standing Committee Protection against Sexual Exploitation and Abuse (PSEA): Inter-agency cooperation in community based complaint mechanism. Global standard Operating Procedures. May 2016

<sup>50</sup> As defined in the UN Secretary's bulletin - Special Measures for protection from sexual exploitation and abuse October, 9, 2003 ST/SGB/2003/13

<sup>51</sup> In the context of World Bank-financed operations exploitation occurs when access to or benefit from a World Bank-financed good or service is used to extract sexual gain

- **Consent:** is the choice behind a person's voluntary decision to do something. Consent to any sexual activity must be freely given, made with as much knowledge as possible, and specific to the situation. If the agreement is obtained through threats, lies, coercion or exploitation of the power imbalance, it is not consent. Consent as understood here cannot be given by anyone under the age of 18<sup>52</sup>, regardless of the age of majority or the age of consent considered in local legislation. Finally, it should be understood that the alleged mistaken belief regarding the child's age is not a defense.

Thus, there is no consent when the agreement is obtained through:

- Use of threats, force or other forms of coercion, kidnapping, fraud, manipulation, deception or misrepresentation;
- Using threats to withhold a benefit to which the person is already entitled;
- A promise made to a person in order to receive a benefit.

### **Procedures and guidelines**

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Prophylactic actions with the teams involved in implementing the project are presented below.

#### **Code of Conduct Against Gender Violence**

While all forms of violence against a resident of the local community or a co-worker are prohibited, this Code of Conduct is particularly focused on the prevention and reporting of **Sexual Exploitation and Abuse** and **Sexual Harassment** which constitute misconduct and are grounds for termination and/or other consequences with the local authorities. It is part of this code:

- Treat all people, including children (under 18), with respect regardless of sex, race, color, language, religion, political or other opinion, national, ethnic or social origin, gender identity, sexual orientation, property, disability, birth or other status.
- Commit to creating an environment that prevents **Sexual Exploitation and Abuse** and **Sexual Harassment** and promotes this code of conduct. In particular, seeking to support the systems that maintain this environment.
- Not participate in **Sexual Exploitation and Abuse** and **Sexual Harassment**, as defined by this Code of Conduct and as defined in Brazilian law.
- Do not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, humiliating or culturally inappropriate.
- Do not engage in sexual contact or activity with anyone under the age of 18, considering that a mistaken belief about a child's age, or the child's own consent, is not a defense.
- Do not take actions aimed at building a relationship with a minor that leads to sexual activity.
- Do not solicit or engage in sexual favors in exchange for anything.

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<sup>52</sup> According to the United Nations Convention on the Rights of the Child.



- No sexual interactions with members of the surrounding communities, unless there is full consent from all parties involved, recognizing that a child is incapable of giving consent and a child is someone under the age of 18. Relationships involving the retention or promise of actual provision of benefits (monetary or non-monetary) to members of the community in exchange for sex is considered "non-consensual" under this Code.

### **Individual commitment signed**

It is part of the prophylactic actions that each employee signs a specific individual commitment. This commitment will be formalized in an individual Term of Commitment to be signed containing the content of the model shown below:

*I, (name) As an (employee/contractor) of (PMU, Contractor, etc.) under PROCASE II, acknowledge that **Sexual Exploitation and Abuse** and **Sexual Harassment** activities in the workplace, around the workplace, on construction sites or in the surrounding community constitute a violation of this Code of Conduct Against Gender-Based Violence. I understand that **Sexual Exploitation and Abuse** and **Sexual Harassment** activities are grounds for sanctions, penalties and termination of employment. Finally, I understand that Project Management must bring this to the attention of the competent authorities.*

*I agree that as a worker on the project I will commit to:*

- *The provisions of this code of conduct on and off the Project site.*
- *Actively participate in training courses related to the prevention of **Sexual Exploitation and Abuse** and **Sexual Harassment** whenever requested by my employer.*
- *In case of awareness or suspicion of **Sexual Exploitation and Abuse** and **Sexual Harassment**, at the project site or in the surrounding community, I understand that I am encouraged to report it to the Complaints Reporting Mechanism and/or to my manager. I must always take into account the safety and right to privacy of the person who has suffered the abuse.*

*I understand that if I violate this Individual Commitment, I may receive disciplinary action, which may include:*

- Informal notice or formal notice;*
- Suspension of employment (with or without pay);*
- Termination of employment;*
- Be indicted to the local authorities.*

*I understand that it is my responsibility to adhere to this code of conduct. I acknowledge that I have read and understood the Code of Conduct Against Gender-Based Violence, agree to comply with the standards contained in this document and understand my role and responsibility to prevent and potentially report issues of **Sexual Exploitation and Abuse** and **Sexual Harassment**. I understand that any action inconsistent with this Individual Code of Conduct or failure to act as directed by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.*

*Signature: \_\_\_\_\_*

*Printed name: \_\_\_\_\_*

Date: \_\_\_\_\_

### **Situations of Gender Violence Caused by a Project Collaborator**

In the event of violence caused by a Project employee, the following actions must be taken:

- Emergency action should be taken whenever the integrity and health of the abused person is still under threat;
- The victim must be located, attended to and welcomed, and the situation must be assessed by the project team to determine the best approach and sequence of care;
- The employee will be subject to the applicable legal and criminal actions, in addition to the sanctions established in the contract, including dismissal.

### **Situations of Gender-Based Violence in the Community**

If the PMU or any employee receives information about violence in the Project's area of operation, the following actions must be taken:

The PMU should check whether it is necessary to call in the authorities so as not to increase the risk to the victim and/or the team itself;

If possible, the victim should be located, cared for and taken in. The situation should be assessed by the project team to determine the best way to approach and follow up on the case.

### **Educational Campaigns and Channel Promotion**

Educational campaigns should be drawn up in connection with the Project's Communication Program on the subject of gender inclusion. Women's rights and the fight against gender-based violence must be addressed. The communication channels<sup>53</sup> for reporting cases of violence and requesting support should always be presented:

- **Women's Defense Center of the Public Defender's Office (Nudem):** The Women's Defense Center (Nudem) is a service that is part of the specialized Human Rights area of the Bahia Public Defender's Office. Nudem offers assistance in medium and long-term emergency situations, to provide women with recognition of their rights to a life without violence. Victims can go to the Public Defender's office, located at Rua Monsenhor Walfredo Leal, 503, Tambiá. The office is open from 8am to 5pm and the contact number is (83) 98826-7924 (WhatsApp), and there is also an e-mail address: [defesadamulher@defensoria.pb.def.br](mailto:defesadamulher@defensoria.pb.def.br).
- **Women Protection Program** The device is a pioneering action in the country, as it enables direct contact with the Military Police, to whom the victim informs, with a single click, the detailed situation in which she finds herself, triggering the appropriate police action. The specially programmed cell phone has three alert devices with red, yellow and green indications. A green button means that there is no need for police action. The yellow button is a warning signal that the aggressor is hanging around where the victim is; and the red band means that the police need to be present because the aggressor is embarrassing or threatening the victim. Through the monitoring system, the police are able to identify the exact location of the victim, giving them complete freedom to move around safely. In parallel with

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<sup>53</sup> Channels need to be kept up to date and checked before each advertising event.

these actions directly related to the victims who come to the police stations, the Protected Women Program also works on prevention, holding educational and awareness-raising talks on the subject of domestic violence in schools, unions, associations, industries, construction sites, as well as leafleting in streets, squares and events.

- **Specialized Prosecutor's Office for the Defence of Women in Situations of Domestic and Family Violence:** Rua 13 de Maio, nº 691, Centro - CEP: 58013-075. Telephone: (83) 2107-6016.
- **Specialized Women's Ombudsman's Office / Center for Women Victims of Violence of the Public Defender's Office of Paraíba:** Parque Solon de Lucena, nº 300 - Centro - CEP: 58013-130. Telephone: (83) 3221-6320
- **Special Court for Domestic and Family Violence Against Women:** Rua Visconde de Pelotas, s/n, Centro - CEP: 58013-000. Telephone: (83) 3222-7682/7268
- **SOS Women Project:** a project aimed at women who are victims of serious threats and are under a protective order. The aim of the project is to help women who find themselves in a dangerous situation through alerts sent from a cell phone that is linked to the Military Police Operations Center, triggering immediate action. Victims of domestic and family violence as described in the Maria da Penha Law (Law 11.340/06), which says "Any action or omission based on gender that causes death, injury, physical, sexual or psychological suffering and moral or property damage", should seek help at a police station or by calling the women's hotline at 180. After registering the incident, the case will be analyzed and, in addition to protective measures, the victim may be given an SOS Mulher device.

The activities and themes should be detailed, for example: training, lectures, workshops, etc. As themes and actions, it is suggested that they be included in the project:

- Cervical Cancer Prevention.
- Breast Cancer Prevention.
- Prevention of Sexually Transmitted Infections.
- Teenage Pregnancy.
- Drug Prevention.
- Personal hygiene and quality of life with distribution of hygiene kits.
- The importance of women.
- The best way to act in risky situations.
- First aid.
- How to guarantee equality for women in the labor market;
- Maria da Penha Law and Femicide;
- Orange Month - Against Violence and Sexual Abuse against Children;
- Lilac August - Violence Against Women;
- International Women's Day;
- Female empowerment;
- Bullying and its consequences;
- Lecture on Rights and Duties - ECA (Statute of the Child and Adolescent);

### **Security-focused actions in Subprojects**

In the sub-project areas, it will be important to assess and adapt locations that may pose a greater risk of violence and harassment:

- Increase the fluidity of circulation and connection of spaces/places that are more confined;
- Reduce dark areas and blind spots by reassessing lighting and installations, as well as positioning security cameras where necessary;
- Workers, especially those with a degree of vulnerability and gender, must be accompanied by at least one co-worker;
- The Subprogram's actions in which the situation of GBV is identified should bring together state and municipal institutions to expand the support network.

### **5.15 Program to Mitigate Impacts on Traditional Communities**

In 2020, the Inter-American Development Bank (IDB) approved the new Environmental and Social Policy Framework (ESPM), raising the importance of respect for human rights, establishing stricter protections for people and groups in situations of vulnerability to the potential risks and impacts of supported projects. It specifies where it is necessary to obtain the free, prior and informed consent of indigenous peoples, determines the protection of people of African descent and people with disabilities and requires the consideration of factors such as race and ethnicity, age and social status, being aligned with the most recent versions of the central international conventions and instruments of the United Nations (UN) and the International Labor Organization (ILO). Similarly, IFAD Standard 4 addresses the issues required in the prevention and mitigation of impacts on traditional communities.

IDB and IFAD Policies recognize that Indigenous Peoples and traditional peoples recognized in national laws as distinct social and cultural peoples are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social and legal status limits their ability to defend their rights and interests in lands and natural and cultural resources and can restrict their ability to participate in and benefit from development that is in line with their worldview. These communities are particularly vulnerable if their territories and resources are impacted, invaded or degraded. This vulnerability can include impacts on their social organization, cultural aspects and natural resource-based livelihoods, as well as exposure to impoverishment and disease.

In PROCASE II, given the level of detail used in the studies, risks of affecting **traditional indigenous communities, quilombolas, gypsies and fishermen/ shellfish gatherers** were identified. Although no interventions directly affecting fishing communities have been identified, their presence in the project area must be acknowledged. Impacts related to these communities are expected, especially with regard to possible customs and cultural traditions, use of natural resources (wood and plants, for example), among others. It is important to comply with the guidelines presented below as the next steps to be taken.

**Responsible:** TA is responsible for implementing the measures set out in this Program, with the respective supervision and coordination of the PMU.

**Target audience:** Protection agencies (e.g. FUNAI) and traditional communities benefiting/affected by the Subproject.

## Procedures and guidelines

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As established in the Safeguard Policies, the borrower must:

- Ensure that the development process promotes full respect for the human rights, collective rights, dignity, aspirations, culture and natural resource-based livelihoods of Indigenous Peoples and traditional communities;
- Anticipate and avoid adverse impacts of projects on Indigenous Peoples and traditional communities, or when it is not possible to avoid, minimize and/or compensate for such impacts;
- Promote sustainable development benefits and opportunities in a culturally appropriate way;
- Establish and maintain an ongoing relationship based on Consultation and Informed Participation (CPI) in a culturally appropriate manner with Indigenous Peoples and traditional communities affected by a project throughout its life cycle;
- Ensure the Free, Prior and Informed Consent (FPIC) of Indigenous Peoples and traditional communities affected by the project in the circumstances described in the Environmental and Social Policy Frameworks;
- Respect and preserve the culture, knowledge and practices of traditional populations;
- In addition to what is recommended in the previous items, all the bodies responsible for protecting traditional peoples, such as FUNAI for indigenous peoples in Brazil, must be consulted. When the body issues a statement, where appropriate, the necessary requirements must be met.

The guidelines required of borrowers must comply with the Safeguard Policies, and with the national regulatory frameworks relevant to the Project, including principles set out in treaties that form part of national law and are applicable by virtue of their ratification.

In addition to Informed Consultation and Participation and Free, Prior and Informed Consent, the following will be required:

- Carry out a Sociocultural Analysis (ASC), specific to the Subproject to be implemented, which should include:
  - Methodology with participatory planning tools and approach to sustainable livelihoods;
  - Legal framework and legal provisions, considering the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT), international declarations and conventions such as ILO 169;
  - Socio-cultural baseline, including information on human capital, territoriality, religious systems, worldview (cosmology), health, education, social capital, social organization, local governance, partner organizations, physical capital, access/displacement, spatiality/housing, water supply, sanitation, waste management, energy, communication, natural capital, extractivism, gardens/plantations, fishing, hunting, financial capital.
  - Vulnerability analysis and population expectations;
  - Assessment of risks and impacts, including, among others:
    - interference in traditional rituals and festivals, cultural customs,
    - introduction of diseases;

- accidents on construction sites and access roads;
  - conflicts in internal and external governance;
  - harassment of women and children;
  - introduction of drugs and alcohol;
  - harassment of illegal businesses and undue scams;
  - shortages (water, energy and natural resources);
  - annoyance from noise and air pollution;
  - other interferences with ecosystem services.
- Socio-cultural Action Plan, including mitigation, compensation and monitoring measures:
    - Situations that result in a loss of way of life, impediment to cultural activities or material loss (e.g. affecting recreational areas, cultural sites, religious sites) should be compensated with proposals that establish the replacement of the loss or the restoration to an identical or better situation.
  - Engagement Plan with guidelines for consultations with traditional communities, the structuring of a stakeholder matrix, and the implementation of a grievance mechanism prepared to deal with traditional communities.

All these tools and processes should provide results and indicate measures to eliminate, reduce, mitigate or compensate for the impacts generated in the community.

The following tables show examples of a matrix of risks and potential measures in a traditional community ASC:

**Table 17 - Example of a matrix of risk mitigation measures for indigenous populations**

Risk identified	Suggested measure
Risk of interference with rituals and festivals	- Adapt the construction schedule to stop work during the longest Temb� rituals, in May and December; - Draw up a Temb� Code of Conduct and train, with the help of the borrower, contractor and workers on their cultural specificities, warning of penalties for non-compliance with safeguards.
Enhance the degree of participation (CPI) and guarantee the process of free, prior and informed consultation (CLPI)	- Carry out a continuous consultation process, which is initiated with adequate time, prior to each stage of the work, recording the aligned decisions on the measures to be monitored.
Risk of non-compliance with safeguards related to the cultural suitability of the architectural project	- Implement a continuous Consultation Plan, which is initiated with adequate time, prior to the construction planning stage, stimulating reflection and negotiation on cultural adjustments to the Project.
Risk of introducing diseases	- possibility of hiring Temb� labor; - Requirement of a Health Protocol for external workers - (up-to-date proof of vaccination, with a complete vaccination schedule for Covid-19, accompanied by a doctor's certificate that the worker does not have a contagious disease);
Risk of accidents on the construction site and access roads	- Culturally appropriate measures discussed with the Temb� in the Consultation Plan to prevent the movement of indigenous people around the construction site: visual and audible warnings prior to the movement of machinery on access roads within the village; - Compliance with the safety standards imposed by regulations and legislation for managing vehicle traffic in places where people are present.

Risk identified	Suggested measure
Risk of internal governance conflicts between villages	- Stakeholder engagement with the displacement of representatives from the other villages for which the borrower is responsible during the consultation stages.
Risk of conflicts in external governance with partner institutions	- Stakeholder engagement carried out in advance and formally between the federal entities and FUNAI.
Risk of harassment of women and children	- Avoid housing workers in the Indigenous Territory, making it possible for them to stay in the surrounding villages with daily transportation during work shifts; - Draw up a Temb� Code of Conduct and train, with the help of the borrower, the contractor and the workers on its socio-cultural specificities, warning of penalties for non-compliance.
Risk of harassment of young people through the introduction of alcohol and drugs	- Avoid housing workers in the Indigenous Territory, making it possible for them to stay in the surrounding villages with daily transportation during work shifts; - Draw up a Temb� Code of Conduct and train, with the help of the borrower, the contractor and the workers on its socio-cultural specificities, warning of penalties for non-compliance.
Risk of harassment for selling game and fish	- Train external workers, especially with regard to current legislation and international safeguards; - Draw up a Temb� Code of Conduct and train, with the help of the borrower, the contractor and the workers on its socio-cultural specificities, warning of penalties for non-compliance.
Risk of harassment for timber sales	- Train external workers, especially with regard to current legislation and international safeguards; - Draw up a Temb� Code of Conduct and train, with the help of the borrower, the contractor and the workers on its socio-cultural specificities, warning of penalties for non-compliance.
Risk of water shortage in the village	- To build its own water supply system for the construction site, with a view to supplying the school's operations after the construction site has been handed over.
Risk of noise nuisance	- Dialogue on the work schedule, avoiding activity at weekends and at night; - Training workers about the surroundings, and better control of the flow of trucks and heavy machinery.
Risk of power cuts in the village	- Improving the village's electricity distribution network in dialogue with the energy supply company.
Risk of using natural capital on site (wood, sand, gravel)	- A ban on the use of any of the Indigenous Land's natural resources. This ban extends to surface water, soil, sand, gravel and wood.

Source: Adapted from Socio-cultural Study - Cajueiro Village / Alto Rio Guam  Indigenous Land (2023).

**Table 18 - Example of a matrix of risk mitigation measures for quilombola communities**

Identified risk	Suggested measure
Increasing the level of community participation and consultation	1. Carry out a process of ongoing consultation, starting at an appropriate time, prior to each stage of the work, recording the decisions aligned with the measures and carrying out monitoring at the time the community deems most appropriate.
Risk of non-compliance with safeguards related to the cultural suitability of the architectural project	1. implement a continuous Consultation Plan, which is initiated with adequate time, prior to the planning stage of the project, stimulating reflections and negotiations on cultural adaptations to the Project.
Risk of introducing diseases	1. Possibility of hiring labor from the community; 2. Requirement of a Health Protocol for external workers (up-to-date proof of vaccination, with a complete vaccination schedule for Covid-19, accompanied by a medical certificate that the worker does not have a contagious disease).

Identified risk	Suggested measure
Risk of accidents on the construction site and access roads	1) Appropriate social measures discussed with the community in the Consultation Plan to isolate the area and prevent the movement of people around the construction site; 2) Visual and audible warnings prior to the movement of machinery on access roads within the community in the vicinity of the school; 3) Compliance with the safety standards imposed by regulations and legislation on the management of vehicular traffic in places where people are present.
Risk of harassment of women and children *Affects women and children unequally	1. avoid housing the workers inside the community, making it possible for them to stay in the surrounding agro-villages with daily transportation during work shifts; 2. draw up a code of conduct and train the borrower, contractor and workers on their socio-cultural specificities, warning of penalties for non-compliance.
Risk of harassment of young people through the introduction of alcohol and drugs *Affects women and children unequally	1. avoid housing the workers inside the community, making it possible for them to stay in the surrounding agro-villages with daily transportation during work shifts; 2. draw up a code of conduct and train the borrower, contractor and workers on their socio-cultural specificities, warning of penalties for non-compliance.
Risk of harassment for the sale of natural capital assets	1. avoid housing the workers inside the community, making it possible for them to stay in the surrounding agro-villages with daily transportation during work shifts; 2. draw up a code of conduct and train the borrower, contractor and workers on their socio-cultural specificities, warning of penalties for non-compliance; 3. Train external workers, especially with regard to current legislation and international safeguards.
Risk of water shortages in community and public buildings near the planned construction site	Improving the water distribution network in the central area of the community, foreseeing possible shortages in the municipal school and surrounding houses or guaranteeing an individual supply structure for the operation of the building.
Risk of noise nuisance in community and public buildings near the planned construction site	1. Dialogue about the work schedule, avoiding activity at weekends and at night; 2. Training workers about the surroundings, and better control of the flow of trucks and heavy machinery.
Risk of power failure in community and public buildings near the planned construction site	Improving the community's electricity distribution network, especially in the central area where the school will be located, in dialogue with the energy supply company.
Risk of using natural capital on site	Prohibition on the use of any natural resource in Quilombola territory. This prohibition extends to soil, sand, gravel and wood.

Source: Adapted from Sociocultural Study - Campo Verde Community - AQUINEC Quilombola Territory (2023).

## 5.16 Disease Vector Control Program and Pests

It is common in construction sites or occupation projects and anthropic activities to find habitats that are conducive to the proliferation of synanthropic fauna and arboviruses that are harmful to humans and can affect a community with diseases and epidemics.

Water-borne diseases and diseases caused by vectors that use water as a breeding habitat promote the proliferation of arboviruses such as Dengue, Zika and Chikungunya.

PROCASE II encompasses actions that must be accompanied by vector control, both by eliminating habitats with the consequent scaring away of fauna, and by new situations



and environments that could enhance the presence of these harmful insects and animals.

**Responsible: TA** is responsible for guiding and supervising the construction company that will incorporate the measures into its construction activities. The TA should also monitor the areas where related agricultural sub-projects are being implemented (SAF, livestock, etc.) in order to assess the appearance of pests together with rural producers and jointly propose/implement control and mitigation actions. Public health agencies may also be involved or called upon by TA to carry out actions and provide data on the health of the population of the benefited community. The PMU should supervise the actions implemented.

**Target audience:** communities benefiting from the Subproject.

## Objectives

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Preventing and controlling pests and disease vectors, mainly through prophylactic measures.

## Procedures and Guidelines

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The following procedures should be established:

- Communication and environmental education regulations must be followed in order to make the population aware of disease vectors and pests, in line with the Environmental and Health Education Program;
- Regulations must be followed to avoid the accumulation of waste on the land and, in particular, in the APPs;
- When necessary, specific programs should be implemented to combat pests with sustainable practices (biological control, for example);
- Restrictions provided for in International Policies on the acquisition of certain hazardous chemicals harmful to human health and the environment should also be established and complied with, including the recommendations of the GIIPs and the IFC Technical Notes, such as pesticides, biphenyl polychlorides (PCBs); dioxins and furans. Application of environmentally sustainable measures such as biological and mechanical control, biological herbicides and traps for monitoring and control are more recommended.

Two actions must be carried out within the Subproject:

- Action 1 to control pests and diseases in the intervention and construction areas: avoiding the accumulation of water, waste and monitoring the health of workers.
- Action 2 monitoring and control of pests and diseases: which should include (i) activities to monitor the evolution and spread of vector-related diseases through health indicators in the community's families and in agriculture and livestock; (ii) actions to combat the proliferation of vectors by sanitizing/disinfecting and eliminating potential habitats in the areas where the Subprojects are being implemented/operated.

## 5.17 Cultural Heritage and Chance Finds Protection Program

This program incorporates guidelines for the preservation of local cultural heritage and the rescue of any heritage found at the sites where social technologies associated with

stone tanks and other activities involving excavation are implemented. It also provides guidelines for unforeseen fortuitous finds during project implementation work, especially those that may involve excavation and soil movement.

During implementation, areas with paleontological potential could be impacted. It is therefore important to certify the existence of sites and ensure that they are safeguarded by the National Mining Agency (ANM).

**Responsible:** TA will be responsible for the measures provided for in this Program, involving: (i) training on cultural heritage for the workers involved in the Subproject, with the possibility of hiring a professional specialist in the subject to give lectures and workshops; (ii) in addition to promoting community access to the benefits and knowledge linked to the potential protected assets identified; (iii) analysis of the Subproject alternative in order to avoid interference with the identified sites. The PMU will support and supervise the implementation of these actions.

**Target audience:** Heritage protection bodies, beneficiary communities and all the workers involved in the sub-project.

## Objectives

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Observe the procedures established by IPHAN (archaeological sites) and ANM (paleontological sites), in order to identify possible interference by the project in cultural assets protected at federal level; and if the area is classified as a cultural site, implement the necessary actions to protect or rescue the protected assets, mitigate or compensate for the impacts on these assets when carrying out the works and other actions to be established by the protection bodies.

## Procedures and Guidelines

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For situations in which risks of impacts on cultural sites in the project area are identified, the guidelines set out in the IDB's PDAS8 and IFAD's Standard 3 should be adopted. Thus, procedures for the chance discovery of cultural sites should be defined.

It is also recommended that stakeholder consultations be adopted at the stage of research and assessment of impacts on cultural heritage.

State and municipal cultural heritage protection bodies should also always be consulted, and the full spectrum of heritage types (material, intangible, cultural, landscape, architectural, paleontological, etc.) should always be covered in the assessments, as required by the IDB and IFAD guidelines and IPHAN's IN 001/2015.

In the case of paleontological sites, these are considered National Heritage and are protected by Brazilian law. Thus, the destruction of sites and the sale and purchase of fossils are considered crimes. Article 1 of DECREE-Law No. 4.146, OF MARCH 4, 1942, states that "Fossiliferous deposits are the property of the Nation, and, as such, the extraction of fossil specimens depends on prior authorization and supervision by the National Department of Mineral Production<sup>54</sup>, of the Ministry of Agriculture".

It should be noted that, basically, PROCASE II sub-projects do not require IPHAN to provide a statement.

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<sup>54</sup> Current National Mining Agency - ANM

### **Workshop / Training**

Workers on the construction site and excavation activities, as well as those responsible for these activities and the project supervision team, must undergo training in the recognition of archaeological and paleontological remains. This training must be given by a specialist in the field.

### **Recognition of archaeological and paleontological remains in the event of chance finds**

During project implementation activities, especially those related to excavation and earthmoving actions (implementation of social technologies, for example), materials of archaeological interest may appear, such as pieces of pottery, stone utensils, layers of black soil and others to be better specified during archaeological prospecting. Such identification can be done through observation by the workers or those responsible for the site who are trained in identification.

In these situations, any type of activity, especially earthmoving and the movement of vehicles, should be stopped when traces are found and the area of the occurrence should be demarcated and the workers informed of the stoppage of the section.

The project supervisor should be informed immediately of this type of occurrence on site, so that an archaeologist or paleontologist can assess the location, depending on the specific nature of the find.

If evidence of the presence of sites is found, the following activities should be implemented<sup>55</sup> :

- Stoppage of work on the identified site;
- Recording and characterization of the evidence by an archaeologist;
- Submission of the evidence to IPHAN and request for authorization for research, site delimitation and salvage.

The sites found must be delimited and registered with IPHAN's National Register of Archaeological Sites (archaeological sites) or ANM (paleontological sites), and the material must be curated, analyzed and deposited in an authorized museum when appropriate, or measures must be taken to preserve it *in situ*.<sup>56</sup>

As provided for in the Normative Instruction mentioned above, depending on the framework and the identification of possible cultural sites in the project area, IPHAN or ANM may request an Impact Assessment:

- The characterization of historical and artistic heritage, both tangible and intangible;
- Consultation with the affected population who use, or have previously used, the identified cultural heritage;

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<sup>55</sup> It is equivalent to the Fortuitous Finds Procedure specified in PDAS 8. The Fortuitous Finds Procedure will establish the protocol to be followed for the stoppage of works and rescue procedures in the cases in question

<sup>56</sup> Any actions related to the identification and classification of archaeological material, as well as the rescue of sites, must follow the requirements established in IPHAN Normative Instruction 001/2015, in addition to the issuance of an Authorization Ordinance to the archaeologist responsible.

- Requirements for community accessibility to identified heritage (normally protected and with access available in museums authorized by IPHAN to receive and store identified and rescued materials);
- Identification of whether or not the cultural heritage identified is replicable, defining mechanisms for managing risks and impacts on non-replicable cultural heritage.

### **Access to the benefits derived from the use of cultural heritage**

Access should be given to the benefits derived from the use of cultural heritage. Thus, it is recommended, as provided for in IN 001/2015, that all archaeological material, as well as the results of archaeological research and rescues, should be safeguarded in a museum institution that can manage the material and guarantee access and integrity of the materials to the community.

### **Application for Paleontological Sites**

Authorization for intervention, extraction, safekeeping or protection of paleontological sites must be made through the ANM's COPAL - Controle de Pesquisa Paleontológica (Paleontological Research Control) system. COPAL (Control of Paleontological Research) is the ANM's fossil extraction control system and aims to streamline the process of obtaining authorizations and prior communication for the extraction (collection) of fossil specimens in Brazilian territory, in accordance with the provisions of Decree-Law No. 4,146 of 04/03/1942.

The types of applications are set out in DNPM Ordinance No. 155 of May 12, 2016 (Title IV - Authorization and Prior Communication for Fossil Extraction, articles 296 to 320).

Brazilian fossils are the property of the Union and it is forbidden to grant authorization for the extraction of fossils in the national territory for the specific purpose of commercialization.

Applications must be made via the COPAL system available at <https://app.anm.gov.br/Copal/Login?ReturnUrl=%2fcopal>.

Authorization can be requested by:

- professional or student linked to a museum or scientific institution in the municipal sphere;
- professional or student linked to a private museum or scientific institution;
- professional responsible for carrying out the paleontological rescue program within the scope of environmental licensing; and
- a self-employed professional who presents a declaration of endorsement from the scientific institution that holds the fossil material collected.

## **6 DESCRIPTION OF THE MEASURES APPLIED TO RURAL PRODUCERS UNDER THE PIRS**

### **6.1 Waste Management Program**

The Waste Management Program for the activities carried out by the Rural Producers benefiting from the Subproject is presented below.

**Responsible:** Practices of waste separation, reuse, recycling and composting will be encouraged in all PIRs by the Agroecological TA teams, and responsibility for carrying out the practices will lie with the Rural Producer.

### 6.1.1 Agricultural Production and Processing Waste

Agricultural production and processing has a particular set of waste products that need specific management - there are products that are considered hazardous (pesticides or manipueira, which comes from the pressing of cassava dough in flour mills). There is also waste that can be recycled and should therefore be disposed of (for example, plastics, packaging for non-hazardous products, among others), and finally organic waste (peelings, pomace, pruning waste, among others).

#### Objective

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The aim of this program is to define criteria and establish minimum guidelines for waste management activities in Agricultural Production and Processing.

The specific objective is to define criteria for optimizing, reducing, reusing, storing, handling, transporting, treating and disposing of waste, with a view to better management and less impact on this material.

#### Procedures and Guidelines

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Agricultural production and processing has a particular set of waste products that need specific management - there are products that are considered hazardous (pesticides or manipueira, which comes from the pressing of cassava dough in flour mills). There is also waste that can be recycled and should therefore be disposed of (e.g. plastics, packaging for non-hazardous products, among others), and finally organic waste (peelings, pomace, pruning waste, among others).

#### Objective

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The aim of this program is to define criteria and establish minimum guidelines for waste management activities in agricultural production and processing.

The specific objective is to define criteria for optimizing, reducing, reusing, storing, handling, transporting, treating and disposing of waste, with a view to better management and less impact on this material.

#### Procedures and Guidelines

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- It is important to segregate waste in kitchens and processing areas, for example by not putting organic waste together with material that can be recycled (plastics, long-life packaging, etc.).
- Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.
- For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizer, natural pesticides, among others.
- It is important for TA to show communities the viable alternatives for disposing of waste properly, depending on its nature.

### **Hazardous Waste**

The main hazardous products are related to the pesticides that may be used. It is important to note that the farmer must undertake not to use chemical pesticides and agrochemicals in the areas covered by the Subproject, adopting this good practice in other areas of his activity in order to reduce the use of these inputs.

In the case of Subprojects involving processes that generate Manipueira, the following issues must be observed:

- Manipueira should not be directed to collective or individual sewage treatment systems;
- Disposal should not be directly into rivers, lakes or bare earth;
- A Manipueira biodigestion process should be used, which could also provide natural gas;
- Techniques involving the appropriate use of Manipueira as an agricultural pesticide can also be used.

### **Production waste**

Rural producers will receive training on the actions taken to manage production waste. To this end, the beneficiaries will have to make a commitment to take part in the training offered. The aim of the training is to expand and guide the following practices, among others that may be added:

- It is important to segregate waste in kitchens and processing areas, for example by not combining organic waste with material that can be recycled (plastics, long-life packaging etc.).
- Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.
- For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizer (compost), natural pesticides, among others.

## **6.2 Biodiversity Management, Protection and Restoration Plan**

A Natural Habitats Management and Restoration Programme is required when there is a risk of impact on "modified habitats", "natural habitats" and "critical habitats", together with "legally protected areas and internationally and regionally recognized areas of biodiversity value", which may include habitats in any of these categories. This situation requires a differentiated risk management strategy for habitats, based on their values and susceptibility. It also takes into account the existence of ecosystem services.

**Responsible:** The Rural Producer will be responsible for carrying out actions to prevent the dispersal of unwanted species and supporting monitoring, as well as committing to making appropriate, legally permitted and sustainable use of the woody material used. These actions will be guided by the TA team.

According to the results of the AASE, there is a risk of affecting habitats of various kinds, although the exact definition and location of the PROCASE II subprojects is not known, which may or may not trigger this Plan depending on the design of each subproject and the constraints of its area of insertion.

## **Objective**

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The aim of this Plan is to ensure that PROCASE II actions do not affect biodiversity resulting in a net loss of natural habitat areas and that there are net gains in those biodiversity values for which a critical habitat has been designated.

## **Procedures and Guidelines**

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### **Measures to prevent invasive alien species**

The intentional or accidental introduction of exotic or non-native species of flora and fauna into areas where they are not normally found can pose a significant threat to biodiversity, as some exotic species can become invasive, spreading rapidly and destroying or negatively competing with native species.

PROCASE II has project proposals that involve the use of species that, although exotic to the biome, are species that have been adapted to the environment for many years, including being part of the dynamics and ecological function and local ecosystem services. This is the case with some forage species, such as the palm, for example, which, despite not being native to the Atlantic Forest or Caatinga biome, is fundamental to the entire ecological and agroforestry system found in the region where the project operates.

- The intentional introduction of new alien species (not currently established in the country or project region) will not be permitted, unless done in accordance with the existing regulatory framework for such introduction. Notwithstanding the above, deliberate introduction of exotic species that present a high risk of being invasive should not be allowed, regardless of whether such introductions are permitted in accordance with the regulatory framework. Any introduction of exotic species will be subject to a risk assessment (part of the Environmental and Social Assessment) to determine the invasive potential.
- Measures should be implemented to prevent possible accidental or unintentional introductions, including the transportation of substrates and vectors (such as soil, ballast and plant materials) that could harbor invasive alien species. These measures will be guided by the TA team.
- When invasive alien species are already established in the region of the proposed Subproject, the necessary procedures must be taken to prevent them from spreading to areas where they have not yet become established. Whenever possible, measures should be taken to eradicate these species from natural habitats where they have management control. These measures will be guided by the TA team.

### **Legally Protected Areas**

The areas where sub-projects (PIRs) are to be implemented should focus on improving environmental quality, both in physical and biotic terms, in areas of permanent preservation. The implementation of SAFs may eventually be associated with areas of APP<sup>57</sup>, one of the objectives of which is to restore them. It is therefore important that the

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<sup>57</sup> These APPs are related to riverbanks and other types of APPs, such as springs, steep slopes and hilltops, are not considered in Proc case II.

service roads are installed in such a way as to reduce interference in APP as much as possible and that the Subprojects contribute to a net gain in vegetation cover.

Farmers must comply with and respect the guidelines given by the TA team when implementing agroforestry systems, in accordance with the guidelines set out in item 5.6 of this ESMP.

### **Erosion Control and River Siltation**

The aim of these actions is to identify and analyze the causes and situations of risk in terms of the occurrence of erosion processes and the destabilization of land, in order to prevent situations that could compromise the natural or modified habitat and water bodies.

The following guidelines are planned to combat erosion and river silting:

- Reduce areas with exposed soil to a minimum and, when unavoidable, such areas should be protected by provisional measures, as advised by the TA team;
- Correct or stabilize, in the shortest possible time, all the erosive features that have appeared in the project area with the support of ATER;
- Projects to implement production systems, especially in APP areas, must respect the contour lines and slopes of the land, harmoniously seeking to contribute to increasing soil stability.

Rural producers must comply with and respect the guidelines given by the TA team when implementing agroforestry systems, in accordance with the guidelines set out in item 5.6 of this ESMP.

### **Use of woody material**

The use of woody material in the production processes associated with PROCASE II Subprojects (use in wood-burning ovens, for example) must comply with the following guidelines on the part of the Rural Producer:

- The woody material should preferably come from fallen trees or species considered exotic;
- Purchased wood material must come from reforestation or other permitted sources that do not contain native species protected by law or threatened with extinction;
- Woody material purchased from suppliers must have the appropriate permits and licenses.

## **6.3 Contaminating Products Management and Control Plan**

The aim of this Plan is to define criteria and establish minimum guidelines for the management and control of contaminating products. It is important to consider that **contaminating products** have the potential to pollute the environment, but only if they are used or stored incorrectly.

**Responsible:** The farmer will be responsible for carrying out actions to control and manage contaminating products that involve the operation of the systems set up on their property. These actions will be guided by the TA team.



## Procedures and Guidelines

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### **Contaminants related to processing**

Possible contaminants from processing are mainly related to the cleaning products and the edible oil ("cooking oil") to be used.

- Cleaning products should be stored in a suitable place, not near food (especially fresh food);
- Its use must follow the manufacturer's specifications and the use of the indicated PPE must be observed, especially gloves;
- The oil should be stored in a dry place, the packaging should be inspected to avoid leakage, expired oils should not be disposed of directly into the sewage system and should be considered kitchen waste.

### **Agricultural Defensives (pesticides)**

The use of pesticides will not be allowed, and rural producers will be informed of this premise from the outset of the implementation of the Subproject. If the use of pesticides is identified in a PROCASE II sub-project, this conduct must be curbed and the rural producer informed of the possibility of sanctions and loss of benefits.

### **Personal Protective Equipment - PPE**

The PPE most commonly used in the activities carried out by rural producers are: protective masks, goggles, waterproof gloves, a wide-brimmed waterproof hat, waterproof boots, overalls with long sleeves and leggings. In addition to this PPE, TA should instruct farmers on the need to use sunscreen and repellent.

PPE recommendations:

- must be used in good condition, in accordance with the manufacturer's recommendation and the product to be used;
- preferably with a Certificate of Approval (CA) from the Ministry of Labor;
- the filters in masks and respirators are specific to the type of activity and have an expiration date;
- the recommended gloves must be resistant to the products being handled;
- PPE must be kept in clean, dry, safe places and away from chemical products.
- Further recommendations can be found in 6.4 of this PGASE.

## 6.4 Labor Management Plan

**Responsible:** The farmer will be responsible for adopting the measures recommended by the TA team on health, safety and conduct in the workplace. These measures include the use of PPE, care when using machinery and equipment, respect for other workers, and combating child and forced labor.

Safety, hygiene and occupational health care for people working on the PROCASE II construction site will be restricted to employees of the contracted company and workers from other companies that may provide services for this contractor.

The following provisions set out the minimum conditions and requirements that must be followed by the contractor and any subcontractors and must be the subject of procedures that guarantee excellence in Occupational Safety, Hygiene, Medicine, Living and Environmental Management, and must cover, without distinction, the entire workforce and facilities of the contractor and any subcontractors placed at the disposal of the projects.

As a priority, these procedures must comply with current federal, state and municipal legislation and the applicable standards, procedures and instructions issued by public bodies with powers to regulate these issues. They should also include the categories of workers in situations of vulnerability, such as women, people with different gender identities or sexual orientations, people with disabilities, children (of working age, in accordance with IDB PDAS 2 and IFAD Standard 5) and migrant workers, workers hired by third parties and primary supply workers.

This implies the obligation to comply with any terms of Collective Negotiation Agreements signed with trade unions, associations or trade associations.

This document sets out the requirements for the living conditions (including accommodation, meals and transportation) of the Contractor's employees, stressing that, for those migrating from other regions, the conditions to be offered must be decent and compatible with the employee's hierarchical level.

Job creation and income generation through financing programs based on international environmental and social policies and agreements must go hand in hand with the protection of workers' fundamental rights. Having conditions that foster a solid relationship between worker and employer is key to the sustainability of any initiative and fundamental to improving quality of life.

In recent decades, labor risks and impacts, such as workplace bullying, precarious working conditions for migrants, child and forced labor, and occupational health and safety, have been at the forefront of development cooperation. The COVID-19 pandemic has further exposed these risk factors in global supply chains. The IDB's MPAS and IFAD's Standards directly address the conditions of the labor force involved in the projects of its Credit Operations, including full-time, part-time or temporary, seasonal or migrant workers.

These Safeguard Policies emphasize the need for fair treatment, non-discrimination and equal opportunity for all, and support commitments to eradicate child and forced labor, promote safe and healthy work, and protect workers' health. It also supports the principles of freedom of association and collective bargaining and guides how to establish, maintain and improve relations between workers and employees in funded projects.

In order to manage occupational risks and impacts, the following guidelines must be followed:

- Respect national legislation and defend international labor rights, based on ILO and UN conventions;
- Combating child labor and forced labor, taking into account the minimum age of 16 and combating modern slavery such as work in conditions of servitude, practices of withholding documents, hiring fees or imposing debts;
- Implement labor management procedures to mitigate risks through a Labor Management Program (LMP).

## **Procedures and guidelines**

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### **Occupational Health and Safety**

The OHS measures must be implemented by the TA team together with the rural producer. The main aim of this action is to encourage the best practice and use of minimum protection systems that guarantee the integrity of workers in their daily production activities.

#### ***Excessive noise***

Everyone working in an environment exposed to excessive noise must have a health assessment including audiometry (valid for twelve months) and the appropriate PPE.

#### ***Respiratory protection***

All people working in production activities who need to wear respiratory protection equipment appropriate to the level of protection required (including any type of mask) must have a health assessment that includes spirometry (valid for twelve months).

#### ***Working at Height / Confined Space***

All people who will be working in productive activities, performing activities at height and/or in confined spaces must follow the provisions of NR 33 and 35 issued by the MTE.

#### ***Working in rural areas***

It is important that rural producers meet the minimum requirements set out in NR-31, which aims to establish the precepts to be observed in the organization and environment of rural work, in order to make the planning and development of the sector's activities compatible with the prevention of accidents and illnesses related to rural work.

Among the guidelines set out in the Standard, it is suggested that the following be followed, to be guided and supported by the TA team:

- Include in the list of PPE the use of sunscreen, repellents, hats with brims and, when necessary, gloves and leggings;
- Provide training in the use of forage machines and other trailed equipment;
- Lifting, transporting, loading, unloading, handling and storing products and materials must be carried out in such a way that the physical effort made by the worker is compatible with their safety, health and strength;
- Whenever technically possible and when it does not make the activity unfeasible, cargo handling should be carried out mechanically, using appropriate machinery and equipment;
- Keep buildings and production structures constantly clean and disinfected;

### **Code of Conduct for Rural Producers**

Ethics is the ideal of human conduct that guides each human being in their decision about what is good and right for themselves and their lives in relation to their fellow human beings, with a view to the common good.

The adoption of ethical principles and conduct based on a Code of Conduct is fundamental to ensuring that employees act in an integrated and coherent manner when

conducting their relationships and business with different audiences: customers, suppliers, partners, third parties, the government, the community and society in general.

As a goal, the code of conduct should be a standard of personal and professional conduct for all rural producers.

The code of conduct must include the following guidelines to be adopted by all those involved in the implementation and operation of resilient investments:

- Respect for society and the environment;
- Offering quality products and services;
- Promote sustainable development, education and environmental awareness, ensure the protection, preservation and restoration of water resources and the environment for present and future generations;
- Promoting equal opportunities, respect for diversity and professional development. Establishing relationships of trust and encouraging participation through communication and integration;
- To act fairly, legally, coherently, transparently, ethically and honestly in all practices and decisions;
- Act with professionalism, agility and efficiency, guaranteeing the quality of processes, services and products. Valuing shared knowledge, proactivity, creativity, innovation, simplicity and flexibility in the search for solutions;
- Acting with citizen awareness and responsibility in promoting the public good;
- To carry out its activities based on the principles of environmental prevention and precaution, in the pursuit of continuous improvement, not promoting practices that put the environment at risk;
- Disclose transparent and objective information;
- Carrying out their role by ensuring an environment free from moral or sexual embarrassment of any kind; acting actively and preventively against gender-based violence, providing unconditional and unquestionable support and assistance to any victims;
- Do not follow practices or spread false information;
- Comply with the guidelines established for proper social and environmental management;
- To be responsible for everyone's health and safety, by complying with laws and regulations relating to Occupational Health and Safety, in order to preserve a healthy environment and quality of life;
- Disseminate information that contributes to the quality of collective work;

Other values may be added to the Code of Conduct, provided they are necessitated by new realities or omissions, and must always be discussed and approved by TA and the PMU.

Farmers will receive a course explaining what the Code of Conduct means and how it applies - including examples of good and bad practices that involve their conduct.

Farmers should be aware of the Code of Conduct and sign an acknowledgement, thereby increasing their sense of responsibility in their daily actions.

### **Individual commitment signed**

As part of the prophylactic actions, each rural producer must sign a specific individual commitment. This commitment will be formalized in an individual Term of Commitment to be signed containing the content of the model presented below, which includes issues aimed at ensuring the fight against child and forced labour.

Clarifications on child labor and forced labor should be included in the explanatory course for the code of conduct, in order to raise awareness of the terms and associated good practices, before the commitment is presented and signed, which should be attached to the Code of Conduct.

- Model Individual Commitment Agreement on Child and Forced Labor:

*I, (name) As (employee/contractor) of (PMU, Contractor, etc.) under PROCASE II, acknowledge that **Child Labor** and **Forced Labor** activities constitute a violation of this Workers' Code of Conduct. I understand that such practices are grounds for sanctions, penalties and termination of employment. Finally, I understand that the Project Management must bring this to the attention of the competent authorities.*

*I agree that as a worker on the project I will commit to:*

- *The provisions of this code of conduct on and off the Project site.*
- *Actively participate in training courses related to the prevention of **Child Labor** and **Forced Labor** whenever requested by my employer.*
- *In case of awareness or suspicion of **Child Labor** and **Forced Labor** at the project site, I understand that I am encouraged to report it to the Complaints Reporting Mechanism and/or my manager. I must always take into account the safety and right to privacy of the person who has suffered the abuse/exploitation.*

*I understand that if I violate this Individual Commitment, I may receive disciplinary action, which may include:*

- Informal notice or formal notice;*
- Suspension of employment (with or without pay);*
- Termination of employment;*
- Be indicted to the local authorities.*

*I understand that it is my responsibility to adhere to this Code of Conduct. I acknowledge that I have read and understood the Code of Conduct, agree to comply with the standards contained herein and understand my role and responsibility to prevent and potentially report issues of **Child Labor** and **Forced Labor**. I understand that any action inconsistent with this Individual Code of Conduct or failure to act as directed by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.*

*Signature: \_\_\_\_\_*

*Printed name: \_\_\_\_\_*

*Date: \_\_\_\_\_*

*Forced labor is any work required under threat of any penalty and for which the person does not volunteer. It can include practices such as threats of dismissal or physical violence, withholding identity documents or wages, threats to report the worker to immigration authorities, or involving the worker in fraudulent debts.*

*Child labor includes: (i) work below the minimum age for admission to employment; and, (ii) any work that may be dangerous, interferes with the education of children or is harmful to their health or physical, mental, spiritual, moral or social development. If local legislation or regulations allow the employment of young people who are at least 16 years old (in accordance with the ILO Minimum Age Convention of 1973), on condition that their health, safety and morality are fully protected, and they have received specific instructions or adequate vocational training in the relevant activity, then child labor will be understood as the employment of children for work that does not comply with this legislation and regulations.*



## 7 ANNEXES

## 7.1 Annex - Requirements set out in the IDB's MPAS for the content of the ESMP

- Requirements of PDAS 1 (IDB): Assessment and Management of Environmental and Social Risks and Impacts:
  - Mitigation and performance improvement measures and actions aimed at addressing the environmental and social risks and impacts that have been identified should be described. Plans or programs should be defined, which may consist of a documented combination of operating procedures, practices, plans and related supporting documents (including legal agreements) managed in a systematic way.
  - These Programs will be broad for the entire organizational structure of the executing agency for the execution of the project, including the main contractors and suppliers over which the organization has control or influence, or for specific sites, facilities or activities.
  - The mitigation hierarchy will be taken into account to address the risks and impacts identified, prioritizing the prevention of impacts, measures to minimize them and then compensation or offsetting measures, when residual impacts persist and whenever they are of a technically and financially feasible nature.
  - Mitigation and performance measures and relevant actions will be drawn up to ensure that the project operates in accordance with applicable laws and regulations and meets the requirements of financial institutions.
  - Environmental and social action plans will be established (general or thematic), which will define the desired results and actions to tackle the issues raised in the process of identifying risks and impacts.
  - Given the dynamic nature of the project, the Management Program must be able to react to changes in circumstances, unforeseen events and the results of monitoring and review activities.
  - Procedures will be established to monitor the Management Program and measure its effectiveness, as well as compliance with all legal or contractual obligations and related regulatory requirements.
  - A stakeholder participation plan will be drawn up according to the risks and impacts of the project, adapted to the characteristics and interests of the people affected by the project and other relevant stakeholders.
  - If applicable, a consultation process commensurate with the risks and adverse impacts of the project and the concerns of affected people (including indigenous peoples and Afro-descendants), as well as other stakeholders, will be included.
- Requirements of PDAS 2 (IDB) and Standard 5 (IFAD): Work and Working Conditions:
  - Measures will be included (for example, an Occupational Health and Safety Plan) to prevent accidents, injuries and illnesses that may arise from work, be associated with it or occur during it, reducing the causes of the risk factors to a minimum, as far as is reasonably practicable. In the event of pandemics or epidemics, occupational health and safety measures and protocols will be considered to protect the workers of the projects in the sample representative of the risk of exposure.
  - Measures will include the elimination, replacement or modification of hazardous conditions or substances; worker training and record-keeping; documentation



and reporting of occupational accidents, injuries, illnesses and incidents; arrangements for emergency prevention, preparedness and response; processes for reporting unsafe or unhealthy work situations, as well as mechanisms for evaluating performance in terms of occupational safety and health.

- They should also include recommendations for the prevention of child labor and forced labor.
- PDAS 3 (IDB) and Standard 2 (IFAD) requirements: Resource Efficiency and Pollution Prevention:
  - Technically and financially feasible measures will be considered (e.g. solid and liquid waste management plan, emissions and other relevant environmental aspects) so that, within the project's activities, the consumption of energy, water and other resources and inputs is improved, and greenhouse gas emissions are avoided or minimized.
  - Measures to prevent or reduce the emission of pollutants into the air, water or soil, as well as responses to accidental situations.
  - Measures to reduce, recover and reuse waste in a way that is safe for health and the environment.
  - Considerations for treating, destroying or disposing of waste (hazardous and non-hazardous) in an environmentally correct manner.
- PDAS 4 requirements (IDB) and Standards 6 and 9 (IFAD): Community Health and Safety:
  - Prevention and control measures will be established in accordance with international best practices for preventing risks and impacts on the health and safety of the community.
  - Measures to prevent the community from being exposed to hazardous materials and substances that the project may generate in the event of the implementation of works or the application of unauthorized chemical products within the scope of the project.
  - Measures to avoid or minimize the community's exposure to water-borne diseases, vectors and contagious diseases.
  - Emergency preparedness and response measures will be included that take into account affected people, local government agencies and other relevant parties, both for their protection and for their participation and collaboration.
  - Adequate resilience and adaptation measures to disasters and climate change, including risks caused by natural disasters or changes in land use to which project activities may contribute.
- Requirements of PDAS 5 (IDB) and Standard 7 (IFAD): Land Acquisition and Involuntary Resettlement:
  - It should be noted that the project cannot lead to situations in which land acquisition and involuntary resettlement are necessary, in which case this requirement will not be triggered.
- Requirements of PDAS 6 (IDB) and Standard 1 (IFAD): Biodiversity Conservation and Sustainable Management of Living Natural Resources:
  - When impacts on biodiversity and ecosystem services cannot be avoided, measures will be defined to minimize them and restore biodiversity and

ecosystem services in the long term, through the adoption of adaptive management practices that respond to changes and monitor the results.

- For the protection and conservation of biodiversity, the mitigation hierarchy will include biodiversity equivalent offset measures, which can only be considered once adequate prevention, minimization and restoration measures have been applied. These biodiversity equivalent offset measures will be designed and implemented in such a way as to achieve measurable conservation outcomes that generate no net loss and preferably result in a net increase in biodiversity. These measures will not be acceptable for habitats defined as critical.
- For critical habitats, mitigation strategies will be considered through a Biodiversity Action Plan with the aim of achieving net increases in biodiversity values.
- For non-critical habitats, measures such as: (i) preventing impacts on biodiversity by identifying and protecting reserve areas; (ii) minimizing habitat fragmentation by implementing measures such as biological corridors; (iii) habitat restoration during operations and/or habitat restoration after the operation will be considered.
- Impacts on ecosystem services will be avoided or minimized through measures aimed at maintaining the value and functionality of priority services in order to increase the efficiency of their use in operations.
- Requirements of PDAS 7 (IDB) and Standard 4 (IFAD): Indigenous Peoples<sup>58</sup> :
  - If it is not possible to avoid adverse impacts on indigenous peoples that are eventually identified in the ESIA, measures will be designed to minimize or provide restoration or compensation for such impacts in a culturally appropriate manner and commensurate with the nature and size of such impacts and the vulnerability of the communities of indigenous peoples eventually affected by the Project.
  - The proposed measures will be drawn up in conjunction with the consultation and informed participation of these communities, taking into account an Indigenous Peoples' Plan, if necessary.
  - Interaction process measures with indigenous communities that may be affected by the project will be established.
  - Means will be established to obtain the free, prior and informed consent of indigenous communities that may be affected by the project and relevant mitigation measures will be determined. Free, prior and informed consent will be applied to the design and execution of the project and the expected results in relation to impacts affecting indigenous communities.
- Requirements of PDAS 8 (IDB) and Standard 3 (IFAD): Cultural Heritage:
  - Provisions will be designed to manage chance finds through a specific procedure.
  - Measures will be considered according to the hierarchy proposed in this PDSA for the mitigation of adverse effects during the removal of reproducible (non-critical) cultural heritage, if these exist in the project area.

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<sup>58</sup> The prerogatives of this guideline are in line with ILO 169, to which Brazil is a signatory (Legislative Decree No. 143 of June 20, 2002).

- Measures will be developed to prevent the removal, alteration or damage of any critical cultural heritage or irreproducible cultural heritage.
- PDAS 9 requirements (IDB): Gender equality:
  - Measures will be drawn up to: (i) avoid, minimize or mitigate the negative impacts identified, or provide compensation in this regard with mechanisms that promote gender equality and (ii) ensure that people of different genders, including women and gender-diverse people, who may be affected by the project, receive social and economic benefits equal to those received by other members of the community, thus avoiding the potentiation of gender inequalities.
  - Measures to prevent risks of sexual and gender-based violence related to the project will also be considered, including specific policies for contractors regarding sexual harassment and codes of conduct for workers, workshops and awareness campaigns for workers and contractors and for the communities where the project is implemented, etc.
  - Effective complaint mechanisms will be developed that minimize the reporting burden on victims, offer gender-responsive services and minimize the risk of retaliation. These mechanisms will contain specific procedures for sexual and gender-based violence, including confidential reporting through people trained in the subject, with secure and ethical documentation.
  - Measures to prevent the risk of sexual exploitation or abuse of minors will be incorporated.
- PDAS 10 (IDB) requirements: Stakeholder Involvement and Information Disclosure:
  - The stakeholder engagement plan will describe the measures that will be used to remove barriers to participation and how the opinions of groups that are affected differently by the project will be captured.
  - In the case of projects that may have significant adverse impacts on the people affected by them, a process of consultation and informed participation will be designed, in accordance with PDAS 1. If any project is found to have adverse impacts on indigenous peoples, a process of consultation and informed participation will be designed, with a view to obtaining free, prior and informed consent, in accordance with PDAS 1 and 7.
  - A grievance mechanism will be proposed to receive concerns and complaints and facilitate their resolution. This mechanism could also serve as such to fulfill the requirements of PDAS 5 and 7. However, the grievance mechanism for project workers, required under PDAS 2, should be established separately from the others.
  - The plan must include communication actions in the event of emergencies and socio-environmental accidents.

## 7.2 Annex - Examples of emergency response procedures for common types of incidents and accidents on similar projects

### Oil and fuel leaks

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The purpose of this Procedure is to define an emergency plan for any spills of diesel oil, lubricating oil and other chemical products on the ground, especially when refueling vehicles and machinery and maintaining equipment and workshop activities, as well as when parking vehicles and machinery.

#### **Responsibility**

Construction companies, under the guidance of Environmental Supervision.

#### **Procedures**

##### **Occurrences**

Occurrences must be detected by any site employee, especially train and machine operators, drivers and workshop staff. They are detected visually, at the time of the leak, or by the presence of oil stains on the ground.

##### **How to Avoid and What to Do**

Before starting to fuel and lubricate machinery and equipment, the person responsible must make sure that absorbent materials (sawdust, Absorsol or sand) and an environmental emergency kit are available in case of any spillage, as well as containment devices, such as plastic tarpaulins and/or containment devices (trays or drums) to contain small leaks.

These activities should be avoided in the vicinity of the lagoon, streams and springs, natural slopes and other elements of the area's hydraulic and hydrological formation.

- Situation 1 - Refueling and lubrication in the field on soil.

In the event of an oil spill under these conditions, the equipment operator must immediately throw absorbent material over the spilled puddle and remove the oiled material, along with the contaminated soil layer. This contaminated mixture must be stored in a specific container, first intended for the workshop, where it must remain until it is effectively disposed of, which must be a landfill duly licensed to receive this type of material.

- Situation 2 - Refueling and lubrication in the workshop

Whenever possible, refueling and lubrication operations should take place in the workshop itself, which should have an impermeable floor and an oil separator box. If oil is spilled in these conditions, the drainage system will direct the contaminated material to the oil separator box, which must be cleaned, and the contaminated material stored and sent to a landfill duly licensed to receive this type of material.

- Situation 3 - Oil leaking onto asphalt roads

When the use of any equipment causes oil to spill onto asphalt or impermeable ground, the area containing the oil must be quickly covered with absorbent material to prevent the oil from being carried into the drainage system and, consequently, into the nearest body of water. Once the oil has been absorbed, the material should be collected and sent to a landfill duly licensed to receive this type of material.

### ***Who to tell***

In the event of situations 1 and 2, the person in charge of the specific sector must be notified. If situation 3 occurs, the person responsible for the detection must immediately notify the environmental supervision support company.

### **Accidents with venomous animals**

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The purpose of this Procedure is to define an emergency plan for accidents involving venomous animals (animals that inoculate toxic substances or poison).

#### **Responsibility**

Project implementation companies, under the guidance of the PMU.

#### **Procedures**

##### ***How to Avoid Accidents with Venomous Animals***

- Arachnids (spiders and scorpions):
  - Don't accumulate garbage and always keep the workplace clean;
  - Seal up gaps and holes in walls, ceilings and other places where arachnids can lodge;
  - Combat the proliferation of insects, especially cockroaches and termites, which are food for arachnids;
  - Shake out clothes and boots before putting them on; and
  - Do not put your hands or feet in holes, termite mounds, rock piles, firewood, etc.
- Hymenoptera (wasps, bees and hornets):
  - Avoid strong perfumes;
  - Preferably wear long pants, a long-sleeved shirt and a hat;
  - Carry a cloth to protect your face in case you bump into a beehive;
  - Do not put your hands or feet in holes, termite mounds, rock piles, firewood, etc.
- Ophidians (snakes):
  - Always work with personal protective equipment, such as leggings and gloves;
  - Don't put your hand in holes or places where organic material has accumulated, such as dry straw, leaf litter, weeds, etc;
  - When you spot a snake, don't touch it or try to touch it, keep your distance and, if possible, move your workplace away from the animal.

##### ***What to do in the event of an accident***

- Do not tie the affected limb: the tourniquet hinders blood circulation and does not prevent the poison from being absorbed;
- Do not cut the bite site. Some poisons cause bleeding and, in this case, cutting will increase blood loss;

- Do not suck on the bite site. It is not possible to remove the venom from the body after inoculation;
- Only wash the bite site with soap and water;
- Prevent the injured person from drinking kerosene, brandy or other alcoholic beverages. Not only do they not neutralize the action of the poison, but they can also cause poisoning;
- Keep the injured person at rest. Try to keep the affected part in a horizontal position, preventing the injured person from walking or running;
- Take the injured person to a health service as soon as possible;
- Catch the spider, scorpion or snake alive or dead, with caution and precautions, to help recognize the species and send it to an institute you have previously contacted;
- Do not use over-the-counter medication, coffee powder or other substances.

### ***Who to Tell in the Event of an Accident***

- The team must immediately call the PMU, or Supervision or support companies for the management and supervision of works and the construction company, for immediate rescue in the field;
- Anyone who receives an accident report should call the health service immediately.

### ***Where to take the injured person***

It is up to the health service to send the injured person to a hospital where they can receive appropriate treatment.

### ***Who to tell***

In the event of an accident, the following professionals from the companies involved should be notified immediately:

Construction Company - Name: \_\_\_\_\_; Tel: \_\_\_\_\_

PMU - Name: \_\_\_\_\_; Tel: \_\_\_\_\_

### ***First aid***

---

The purpose of this Procedure is to establish an emergency plan with first aid procedures.

### **Responsibility**

Project implementation companies, under the guidance of the PMU.

### **Procedures**

#### ***What to do in the event of an accident***

- Light and superficial wounds:
  - Always wear gloves when assisting the injured person;
  - Wash and clean the wound with soap and water;

- Be very careful when foreign bodies are present (shards of glass, sand, cement, wood or metal splinters). These should only be removed if they come out easily when washed with running water or with a light touch with anatomical tweezers. Otherwise, don't remove them, just rinse the area with saline solution, make a compress with antiseptic and dry it, then bandage it with gauze or similar;
  - Do not touch the wound with your fingers, cloths, used tissues or other dirty material;
  - Change bandages as often as necessary to keep it clean and dry;
  - If the wound becomes painful or swollen, indicating an infection, the injured person should be taken to the emergency room.
- Fainting:

Fainting can be considered a mild form of "shock", usually caused by sudden emotions, fatigue, hunger or nervousness. The victim turns pale, sweats, and their pulse and breathing are usually weak. The following steps should be taken:

- Lay the person on their back with their head flat, without pillows, loosening their clothes;
  - Apply cold cloths to the face and forehead and do not give liquids at this time;
  - If the fainting spell lasts more than 1 or 2 minutes, wrap the person up and go to the emergency room.
- Burns caused by chemical agents (concrete and muriatic acid):
    - Wash the affected area with plenty of water;
    - Always wear gloves when touching the burned area;
    - Apply plenty of water while removing the victim's clothes. Caution: do not remove clothing if it is adhered to the skin;
    - Apply 9% saline solution to the area, keeping it moist;
    - Do not apply ointments, grease, baking soda or other substances to external burns;
    - Do not remove foreign bodies or grease from the lesions;
    - Do not puncture existing bubbles.
  - Electric Shocks:
    - Do not touch the victim until they are separated from the electric current or the current is interrupted;
    - Do not remove a person attached to an electric cable, unless the person being rescued is specially trained for this type of rescue;
    - Turn off the mains socket or switch. If you don't know how, use a dry stick or branch, a dry rope or a dry cloth to pull the wire away from the casualty. Warning: All wet or damp materials, including metals, are conductors of electricity.
    - As the victim of an electric shock usually has cardiopulmonary arrest, cardiopulmonary resuscitation should be assessed and carried out.
  - Thermal burns (hot liquids, fire, steam, sun rays, etc.):
    - Lay the victim down;

- Place the victim's head and chest lower than the rest of their body, lifting their legs if possible;
- If the victim is conscious, give them plenty of water to drink;
- Place a clean, damp cloth on the burnt surface.

### **Who to tell**

In the event of an accident, the following professionals from the companies involved should be notified immediately:

Construction company - Name: \_\_\_\_\_; Tel: \_\_\_\_\_

PMU - Name: \_\_\_\_\_; Tel: \_\_\_\_\_

### **Monitoring, Preventive Actions and Corrective Actions**

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Monitoring is essential to anticipate the arrival of extreme events. In the meantime, monitoring actions are defined:

- Definition of borderline rainfall indices and locations that require greater attention during construction work;
- Monitoring hydrological alert and overflow levels;
- Alert: Slope movement and risk of landslides;
- Alert: Municipal check comparing monitoring data with risk parameters;
- Alarm: Triggering of diffusion mechanisms after XX mm of precipitation;
- Escape: Activation of the team responsible for guiding people to the meeting points;
- Triggering the meeting points;
- Search and Rescue;
- First Aid;
- Assistance to victims;
- Installation of shelters.

### **Organizing a simulation drill**

---

Drills are important for emergency preparedness. Mock drills should be carried out periodically, involving the team responsible for guiding and managing emergency situations, such as CIPA, for example. The following is a roadmap for carrying out drills.

- Step 1: Decide to hold the drill, taking into account the definitions of periodicity (how often it is held) and responsibility (who organizes the drill) set out in the contingency plan and defining the modality.
- Step 2: choose the scenario and mode.
- Step 3: choose procedures and actions to be tested and trained.
- Step 4: distribute tasks between the training team, the observation and evaluation team, and the support team.
- Step 5: Define mobilization actions for the drill, including official communications, community meetings, wide dissemination, and the production of guidance material.



- Step 6: define the roadmap including preparation, operational and post-simulation actions.
- Step 7: Carry out the drill, which usually includes an opening meeting, a role-play and a closing with demobilization.
- Step 8: Evaluate the simulation, based on forms and the work of observers and evaluators.
- Step 9: Document the simulation in a report and update the contingency plan based on the results obtained.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.2 Secap Strategic Environmental And Social Assessment**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II

**STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT  
DOCUMENT DRAFT**

**June 2024**

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## CREDITS

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**IFAD - INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**

**STATE OF PARAÍBA**

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## SUMMARY

1	INTRODUCTION .....	17
2	GENERAL DESCRIPTION OF THE PROJECT .....	18
2.1	Project Background .....	18
2.2	Project justification .....	20
2.3	Project objectives .....	38
2.4	Project Area .....	38
2.5	Procasa II budget .....	39
2.6	Description of the components .....	40
2.7	Definition of Subproject Types .....	56
2.7.1	Types of Subprojects Productive Plans .....	56
2.7.2	Types of Social Technology Subprojects .....	87
2.7.3	Analysis of Alternatives for Subproject Typologies .....	100
2.8	Institutional arrangement .....	114
3	REGULATORY FRAMEWORK .....	121
3.1	International agreements .....	121
3.2	Federal legislation .....	131
3.3	State legislation .....	136
3.4	IDB Environmental and Social Policy Framework .....	138
3.5	IFAD's Environmental, Social and Climate Standards .....	147
3.6	Gap analysis .....	152
4	BASE LINE .....	158
4.1	Physical environment .....	158
4.1.1	Climate .....	158
4.1.2	Geology .....	175
4.1.3	Hydrogeology .....	183
4.1.4	Mining Potential .....	191
4.1.5	Geomorphology .....	199
4.1.6	Pedology .....	218
4.1.7	Hydrography .....	233
4.2	Biotic environment .....	247
4.2.1	Natural habitats .....	248
4.2.2	Modified Habitats .....	257
4.2.3	Critical Habitats .....	280
4.3	Socio-economic environment .....	303

4.3.1	Urban Network and Hierarchy between Cities .....	303
4.3.2	Demographic Profile .....	311
4.3.3	Social Vulnerability .....	372
4.3.4	Economic aspects .....	392
4.3.5	Education .....	466
4.3.6	Health .....	476
4.3.7	Basic Sanitation .....	491
4.3.8	Public Safety .....	507
4.3.9	Indigenous and Traditional Communities .....	525
4.3.10	Cultural Heritage .....	551
4.4	Profile of the Communities Listed in the PIR and PN Model Plans .....	559
4.4.1	São Domingos I Settlement and ACAPRANE .....	559
4.4.2	Emas Community and APLMITA .....	563
4.4.3	Community of Arruda and ASCCO .....	567
4.4.4	APASA Settlement and Association of Agroecological Farmers of the South Coast of Paraíba .....	571
4.4.5	Queimadas Settlement and the Borborema Agroecology Network .....	576
4.4.6	Acauã Settlement and COASPA .....	581
5	IDENTIFICATION AND CHARACTERIZATION OF ENVIRONMENTAL RISKS AND IMPACTS .....	586
5.1	Concepts .....	587
5.2	Impact Assessment Methodology .....	588
5.3	Identification of impacts .....	591
5.3.1	Matrix for identifying environmental and social impacts .....	592
5.3.2	Environmental and Social Impact Assessment Sheets .....	595
5.3.3	Strategic Environmental and Social Management Plan - PGASE .....	622
5.4	Cumulative Impact Assessment .....	622
5.4.1	Assessment of Cumulative Impacts - AIC .....	623
5.5	Environmental Disaster Risk Assessment .....	625
5.5.1	Risk and Vulnerability in the State of Paraíba .....	626
5.5.2	Potential Effects of Climate Change .....	631
5.5.3	Flammability Index - Fires .....	643
6	CONCLUSION .....	644
7	BIBLIOGRAPHIC REFERENCE .....	646
8	ANNEXES .....	655
8.1	Annex - Other relevant international agreements .....	656
8.2	Annex - Other complementary federal laws .....	666

8.3	Annex - List of Flora Species Threatened with Extinction in the State of Paraíba	682
8.4	Annex - List of Endangered Fauna Species in the State of Paraíba.....	683
8.5	Annex - Component 1 Report: Developing resilient production systems ....	684
8.6	Annex - Component 2 Report: Strengthening Family Farming Capacities and Organizations and Knowledge Management .....	685
8.7	Annex - Table of archaeological sites registered by IPHAN in the state of Paraíba .....	686

### LIST OF TABLES

Table 1 - Estimated PROJECT costs (in US\$) .....	39
Table 2 - Roadmaps for land regularization and environmental registration .....	52
Table 3 - Summary of the PIR model Caipira poultry farming and the association/community.....	57
Table 4 - Summary of the Caipira Poultry PRI model and the association/community.	62
Table 5 - Summary of the Caipira Poultry PRI model and the association/community.	67
Table 6 - Summary of the Caipira Poultry and association/community PRI model .....	73
Table 7 - Summary of the Caipira Poultry and association/community PRI model .....	79
Table 8 - Summary of the Caipira Poultry and association/community PRI model .....	83
Table 9 - Household Eligibility Criteria for Water Supply for Human Consumption. ....	89
Table 10 - Technical criteria for choosing 16,000 liter slab cisterns.....	90
Table 11 - Eligibility Criteria for Choosing the Families Benefiting from Social Technology for Agricultural Production Water. ....	92
Table 12 - Minimum Conditions for Access to Social Technologies for Treating Greywater or Blackwater.....	94
Table 13 - Minimum Conditions for Implementing a Rural Solid Waste Management Study .....	96
Table 14 - Characteristics of Water Supply Modalities .....	102
Table 15 - Possible addresses for Regional Offices.....	117
Table 16 - Summary table of the gap analysis for compliance with the IDB/IDA Standards .....	153
Table 17 - Meteorological stations considered in the state of Paraíba.....	166
Table 18 - Rainfall at the Meteorological Stations considered in the State of Paraíba (mm).....	167
Table 19 - Description of geotectonic events in the Borborema Province.....	177
Table 20 - Geological units in the state of Paraíba .....	179
Table 21 - Phases of the ANM Polygons in the area covered by Procasa II .....	193
Table 22 - Mined Substances - Mining Concessions in the Procasa II coverage area .....	194
Table 23 - Area (ha) and proportion of natural vegetation cover by mesoregion in the state of Paraíba. ....	255
Table 24 - Municipalities with vegetation loss greater than 20% in the Project area between 2000-2022 .....	260
Table 25 - Municipalities with a vegetation gain of more than 20% in the Project area between 2000-2022 .....	261
Table 26 - Land cover and land use classes, state of Paraíba. ....	265
Table 27 - Consolidation of critical habitat identification arguments .....	281



Table 28 - Endangered native species in Paraíba.....	284
Table 29 - Endangered species in Paraíba's PAs. ....	286
Table 30 - Endangered species of Brazilian fauna occurring in the state of Paraíba .	288
Table 31 - Legally Protected Areas .....	290
Table 32 - KBAs identified in the study area .....	295
Table 33 - Biodiversity elements that trigger the KBA qualification criteria .....	296
Table 34 - Biodiversity elements that trigger the KBA qualification criteria .....	298
Table 35 - Size of the second-level network (João Pessoa PA - Regional Capital A) in the state of Paraíba - 2018 .....	308
Table 36 - Demographic Profile of the Rural Territories of the State of Paraíba .....	312
Table 37 - Population by Household Status - Paraíba - 2000, 2010 and 2022 .....	318
Table 38 - Population by Household Status - TR Alto Sertão - 2000, 2010 and 2022	320
Table 39 - Population by Household Status - TR Borborema - 2000, 2010 and 2022	321
Table 40 - Population by Household Status - TR Brejo - 2000, 2010 and 2022.....	323
Table 41 - Population by Household Status - TR Cariri - 2000, 2010 and 2022.....	324
Table 42 - Population by Household Status - TR Curimataú - 2000, 2010 and 2022.	326
Table 43 - Population by Household Status - TR Mata Norte - 2000, 2010 and 2022	328
Table 44 - Population by Household Status - TR Mata Sul - 2000, 2010 and 2022 ...	329
Table 45 - Population by Household Status - TR Médio Piranhas - 2000, 2010 and 2022 .....	331
Table 46 - Population by Household Status - TR Médio Sertão - 2000, 2010 and 2022 .....	333
Table 47 - Population by Household Status - TR Piemont da Borborema - 2000, 2010 and 2022.....	334
Table 48 - Population by Household Status - Serra do Teixeira RT - 2000, 2010 and 2022 .....	336
Table 49 - Population by Household Status - TR Vale de Piancó - 2000, 2010 and 2022 .....	338
Table 50 - Population by Household Status - TR Vale do Maringá - 2000, 2010 and 2022 .....	339
Table 51 - Population by Household Status - TR Vale do Paraíba - 2000, 2010 and 2022 .....	341
Table 52 - Population by Household Status - TR Vale do Piranhas - 2000, 2010 and 2022 .....	343
Table 53 - Sex Ratio in the State of Paraíba (2000, 2010 and 2022) .....	344
Table 54 - Sex Ratio in the Alto Sertão RT (2000, 2010 and 2022).....	345
Table 55 - Sex Ratio in TR Borborema (2000, 2010 and 2022).....	346
Table 56 - Sex Ratio in the Brejo RT (2000, 2010 and 2022) .....	347
Table 57 - Sex Ratio in TR Cariri (2000, 2010 and 2022).....	348
Table 58 - Sex Ratio in TR Curimataú (2000, 2010 and 2022).....	349
Table 59 - Sex ratio in the Mata Norte RT (2000, 2010 and 2022) .....	350
Table 60 - Sex Ratio in the Mata Sul RT (2000, 2010 and 2022) .....	351
Table 61 - Sex Ratio in the Middle Piranhas RT (2000, 2010 and 2022) .....	352
Table 62 - Sex Ratio in the Médio Sertão RT (2000, 2010 and 2022) .....	353
Table 63 - Sex ratio in the TR Piemont da Borborema (2000, 2010 and 2022) .....	354
Table 64 - Sex Ratio in the Serra do Teixeira RT (2000, 2010 and 2022) .....	355
Table 65 - Sex Ratio in the Vale de Piancó RT (2000, 2010 and 2022) .....	356
Table 66 - Sex Ratio in the Maringá Valley RT (2000, 2010 and 2022).....	357
Table 67 - Sex Ratio in the Paraíba Valley RT (2000, 2010 and 2022) .....	358
Table 68 - Sex Ratio in the Piranhas Valley RT (2000, 2010 and 2022).....	359

Table 69 - Age Structure, Dependency Ratio and Ageing Rate in the State of Paraíba (2000, 2010 and 2022).....	360
Table 70 - Age Structure, Dependency Ratio and Ageing Rate in the Rural Territories of the State of Paraíba (2000, 2010 and 2022) .....	360
Table 71 - Vulnerability in the State of Paraíba - 2000 and 2010 .....	373
Table 72 - MHDÍ Paraíba State - 1991, 2000, 2010, 2019, 2020 and 2021 .....	377
Table 73 - Human Development Index - TR Alto Sertão municipalities - 2010 .....	379
Table 74 - Human Development Index - TR Borborema municipalities - 2010 .....	379
Table 75 - Human Development Index - Brejo RT municipalities - 2010 .....	381
Table 76 - Human Development Index - TR Cariri municipalities - 2010 .....	381
Table 77 - Human Development Index - TR Curimataú municipalities - 2010 .....	382
Table 78 - Human Development Index - Municipalities in TR Mata Norte - 2010.....	382
Table 79 - Human Development Index - Municipalities in TR Mata Sul - 2010.....	383
Table 80 - Human Development Index - Municipalities of the TR Médio Piranhas - 2010 .....	383
Table 81 - Human Development Index - Municipalities of the TR Médio Sertão - 2010 .....	384
Table 82 - Human Development Index - Borborema Piemont TR municipalities - 2010 .....	385
Table 83 - Human Development Index - Municipalities of the Serra do Teixeira RT - 2010 .....	385
Table 84 - Human Development Index - Municipalities of the Vale de Piancó RT - 2010 .....	386
Table 85 - Human Development Index - Municipalities of the Maringá Valley RT - 2010 .....	386
Table 86 - Human Development Index - TR Vale do Paraíba municipalities - 2010 ..	387
Table 87 - Human Development Index - Municipalities of the TR Vale do Piranhas - 2010 .....	387
Table 88 - Longevity and Mortality by Sex, Color and Household Status in the State of Paraíba - 2000, 2010 and 2021 .....	389
Table 89 - Income, poverty and inequality by sex, color and household situation in the state of Paraíba - 2000, 2010 and 2021 .....	391
Table 90 - Total GDP, Sector and Percentage Share of the Alto Sertão RT (2021) ..	400
Table 91 - Total GDP, Sector and Percentage Share of TR Borborema (2021) .....	400
Table 92 - Total GDP, Sector and Percentage Share of the Brejo RT (2021).....	400
Table 93 - Total GDP, Sector and Percentage Share of TR Cariri (2021) .....	401
Table 94 - Total GDP, Sector and Percentage Share of TR Curimataú (2021).....	401
Table 95 - Total GDP, Sector and Percentage Share of the Northern Forest RT (2021) .....	401
Table 96 - Total GDP, Sector and Percentage Share of TR Mata Sul (2021).....	402
Table 97 - Total GDP, Sector and Percentage Share of the Middle Piranhas RT (2021) .....	402
Table 98 - Total GDP, Sector and Percentage Share of the Middle Hinterland RT (2021) .....	403
Table 99 - Total GDP, Sector and Percentage Share of the Borborema Piemont RT (2021) .....	403
Table 100 - Total GDP, Sector and Percentage Share of Serra do Teixeira RT (2021) .....	403
Table 101 - Total GDP, Sector and Percentage Share of TR Vale de Piancó (2021)	404

Table 102 - Total GDP, Sector and Percentage Share of the Maringá Valley TR (2021)	404
Table 103 - Total GDP, Sector and Percentage Share of TR Vale do Paraíba (2021)	404
Table 104 - Total GDP, Sector and Percentage Share of the Piranhas Valley TR (2021)	405
Table 105 - Jobs by Sector in the State of Paraíba (2022)	405
Table 106 - Companies by Sector in the State of Paraíba (2022)	406
Table 107 - Jobs by Sector in TR Alto Sertão (2022)	408
Table 108 - Companies by Sector in the Alto Sertão RT (2022)	408
Table 109 - Jobs by Sector in TR Borborema (2022)	409
Table 110 - Companies by Sector in TR Borborema (2022)	409
Table 111 - Jobs by Sector in TR Brejo (2022)	410
Table 112 - Companies by Sector in TR Brejo (2022)	410
Table 113 - Jobs by Sector in TR Cariri (2022)	411
Table 114 - Companies by Sector in TR Cariri (2022)	411
Table 115 - Jobs by Sector in TR Curimataú (2022)	412
Table 116 - Companies by Sector in TR Curimataú (2022)	412
Table 117 - Jobs by Sector in TR Mata Norte (2022)	413
Table 118 - Companies by Sector in TR Mata Norte (2022)	413
Table 119 - Jobs by Sector in TR Mata Sul (2022)	414
Table 120 - Companies by Sector in TR Mata Sul (2022)	414
Table 121 - Jobs by Sector in TR Médio Piranhas (2022)	415
Table 122 - Companies by Sector in the Middle Piranhas RT (2022)	415
Table 123 - Jobs by Sector in TR Médio Sertão (2022)	416
Table 124 - Companies by Sector in TR Médio Sertão (2022)	416
Table 125 - Jobs by Sector in TR Piemont da Borborema (2022)	417
Table 126 - Companies by Sector in TR Piemont da Borborema (2022)	417
Table 127 - Jobs by Sector in the Serra do Teixeira RT (2022)	418
Table 128 - Companies by Sector in the Serra do Teixeira TR (2022)	418
Table 129 - Jobs by Sector in the TR Vale de Piancó (2022)	419
Table 130 - Companies by Sector in the Vale de Piancó TR (2022)	419
Table 131 - Jobs by Sector in TR Vale do Maringá (2022)	420
Table 132 - Companies by Sector in TR Vale do Maringá (2022)	420
Table 133 - Jobs by Sector in TR Vale do Paraíba (2022)	421
Table 134 - Companies by Sector in the Vale do Paraíba TR (2022)	421
Table 135 - Jobs by Sector in the TR Vale do Piranhas (2022)	422
Table 136 - Companies by Sector in the Piranhas Valley TR (2022)	422
Table 137 - Agricultural Establishments in Paraíba by Rural Territory	423
Table 138 - Family farming establishments by type of production in Paraíba by Rural Territory	424
Table 139 - Value of Agricultural Production in Paraíba by Rural Territory	425
Table 140 - Quantity Produced and Production Value of the First Temporary Crop Products in the State of Paraíba (2022)	430
Table 141 - Quantity Produced and Production Value of the First Permanent Crop Products in the State of Paraíba (2022)	430
Table 142 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Alto Sertão (2022)	432
Table 143 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Borborema (2022)	432

Table 144 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Brejo (2022).....	437
Table 145 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Cariri (2022) .....	437
Table 146 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Curimataú (2022).....	438
Table 147 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Mata Norte (2022) .....	441
Table 148 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Mata Sul (2022).....	442
Table 149 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Médio Piranhas (2022) .....	442
Table 150 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Médio Sertão (2022).....	443
Table 151 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Piemont da Borborema (2022).....	444
Table 152 - Quantity Produced and Production Value of the First Products of Agricultural Production in the Serra do Teixeira RT (2022).....	444
Table 153 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Vale de Piancó (2022) .....	445
Table 154 - Quantity Produced and Production Value of the First Products of Agricultural Production in the Maringá Valley RT (2022).....	446
Table 155 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Vale do Paraíba (2022).....	447
Table 156 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Vale do Piranhas (2022) .....	447
Table 157 - Herd Numbers by Type of Herd in Paraíba's Rural Territories (2022).....	462
Table 158 - Production of Animal Origin by Type of Product in the Rural Territories of Paraíba (2022).....	463
Table 159 - Number of establishments, quantity produced and value of cow's milk production in Paraíba's rural territories (2017) .....	464
Table 160 - Number of establishments, quantity produced and value of goat's milk production in Paraíba's rural territories (2017) .....	465
Table 161 - Number of School Units by School Level in the State of Paraíba (2022)	467
Table 162 - Number of Teachers by School Level in the State of Paraíba (2022) .....	468
Table 163 - Number of School Enrolments by School Level in the State of Paraíba (2022) .....	468
Table 164 - Illiteracy rate in Paraíba (1991, 2000 and 2010).....	474
Table 165 - IDEB in the Public Network in the Municipality of Porto Alegre.....	475
Table 166 - Number of Establishments by Type of Agreement according to Type of Service Provided in Paraíba.....	478
Table 167 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the State of Paraíba .....	481
Table 168 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Alto Sertão RT.....	481
Table 169 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the TR Borborema.....	482
Table 170 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Brejo RT .....	482

Table 171 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Cariri RT.....	483
Table 172 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Curimataú RT.....	483
Table 173 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Northern Forest RT.....	484
Table 174 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Mata Sul RT.....	484
Table 175 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Middle Piranhas RT.....	485
Table 176 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Médio Sertão RT.....	485
Table 177 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Piemont da Borborema RT.....	486
Table 178 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Serra do Teixeira RT.....	486
Table 179 - Percentage Distribution of Main Hospitalizations and Deaths by Cause Group in the Vale de Piancó RT.....	487
Table 180 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Maringá Valley RT.....	487
Table 181 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Vale do Paraíba RT.....	488
Table 182 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Piranhas Valley RT.....	488
Table 183 - Class of Water and Type of Treatment.....	494
Table 184 - Characteristics of Water Supply Modalities.....	495
Table 185 - Water Supply in Paraíba (Households - Coverage Percentage) - 2022..	497
Table 186 - Sanitary Sewerage in Paraíba (Households - Coverage Percentage) - 2022.....	501
Table 187 - Garbage Collection Coverage in Paraíba (Households - Coverage Percentage) - 2022.....	506
Table 188 - 50 most violent cities in the country, according to the rate of Intentional Violent Deaths (IVD), with a population over 100,000 inhabitants (Brazil - 2022).....	513
Table 189 - Rape and Rape of a Vulnerable Person in Brazil by State (2021-2022) .	519
Table 190 - Rape and Rape of a Vulnerable Person (Female Victims) in Brazil by State (2021-2022).....	520
Table 191 - Quilombola Communities in Paraíba by Rural Territory.....	528
Table 192 - List of Iphan Listed Properties in Paraíba.....	556
Table 193 - Description of Impact Attributes.....	591
Table 194 - indicators used to define social vulnerability - susceptibility to flood and drought disasters.....	627

## LIST OF FIGURES

Figure 1 - Project coverage area.....	39
Figure 2 - Illustrated sketch of the project.....	62
Figure 3 - Illustrative sketch of the project.....	78
Figure 4 - Sketch of the flower beds.....	79
Figure 5 - Guide to the implementation of water supply technologies.....	89
Figure 6 - Diagram Sanitary Sewerage and Reuse of Treated Domestic Effluent.....	94

Figure 7 - Solid Waste Management in Rural Areas .....	95
Figure 8 - Census Sectors. ....	97
Figure 9 - Technological Matrix of Collective Solutions for Solid Waste Management. ....	97
Figure 10 - Technological Matrix of Collective Solutions for Solid Waste Management with Urban System Integration .....	98
Figure 11 - Technological Matrix of Individual Solutions for Solid Waste Management.....	98
Figure 12 - Types of Treatment for an Individual Water Supply System or Solution. ....	103
Figure 13 - Flowchart of the choice of WSS typology for surface water.....	105
Figure 14 - Flowchart of the choice of WSS typology for groundwater .....	105
Figure 15 - Types of Sewage Treatment in Rural Areas.....	108
Figure 16 - Evapotranspiration Basin (Green Trench).....	109
Figure 17 - Banana tree circle.....	110
Figure 18 - Vermifilter .....	111
Figure 19 - Biodigester.....	111
Figure 20 - Green Trench - Evapotranspiration.....	112
Figure 21 - Flowchart for defining the Water Supply Social Technologies to be implemented.....	113
Figure 22 - Flowchart of Sanitary Sewerage Reuse of Treated Domestic Effluent ....	113
Figure 23 - General organization chart of the Procace II institutional arrangement ...	116
Figure 24 - SIGMA website - Sudema's Environmental Management System .....	119
Figure 25 - Sudema's organizational chart.....	120
Figure26 - Main Air Masses in Brazil on Zonal Climates .....	158
Figure27 - Climate Classification of the State of Paraíba - Köppen.....	160
Figure28 - Average Annual and Seasonal Temperature in the State of Paraíba .....	161
Figure29 - Average Annual and Seasonal Precipitation in the State of Paraíba .....	162
Figure30 - Brazilian Climatological Normal 1961-1990 - Annual Accumulated Precipitation.....	163
Figure31 - Brazilian Climatological Normal 1991-2020 - Annual Accumulated Precipitation.....	164
Figure3233 - Difference between Brazil's Climatological Normals (1991 to 2020 - 1961 to 1990 - Accumulated Annual Precipitation) .....	165
Figure34 - Location of the Meteorological Stations considered in the State of Paraíba. ....	167
Figure35 - Rainfall recorded at the Meteorological Stations considered in the State of Paraíba (mm).....	168
Figure36 - Map of Average Annual Precipitation (1962-2017).....	169
Figure37 - Wind Frequency and Direction.....	171
Figure38 - Global horizontal irradiance (GHI).....	172
Figure39 - GHG emissions by sector in CO <sub>2</sub> and (t) in the state of Paraíba, 2010 - 2018. ....	173
Figure40 - Total emissions in João Pessoa, by year and by sector .....	174
Figure41 - Existing provinces in the Amazon Craton.....	175
Figure42 - Aeromagnetic patterns of the Paraíba subsoil and tectonostratigraphic compartmentalization of Paraíba .....	176
Figure43 - Main Substances under Mining Concession at ANM - Paraíba. ....	194
Figure44 - Main Substances under Mining Research at the ANM - Paraíba.....	196
Figure45 - Biomes - Procace II .....	248
Figure46 - Proportion of the area occupied by different types of natural vegetation in Paraíba. ....	254
Figure47 - Coverage in 1985 .....	258

Figure48 - Coverage in 2022 .....	259
Figure49 - Variation in Coverage between 1985 and 2022 .....	260
Figure50 - Land use and cover in the state of Paraíba.....	267
Figure 51 - Location of the critical habitats mentioned in the satellite image. ....	282
Figure52 - Ramsar sites in Brazil .....	300
Figure53 - Figure legend.....	309
Figure54 - Population Arrangement of João Pessoa/PB - Regional Capital A (2A) - (Region of Influence).....	310
Figure55 - Population Arrangement of João Pessoa/PB - Regional Capital A (2A) - (External Connections) .....	311
Figure56 - Paraíba's Rural Territories .....	317
Figure57 - Urbanization Rate - Paraíba, TR Alto Sertão and TR Municipalities - 2010 .....	320
Figure58 - Urbanization Rate - Paraíba, TR Borborema and TR Municipalities - 2010 .....	322
Figure59 - Urbanization Rate - Paraíba, TR Brejo and TR Municipalities - 2010.....	323
Figure60 - Urbanization Rate - Paraíba, TR Cariri and TR Municipalities - 2010.....	325
Figure61 - Urbanization Rate - Paraíba, TR Curimataú and TR Municipalities - 2010.....	327
Figure62 - Urbanization Rate - Paraíba, TR Mata Norte and TR Municipalities - 2010 .....	328
Figure63 - Urbanization Rate - Paraíba, TR Mata Sul and TR Municipalities - 2010 .	330
Figure64 - Urbanization Rate - Paraíba, TR Médio Piranhas and TR Municipalities - 2010 .....	332
Figure65 - Urbanization Rate - Paraíba, TR Médio Sertão and TR Municipalities - 2010 .....	333
Figure66 - Urbanization Rate - Paraíba, TR Piemont da Borborema and TR Municipalities - 2010 .....	335
Figure67 - Urbanization Rate - Paraíba, Serra do Teixeira RT and RT Municipalities - 2010 .....	337
Figure68 - Urbanization Rate - Paraíba, TR Vale de Piancó and TR Municipalities - 2010 .....	338
Figure69 - Urbanization Rate - Paraíba, Vale do Maringá RT and RT Municipalities - 2010 .....	340
Figure70 - Urbanization Rate - Paraíba, Vale do Paraíba RT and RT Municipalities - 2010 .....	342
Figure71 - Urbanization Rate - Paraíba, TR Vale do Piranhas and TR Municipalities - 2010 .....	343
Figure72 - Relative Distribution of the Population by Sex in the State of Paraíba.....	344
Figure73 - Relative Distribution of Population by Sex in the Alto Sertão RT.....	345
Figure74 - Relative Distribution of Population by Sex in TR Borborema.....	346
Figure75 - Relative Distribution of Population by Sex in the Brejo RT .....	347
Figure76 - Relative Distribution of the Population by Sex in the Cariri RT .....	348
Figure77 - Relative Distribution of Population by Sex in TR Curimataú.....	349
Figure78 - Relative Distribution of Population by Sex in the Mata Norte RT .....	350
Figure79 - Relative Distribution of Population by Sex in the Mata Sul RT .....	351
Figure80 - Relative Distribution of Population by Sex in the Middle Piranhas RT.....	352
Figure81 - Relative Distribution of the Population by Sex in the Médio Sertão RT ....	353
Figure82 - Relative Distribution of Population by Sex in the TR Piemont da Borborema .....	354
Figure83 - Relative Distribution of Population by Sex in the Serra do Teixeira RT ....	355

Figure 84 - Relative Distribution of Population by Sex in the Vale de Piancó RT.....	356
Figure85 - Relative Distribution of Population by Sex in the Maringá Valley RT.....	357
Figure86 - Relative Distribution of Population by Sex in the Paraíba Valley RT .....	358
Figure 87 - Relative Distribution of the Population by Sex in the Piranhas Valley RT	359
Figure88 - Paraíba State Age Pyramid (2022) .....	364
Figure89 - Age Pyramid of the Alto Sertão RT (2022) .....	365
Figure90 - Age Pyramid of TR Borborema (2022).....	365
Figure91 - Brejo RT Age Pyramid (2022).....	366
Figure92 - Cariri RT Age Pyramid (2022).....	366
Figure93 - Age Pyramid of TR Curimataú (2022).....	367
Figure94 - Age Pyramid of the Northern Forest RT (2022).....	367
Figure95 - Age Pyramid of TR Mata Sul (2022) .....	368
Figure96 - Age Pyramid of the Middle Piranhas RT (2022) .....	368
Figure97 - TR Médio Sertão Age Pyramid (2022) .....	369
Figure98 - Age Pyramid of the TR Piemont da Borborema (2022) .....	369
Figure99 - Serra do Teixeira RT Age Pyramid (2022) .....	370
Figure100 - Piancó Valley RT Age Pyramid (2022).....	370
Figure101 - Maringá Valley RT Age Pyramid (2022).....	371
Figure102 - Age Pyramid of the Paraíba Valley RT (2022).....	371
Figure103 - Age Pyramid of the Piranhas Valley RT (2022).....	372
Figure 104 - MHDI scale .....	376
Figure105 - Distribution of Municipalities by MHDI Band in the State of Paraíba - 2000 and 2010.....	378
Figure106 - MHDI values disaggregated by color, sex and household situation in the state of Paraíba - 2010 and 2021.....	388
Figure 107 - Evolution of the proportions of extremely poor, poor and vulnerable to poverty in the state of Paraíba - 2016 and 2021.....	392
Figure108 - Gross Domestic Product (GDP) of the Northeastern States (in R\$ 1.00)	393
Figure109 - National Overview - Real GDP Growth (%).....	394
Figure110 - Real GDP Growth in the Northeastern States (%).....	394
Figure111 - National Overview - Accumulated GDP Growth (%).....	395
Figure112 - Accumulated Real GDP Growth of the Northeastern States (%) .....	395
Figure113 - GDP per Capita of the Northeastern States (in R\$ 1.00).....	396
Figure114 - Composition of Paraíba State's GDP from the Production Perspective ..	397
Figure115 - Real and Accumulated Growth (base 2010=100) of GVA and Taxes (%) .....	397
Figure116 - Composition of GVA by Economic Sector (%) .....	398
Figure117 - Real Sector Growth (%).....	398
Figure118 - Accumulated Real Growth of Sectors (%) (Base 2010=100).....	399
Figure119 - Stock of Formal Jobs in Paraíba (2023).....	406
Figure 120 - Stock and Balance of Formal Jobs, by area, in Paraíba and the Northeast, respectively (2023) .....	407
Figure 121 - Percentage of family farming establishments in Paraíba by area group	426
Figure122 - Gender of the Responsible Manager .....	426
Figure123 - Percentage of family farming establishments run by women in each mesoregion in relation to the total number of establishments run by women in Paraíba .....	427
Figure 124 - Percentage of agricultural establishments owned by family farmers in the state of Paraíba headed by the producer responsible according to color or race .....	427
Figure 125 - Age classes of responsible producers in family farming establishments	428



Figure 126 - Variation in the proportion of family farming establishments in each age group between the 2006 and 2017 censuses.....	429
Figure 127 - Adoption of agricultural soil conservation practices by family farmers in Paraíba (2017).....	429
Figure 128 - Top 10 production values of permanent crops produced by family farming establishments in the state of Paraíba (thousand reais).....	431
Figure 129 - Top 10 in the production value of temporary crops produced by family farming establishments in the state of Paraíba (thousand reais).....	431
Figure 130 - Top 10 of the Number of Livestock in Family Farming Establishments in Paraíba.....	448
Figure 131 - Production value of plant extraction products produced by family farming establishments in Paraíba (in thousand reais).....	466
Figure132 - Schooling Rate by Age Group in Paraíba - 2018, 2019, 2022 and 2023	469
Figure133 - Age-Grade Gap Rate in Primary and Secondary Education in Paraíba (2010-2023).....	470
Figure 134 - Map of age-grade distortion (Early Years - Elementary School) in the municipalities of Paraíba (2022).....	470
Figure135 - Map of age-grade distortion (Final Years - Elementary School) in Paraíba Municipalities (2022).....	471
Figure136 - Map of age-grade distortion (secondary education) in Paraíba municipalities (2022).....	471
Figure 137 - Dropout Rate in Primary and Secondary Education in Paraíba (2010-2022).....	472
Figure 138 - Expected years of schooling in Paraíba - 2016 to 2021.....	473
Figure139 - Evolution of IDEB (Initial Years of Primary Education) in the Public Network in Paraíba.....	475
Figure 140 - Evolution of IDEB (Final Years of Elementary School) in the Public Network in Paraíba.....	475
Figure 141 - Evolution of Total Hospitalizations due to Waterborne Diseases in Paraíba.....	480
Figure142 - Evolution of Total Deaths from Waterborne Diseases in Paraíba.....	480
Figure143 - Evolution of the Infant Mortality Rate in Paraíba.....	489
Figure144 - Evolution of Life Expectancy at Birth in Paraíba.....	490
Figure145 - Evolution of the General Fertility Rate in Paraíba.....	491
Figure 146 - Population of Paraíba without Water and Sewage.....	492
Figure147 - Map of Paraíba's Basic Sanitation Microregions.....	493
Figure 148 - Types of Treatment for an Individual Water Supply System or Solution	495
Figure149 - Status of the Pipeline System in Paraíba.....	499
Figure150 - Status of Water Treatment Plants in Paraíba.....	500
Figure 151 - Sewerage service in Paraíba.....	503
Figure152 - Solid Waste Collection Coverage in Paraíba.....	505
Figure 153 - "Map of garbage dumps" in Paraíba, 2022.....	507
Figure154 - Highest and lowest MVI rates in Brazil by state (2022).....	508
Figure155 - Annual Historical Series of Absolute MVI and Rates per 100,000 inhab. in Paraíba.....	508
Figure156 - Annual Historical Series of Absolute CVLI and Rates per 100,000 inhab. in Paraíba.....	509
Figure 157 - Annual Historical Series of Absolute CVLI and Rates per 100,000 inhab. in Paraíba, the Northeast and Brazil.....	510
Figure 158 - Comparison of CVLI Rates in the Northeastern States in 2023.....	510

Figure159 - CVLI Rates in the Capitals of the Northeastern States in 2023 .....	511
Figure 160 - CVLI rates in some municipalities in Paraíba with a population of over 20,000 inhabitants and in Paraíba.....	511
Figure161 - CVLI in Paraíba by Municipalities (2023) .....	512
Figure 162 - Comparison of Indicator Subcategories in 2022 and 2023 in Paraíba ...	514
Figure 163 - Annual historical series of murders and rate of murders per 100,000 inhabitants in Paraíba .....	514
Figure 164 - Historical Series of Homicide Distribution by Color* in Paraíba .....	515
Figure165 - Historical Series of Homicides* of the Black Population (Black + Brown) in Paraíba.....	515
Figure166 - Historical Series of Women's CVLI and Rates per 100,000 in Paraíba... ..	516
Figure 167 - Historical Series of Femicides and CVLI against Women in Paraíba ..	517
Figure 168 - Map of femicides by municipality in Paraíba in 2023.....	517
Figure 169 - Indicators of rape cases in Brazil (2022) .....	518
Figure170 - Annual Historical Series of victims of Lethal Traffic Accidents - LTA in Paraíba.....	521
Figure171 - Annual Historical Series of victims of LTA in Paraíba by category of transport .....	521
Figure172 - ALT Map by Paraíba Municipalities in 2023 .....	522
Figure173 - 10 cities in Paraíba with the highest incidence of LTA by Motorcycle, Car and Hit-and-Run from 2018 to 2023.....	522
Figure174 - Annual Historical Series of Violent Property Crimes - CVP by Category in Paraíba.....	523
Figure175 - Annual Historical Series of Property Crimes against Banking Institutions - CIBAN in Paraíba .....	524
Figure176 - Annual Historical Series of Vehicle Thefts and Robberies in Paraíba.....	524
Figure177 - Annual Comparison by category of Illegal Subtraction of Motor Vehicles - SIVA in Paraíba .....	525
Figure 178 - Quilombola communities in Paraíba.....	533
Figure179 - Indigenous Lands in Paraíba .....	541
Figure 180 - Indigenous Population in Paraíba .....	542
Figure181 - Fishermen's associations in Paraíba.....	543
Figure182 - Map of Roma Communities, by municipality - Brazil, 2011.....	549
Figure183 - Gypsy Families in Paraíba .....	550
Figure184 - Territory claimed by the gypsies in contrast to the urban center of Sousa/PB .....	551
Figure185 - Fossiliferous occurrences in the northwestern part of Paraíba .....	555
Figure186 - Location of the São Domingos I settlement.....	560
Figure187 - Location of the Emas Community .....	564
Figure188 - Location of Arruda Community.....	568
Figure189 - Location of the Apasa settlement.....	572
Figure 190 - Location of the Queimadas Settlement .....	576
Figure191 - Location of the Acauã Settlement .....	582
Figure192 - Impact analysis and definition of the ESMP .....	590
Figure 193 - Methodological Pathway - Atlas: Risks, Vulnerabilities and Environmental Disasters in the State of Paraíba .....	626
Figure194 - Social Vulnerability - Floods and Droughts.....	629
Figure195 - Flood Disaster Risk Index .....	630
Figure 196 - Climate Disaster Risk Index.....	631
Figure 197 - Impact of Rain - Current Scenario.....	632

Figure 198 - Impact of Rainfall - 2050 Scenario - Pessimistic .....	633
Figure 199 - Impact Risk Index for Rainfall - Food Security .....	634
Figure200 - Impact of Drought on Food Security - Current Scenario.....	635
Figure201 - Impact of Drought on Food Security - 2050 Scenario - Pessimistic.....	636
Figure202 - Drought Impact Risk Index - Food Security.....	637
Figure203 - Drought Impact Risk Index - Water Resources .....	638
Figure204 - Landslide Impact - Current Scenario.....	639
Figure205 - Landslide Impact - 2050 Scenario - Pessimistic.....	640
Figure206 - Landslide Risk Index.....	641
Figure207 - Landslide Impact - Current Scenario.....	642
Figure208 - Landslide Impact - Current Scenario.....	642
Figure209 - Flood, Flash Flood and Waterlogging Impact Risk Index .....	643
Figure 210 - Flammability Index - INMET.....	644

### PHOTO LIST

Photo 1 - Illustrative photo of the honey case .....	87
Photo 2 - Municipality of Baía da Traição, view of the Northeastern East Coast. ....	201
Photo 3 - Municipality of Baía da Traição, landscape of the Plains and River Terraces unit.....	202
Photo 4 - Marcação municipality, landscape of the Tabuleiros Orientais do Nordeste unit. ....	205
Photo 5 - Pitimbu municipality, landscape of the Tabuleiros Orientais do Nordeste unit. ....	205
Photo 6 - Arara municipality, landscape of the Eastern Slopes of the Borborema Plateau unit.....	207
Photo 7 - Remígio municipality, landscape of the Eastern Slopes of the Borborema Plateau unit.....	208
Photo 8 - Santa Luzia municipality, landscape of the Northern Sertaneja Depression unit. ....	210
Photo 9 - Pombal municipality, landscape of the Northern Sertaneja Depression unit. ....	211
Photo 10 - Cubati municipality, landscape of the Central Pediplano unit of the Borborema Plateau. ....	213
Photo 11 - Municipality of Cabaceiras, landscape of the Central Pediplano unit of the Borborema Plateau.....	213
Photo 12 - Camalaú municipality, landscape of the Central Pediplano unit of the Borborema Plateau.....	214
Photo 13 - Sumé municipality, landscape of the Central Pediplano unit of the Borborema Plateau. ....	214
Photo 14 - Passagem municipality, landscape of the Patos Depression unit - in the background with <i>inselbergs</i> .....	217
Photo 15 - Quixabá municipality, landscape of the Patos Depression unit. ....	217
Photo 16 - Sector of the South Coast, municipality of Pitimbu with a landscape of Yellow Argissolo.....	220
Photo 17 - Sector of the South Coast, municipality of Pitimbu with a landscape of Yellow Argissolo.....	221
Photo 18 - Municipality of Remígio, Red Argissolo landscape.....	221
Photo 19 - Municipality of Cabaceiras, landscape where Luvissole Crômico occurs. ....	226
Photo 20 - Sumé municipality, Luvissole Crômico landscape.....	226

Photo 21 - Pombal municipality, landscape where Luvissole Crômico occurs.....	227
Photo 22 - Marcação municipality with a landscape of Quartzarenic Neosols.....	228
Photo 23 - Municipality of Arara, Regolithic Neossol landscape.....	229
Photo 24 - Caraúbas municipality, Neossolo Litólico landscape.....	229
Photo 25 - Santa Luzia municipality, Neossolo Litólico landscape.....	230
Photo 26 - Restinga or tabuleiro area of Rebio Guaribas.....	252
Photo 27 - Banner of Embrapa Cotton's Agroecology Center.....	269
Photo 28 - Cotton plantations in the Borborema region.....	269
Photo 29 - Cotton harvest in the Borborema region.....	270
Photo 30 - Fruit production area in the Borborema region.....	271
Photo 31 - Fruit production area in the Borborema region.....	271
Photo 32 - Species such as agave and palm used in soil recovery for SAF implementation.....	273
Photo 33 - Plaque of the Experimental Area for Studies in the Ecology and Dynamics of the Caatinga.....	274
Photo 34 - Panoramic view of the nursery area.....	274
Photo 35 - Mangaba production in Baía da Traição.....	277
Photo 36 - Basket with shellfish at RESEX Açau.....	278
Photo 37 - African snail ( <i>Achatina fulica</i> ).....	279
Photo 38 - Lionfish ( <i>Pterois volitans</i> ).....	279
Photo 39 - Guariba monkey ( <i>Alouatta guariba clamitans</i> ).....	297
Photo 40 - Tatupeba ( <i>Euphractus sexcinctus</i> ).....	297
Photo 41 - Manatee ( <i>Trichechus manatus</i> ).....	297
Photo 42 - Products sold by EcoBorborema.....	433
Photo 43 - Model of property organization.....	434
Photo 44 - Vó Maria Rural Restaurant, in the Chã de Jardim Community, in the Municipality of Areia.....	435
Photo 45 - Agro-ecological cotton production in the Queimadas settlement in the municipality of Remígio.....	436
Photo 46 - Information poster on the experience of the farmer from the São Domingos Settlement in the municipality of Cubati.....	439
Photo 47 - SAF implantation in the São Domingos Settlement, in the municipality of Cubati.....	440
Photo 48 - Goat farming in the Serra do Monte settlement in the municipality of Cabaceiras.....	451
Photo 49 - Capribov trucks on the Cooperative's premises.....	452
Photo 50 - Grey water reuse system in the São Domingos settlement in the municipality of Cubati.....	504
Photo 51 - View of the main access to the "Os Rufino" Quilombo, in the municipality of Pombal.....	534
Photo 52 - Handicrafts produced in the "Os Rufino" Quilombola Community.....	535
Photo 53 - Young Potiguara Indians from the 3 Rios Village.....	538
Photo 54 - View of the entrance to the Potiguara Indigenous Village Toré Forte.....	539
Photo 55 - Handicrafts made by Potiguaras Indigenous women artisans in Toré Forte Village.....	540
Photo 56 - Site of the AMA (Association of Shellfish gatherers of Acaú), in the municipality of Pitimbú.....	545
Photo 57 - Handicrafts produced at AMA.....	546
Photo 58 - View of the site of the Z-27 Fishermen's Colony in the municipality of Soledade.....	547

Photo 59 - Fishing nets from the Z-27 fishing colony .....	548
Photo 60 - Entrance to the Vale dos Dinossauros Conservation Unit.....	555
Photo 61 - Carnosaur trail in Dinosaur Valley .....	556

## LIST OF MAPS

Map 1 - Geological map of the state of Paraíba .....	178
Map 2 - Hydrogeological map .....	184
Map 3 - ANM polygons in the area covered by Procace II.....	197
Map 4 - ANM polygons by substance in the area covered by Procace II.....	198
Map 5 - Geomorphology of the State of Paraíba .....	200
Map 6 - Pedology of the State of Paraíba .....	219
Map 7 - Paraíba State Hydrographic Basins .....	235
Map 8 - Vegetation .....	256
Map 9 - Coverage 2000 - Area covered by Procace II.....	263
Map 10 - Coverage 2022 - Area covered by Procace II.....	264
Map 11 - Conservation Units.....	293
Map 12 - KBA sites .....	299
Map 13 - IUCN Categorization .....	302
Map 14 - Map of archaeological sites registered in the state of Paraíba .....	553

## 1 INTRODUCTION

This Strategic Environmental and Social Assessment (SESA) for the **Paraíba Sustainable Rural Development Project - Procasse II (PROJECT)** is structured in such a way as to assess the geographical region in which the Project is located, in order to have a management tool that integrates the environmental and social dimensions of each of the interventions in the territory, while also aiming to identify alignments and possible gaps in compliance with IFAD and IDB Safeguard Policies. The interventions proposed in the sanitation sub-projects and production plans may have an impact on some of the municipalities that are part of the Project.

In addition, SESA involves evaluating different strategic alternatives in decision-making, so that the selected alternative is coherent and harmonious, on the one hand, with the social, economic and environmental aspects relevant to the state of Paraíba, where the sub-projects will be implemented, and on the other, with the current institutional framework and good international practices.

The Strategic Environmental and Social Assessment (SESA) is intended to be a support tool for incorporating the environmental and social dimension into the PROJECT's decision-making process. Its importance lies in defining criteria and milestones to guide the activities, work and sub-projects that will be carried out within the Project being assessed.

As part of the preparation of Procasse II, socio-environmental documents were drawn up in accordance with the IDB's Environmental and Social Policy Framework (ESPF) and IFAD's Social, Environmental and Climate Assessment Procedures (SECAP), which are equivalent, with the exception of IFAD's safeguard on climate change. The documents include the following:

- Strategic Environmental and Social Assessment (SESA): involves assessing different decision-making strategies, so that the alternatives are coherent and harmonious with the relevant socio-environmental aspects for the region where the sub-projects are located and the sector where they will be implemented, and with the institutional framework of the executing agency in force and with good international practices. The SESA includes an analysis of the alternative types of sub-projects proposed for funding, as well as the institutional structure and applicable legislation, identifying the impacts and risks that must be mitigated;
- Strategic Environmental and Social Management Plans - ESMP: determines the programs necessary for the mitigation hierarchy of the impacts foreseen in the SESA.
- Environmental and Social Management System - ESMS: presents the structure and general processes that will have to be applied in order to implement the ESMP and to monitor and guarantee the implementation of the planned mitigation actions.

In this context, the main objective of this SESA is to present a diagnosis and strategic assessment of the environmental and social risks and impacts based on the types of works in the Project, making it possible to identify the control, prevention, correction and socio-environmental monitoring measures relating to the mitigation and/or compensation of adverse or negative environmental impacts, as well as the enhancement of positive impacts (care and measures aimed at guaranteeing and amplifying the beneficial

impacts caused by the Project's sub-projects) diagnosed on the interventions planned for the Project and which will be duly dealt with in the ESMP.

The SESA is structured around four main pillars:

- (1) General Description of the Project: provides the main information regarding the justification, objectives, area of insertion and budget of the Project, as well as a description of the Components and the types of sub-projects and plans to be implemented by the Project.
- (2) Regulatory Framework: provides a compendium of the relevant local legislation the international agreements to which Brazil is a signatory and which are also taken into account in the Socio-Environmental Policies of international financial agents, and the entities responsible for environmental licensing, as well as the Environmental and Social Policy Framework of the IDB and IFAD.
- (3) Baseline: presenting a socio-economic, physical and biotic diagnosis of the project area, showing the important factors that shape the project's environment.
- (4) Identification of the Project's Potential Socio-environmental Risks and Impacts: this includes the analysis of environmental and social risks/impacts and helps define the Mitigation Programs that are presented in Procasa II's EMSF and ESMP, providing actions and guidelines to be applied in compliance with the requirements of the established Safeguard Policies.

## 2 GENERAL DESCRIPTION OF PROJECT

The State Government of Paraíba has requested the financing of a project through a specific investment loan (LON/ESP) to promote the sustainable development of the rural area of the state of Paraíba (involving the Atlantic Forest and Caatinga biomes), focusing on the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

Below is information detailing the description of Procasa II, its components and planned sub-projects.

### 2.1 Background to Project

The Cariri, Seridó and Curimataú Sustainable Development Project - PROCASE, closed in 2020, has carried out significant and impactful actions, leaving an important legacy of lessons learned. It is based on this collection and foundation that we postulate the need to significantly expand the work it has started, especially in the Borborema mesoregion, to the semi-arid region and to another Atlantic Forest biome. As noted by the IFAD Supervision Mission in 2020, the following achievements of PROCASE phase I, among others, can be highlighted:

- Significant reinforcement of water security for approximately 400 communities, with the drilling of 539 wells and the installation of 222 underground dams and 60 desalination plants;
- Implementation of 95 productive projects of various kinds (including candy making, community nurseries, handicrafts, strengthening animal husbandry, etc.);

- In these communities, fodder production has been boosted - mainly with the installation of oil palm fields, used as seed production plots (seedlings) to help recover the family oil palm fields, which were lost due to the attack of the carmine mealybug and drought;
- Implementation of 31 Agroforestry Systems (SAFs), to be considered as pilot experiences, so that water use is optimized and agroecological principles in soil use and conservation are valued, as well as providing a source of income for families;
- Experiments were also carried out with photovoltaic panels to generate energy to be used in processing units for agricultural products and handicrafts;
- Three dams were built, making it possible to build up larger water reserves, which improved the supply to the local population and the development of irrigation, benefiting 10,022 families;
- It is important to point out that the methodology and set of instruments relating to implementation developed under PROCASE I and in a semi-arid context can be used by improving and adapting them to the new area of operation of PROCASE II, such as intervention in the Zona da Mata region and work with indigenous peoples;
- PROCASE's work enabled the formation of an institutional network involving various State Secretariats and an important group of 'partner' entities. Among the latter, we should mention the Paraibana Research, Rural Extension and Land Regularization Company - EMPAER; the other entities contracted to provide technical advisory services to the families assisted by the project - SENAR, IDS, PATAC, COOPTERA; and the Fresh Water Program. With regard to the State Secretariats, it is worth highlighting the State Secretariat for Infrastructure, Water Resources and the Environment - SEIRHMA; the Executive Secretariat for Food Security and Solidarity Economy - SESAES; the Secretariat for Women and Human Diversity; it was also possible to establish partnerships with various municipal governments.

In addition, the PROCASE I impact assessment demonstrates important project impact results, among others:

- i. 51% of the families benefiting from the project had a positive change in the productive assets index, with 24% having a positive percentage change in the productive assets index of 150% or more, showing a significant improvement;
- ii. With regard to gender issues, activities related to processing by women increased by 43% in the beneficiary communities and decreased by 6% in the control communities;
- iii. With regard to the frequency of dietary diversity, the proportion of families in the beneficiary communities who declared that they always had dietary diversity was 44.8% higher than the proportion in the *control group*;
- iv. 65.1% of families reported an increase in crop production, 56.8% an increase in the production of animal by-products, 48.6% an increase in animal production, 22.8% an increase in the production of plant by-products and 9.1% in non-agricultural activities (handicrafts). In the aggregate analysis of the increase in production, 88% of families said that production had increased;
- v. 20% of the beneficiaries reported that they had access to markets through PROCASE's exclusive actions, a satisfactory percentage for the project, given that



several of the production chains supported were strengthened and restructured through the investment, and then went on to access markets.

The project's completion report states that the almost 500 wind turbines installed have reduced the cost of energy for irrigation to zero, as well as their durability compared to other means. The solar energy implemented in the cooperatives generated savings of approximately R\$ 10,000/month, reducing the production costs of these units and increasing their profits.

In the experience of previous sustainable rural development projects, including PROCASE I, the development of new capacities was key to the success and sustainability of the actions supported. It has made it possible to strengthen social and productive organizations, increase the visibility and inclusion of young people, women, PCTs and indigenous people, incorporate technological innovations, better manage environmental resources, start new activities, manage family production units more efficiently and reach markets in better conditions, and increase interaction with the state through greater access to public policies or political advocacy, using new capacities that remain after the projects end. PROCASE II takes this experience into account, which is why Component 1 focuses on capacity building.

PROCASE II was designed with a view to improving or adding new intervention axes compared to phase I. The aim is to better integrate it into the government structure, while strengthening capacities with a view to greater sustainability and expansion. In addition to these aspects, the issue of water security has been expanded and diversified. Socio-productive inclusion, the inclusion of traditional peoples and in particular indigenous peoples, is another important highlight, as well as strengthening the capacities of young people and young people with disabilities, will be other innovations that will aim to make PROCASE II more relevant for the state.

PROCASE (both phase I and phase II) is part of a set of strategic public policies aimed at strengthening family farming in the state. Its actions and projects are supported by macro planning strategies such as the Rural Territories Development Strategy, with 16 recognized rural territories in Paraíba today, with active territorial collegiate bodies supported by SEAFDS, as well as the public plenary sessions of the Democratic Budget, where communities can present their demands for PROCASE II.

The end of the project's financing with IFAD (phase I) did not immediately lead to the end of PROCASE. The state government, together with SEAFDS, kept the entire PMU team active, developing actions to support and sustain the results achieved, as well as the preparation of PROCASE II. Therefore, the PMU has already been formed, consolidated and can guarantee the immediate and efficient start-up of the new project.

## 2.2 Justification of Project

The project is justified by the need to mitigate the following problems:

### ***Rural Poverty and Extreme Poverty***

According to Cadastro Único data from March 2024 (MDS), there are 191,000 families in rural Paraíba classified as being in poverty or extreme poverty (CadÚnico bands 1 and 2). Considering that there are 251,125 households in the rural area of the state, according to IBGE 2010, it can be said that 76% of rural families are in a situation of poverty and extreme poverty.

Looking at the 2010 data, where 59% of households were in a situation of poverty or extreme poverty, it can be said that the rural population of Paraíba has become poorer. Among the possible causes are those related to more severe periods of drought, the COVID-19 pandemic and the reduction in social inclusion programs. This is consistent with Brazil's return to the Hunger Map, according to the United Nations.

In the state, only 36% of the population is food secure, while the rest are classified as mild, moderate and severe food insecure (II VIGISAN, 2021).

The HDI in 146 municipalities is considered low (70%), medium in 62 (29%) and high in 2 (1%). According to IBGE 2010, around 28% of the population has some kind of disability (visual, hearing, motor or mental).

### ***Inefficient production systems***

According to the 2017 Agricultural Census, there were 163,218 agricultural establishments in the state. Of these, 125,489 (76.9%) were family farms, while 37,729 (23.1%) were non-family or patronal. Approximately 12% of family units belong to Agrarian Reform settlers. Family farming occupies 42% of the state's agricultural area and is responsible for 47.8% of the total value of agricultural production, which is the second highest proportion in the Northeast and the sixth highest nationally. In the Mata region, 20.16% of the area is occupied by family farms, while it reaches 50.75% in the Sertão Paraibano.

Agricultural production is the main economic activity of most of the rural population, particularly family farming. The 2017 Agricultural Census highlights the following productions for their contributions to the value of production: i) poultry, cattle, goats and sheep account for 92% of the value of livestock; ii) of permanent crops, bananas, passion fruit, Bahia coconut and tangerines are the main productions in terms of value, and iii) pineapple, corn, cassava and sugar cane are the most important temporary crops. Family farming in Paraíba faces very severe and challenging conditions, especially in the semi-arid region, which include low income, low productivity in farming activities, difficulties in accessing water for human consumption and production, and high risks related to climatic events. In order to increase the production, productivity and income of family farming, it is necessary to resolve obstacles related to the lack of access to financing to make the necessary investments, technical assistance and rural extension that supports the learning of new technologies, difficulty in accessing markets and inserting producers into value chains, which in turn is related to the weakness of rural organizations. According to the 2017 Agricultural Census, only 11.7% of agricultural establishments have access to water for irrigation. In addition to the low productivity of agricultural activities that depend on the availability of water, there is the use of unsuitable production techniques. For example, 32% of Family Farming Units (FFU) use pesticides, and 39% do not adopt any conservation practices (IBGE 2017). In the case of mechanization, for every 130 farmers, 1 has the support of a tractor, seed drill, etc (IBGE 2017). Less than 1% of the PA establishments applied lime or another soil pH corrector (IBGE, 2017). 67.4% of family farming establishments have implemented soil preparation systems.

The data from the 2017 Census shows that the majority (53%) of the producers responsible for the establishments are over 55 years old. Less than 10% are under the age of 35. These figures follow a national trend of a shrinking percentage of young people in rural areas, while the rural population is getting older. This situation highlights the

challenges of providing opportunities and prospects for young people and, at the same time, conditions for the older population to maintain an agricultural activity and quality of life. This data, when added to the data on very low mechanization (see data below), can create obstacles to achieving greater productivity.

### ***Land structure***

In the state, 54% of establishments have up to 5 hectares and of these, 13% have less than one hectare, which characterizes extremely small areas for agricultural production, especially when considering the semi-arid climate. Furthermore, around 15% of family farming establishments do not have guaranteed access to land (IBGE 2017).

### ***Climate change and environmental degradation***

Climate change is causing significant losses in the productivity of some important crops for family farmers, such as cassava, beans, bananas and corn. Studies show productivity losses of up to 92% for corn and 88% for beans. Paraíba is among the states most at risk of losses, along with Ceará, Piauí and Pernambuco.

Production systems are largely not adapted to the increasing scarcity of water or to the context of climate change. The combination of expectations of high drought risks, increased desertification and more heat extremes could jeopardize agricultural activities, especially those of family farmers, and disrupt local and regional food markets.

In the Atlantic Forest region, climate risks are more related to extreme rainfall events, such as floods and landslides. Agricultural production will be affected by reduced access to markets, reduced product quality, crop losses due to increased occurrence of diseases and soil erosion. These problems are compounded by poverty and the target population's limited access to public policies aimed at reducing their vulnerability to climate change.

There is also a major problem of soil degradation, due to the use of unsustainable practices on cultivated land, such as the systematic use of burning and the removal of vegetation cover, which have resulted in greater exposure of soils to the elements (SOS-MATA-ATLÂNTICA; INPE, 2015). In turn, the intense modification of the environment mentioned here has had a significant impact on the water cycle. Thus, deforestation leads to a decrease in water infiltration and greater erosion. This has reduced the flow of water and led to the silting up of the region's watercourses (BRASIL-MDA-SDT, 2010), reducing the availability of water in the region (SILVA; BRUNO; AGUIAR; SOUSA FILHO et al., 2020). In addition, the combination of the processes mentioned here has a significant negative impact on biodiversity. In a long-term perspective, the sum of these factors (including predicted climate change) is expected to lead to more frequent "extreme" events (e.g. droughts and floods), which could trigger a significant loss of environmental quality. This, in turn, will have a direct effect on the productive potential of agricultural systems and on the population's quality of life.

### ***Inadequate and insufficient TA system***

Only 17% of family farming establishments in Paraíba have access to the TA service (IBGE 2017) and 83.4% report that they receive it from the government (federal, state or municipal). In addition to this low coverage rate, there is a lack of preparation and qualification of technicians from the point of view of knowledge of agroecological practices, which allow production systems to adapt to climate change, among other

aspects (Information gathered during the field design mission). Without the support of qualified professionals, farmers are prevented from implementing more intensive, sustainable and efficient agricultural practices, as well as adapting to climate change and the challenges of market access and access to finance. It is important to relate this data to the profile of the producers, since in 2017 (IBGE), in 47.4% of the establishments that reported applying pesticides: the person responsible could not read and write and in 80.4% of the cases, the pesticide applications were carried out without any technical guidance.

Regarding credit, 17% of family farming establishments reported having had access to it in 2017.

### ***Mechanization***

In the family farming establishments, most agricultural operations are carried out manually. Data from the 2017 Agricultural Census shows that only 0.8% of the farms in Paraíba have at least one type of machinery. The machinery and implements used are not always adequate or used appropriately. This lack of mechanization and the low availability of labour constitute a set of limiting factors for developing more efficient and relevant practices.

### ***The challenge of digital inclusion***

Access to rural telephony and, above all, the Internet is scarce in rural areas. According to studies by the Ministry of Agriculture and Livestock (MAPA), currently more than 70% of rural areas nationwide do not have Internet access.

### ***Low participation Specific difficulties for vulnerable groups (women, young people, LGBT people and residents of traditional communities)***

Data from the latest 2017 Agricultural and Livestock Census (IBGE) shows gaps in relation to vulnerable groups:

Of all the family farming establishments in Paraíba, 76.0% are run by men and only 24.0% by women. Among family farming establishments, 64.0% are run by people who say they are black or brown, 11.3% by young people under 35 and 0.9% by indigenous people.

In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.12 hectares, those run by men have an average of 12.86 hectares. Of the family farming establishments in the project area that have access to water for irrigation, 6.7% are run by women, while 13% are run by men.

Among female family farmers, 4,486 received TA (14.9% of the total), while 16,637 male family farmers (or 17.4% of the total) received TA.

In the Single Registry, there are 6,328 indigenous families registered, 73.1% of whom live in poverty or extreme poverty, and there are 4,295 quilombola families registered, 67.9% of whom live in poverty or extreme poverty.

Considering the families of artisanal fishermen, 80.7% of them are in extreme poverty or poverty. This is a gap of 12.4% in relation to the poverty/extreme poverty situation of all registered rural families.

Finally, among riverine families, 72.6% are in poverty or extreme poverty, a gap of 6.5% compared to rural families in the project area.

### ***Limited participation in collective organizations***

Only 3.7% of rural producers in the state are members of a cooperative and 29.4% are members of an association (IBGE 2017).

Enterprises for packaging, processing and marketing the products have also encountered many difficulties. There are around 8,700 processing units in the project area (IBGE 2017). According to MDS 2018, there were 77 enterprises in the NE region registered and able to offer their products to government buyers. Of these, only 7 are from Paraíba (10%).

### ***Family Farming Cooperatives***

The cooperative-type economic organizations present in the state focus on the collection, processing and marketing of production, with milk (bovine and caprine) and fruit being the main chains involved.

These organizations have weaknesses in terms of the capacities of their management teams, on issues such as i) administrative and financial, including access to sources of working capital financing, ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people, among other weaknesses. These organizations also have important limitations from the point of view of their production infrastructures, which don't always allow them to diversify their products, comply with health and environmental legislation and don't use renewable energy sources in their processes, nor do they carry out adequate waste treatment.

This set of factors ends up limiting these organizations' ability to function and their viability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, middlemen predominate. Family farmers have limited marketing channels, dependent on local sales. According to FNDE data, Paraíba's PNAE received only 2% of the program's total resources in 2022. In relation to the NE, this result puts the state only ahead of Sergipe, Rio Grande do Norte FFU products.

### ***Basic Sanitation***

Article 3 of Law no. 14.026/2020 considers Basic Sanitation to be a set of public services, infrastructures and operational facilities for: i) drinking water supply, consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the public supply of drinking water, from collection to building connections and their measuring instruments ; ii) sanitary sewage (collection, transportation, treatment and adequate final disposal of sanitary sewage) and iii) urban cleaning and solid waste management (collection, transportation, transshipment, treatment and environmentally appropriate final disposal of household solid waste).

Regarding drinking water supply in the state, the Water and Sanitation Institute reports that in 2019, the rural service rate reached 24.16 % (in Brazil, the rate is 30.77%), through the implementation of systems with a distribution network and simplified chlorine disinfection treatment, guaranteeing the potability of the water. In other situations,

fountain-type systems are implemented, without a distribution network, with chlorine disinfection treatment. Finally, when there is no possibility of implementing one of the above solutions, the construction of cisterns for human consumption becomes the only alternative.

As for the sanitary sewage situation, the rural service rate in Paraíba is 18.82% (Instituto Água e Saneamento, 2020), significantly below the national average of 42.54%. It is worth mentioning that in the Coasta micro-region this percentage is 1.04%, showing the great precariousness of this region of the state. Most of the sewage is covered by septic tanks and/or sinks, but the treatment units have no control over the disposal of sewage effluent, either on the ground or in water bodies, making it yet another polluter of the environment and contributing to the factors that increase climate change. In addition, some of these septic tanks are of the black tank type, where the sewage is dumped directly under the ground. In these areas it is common to find sewage running out into the open and houses without toilets.

This set of vulnerabilities, coupled with climate change, puts the region's production systems in crisis and in a vicious circle, in which the processes of social and environmental degradation fuel the impoverishment of rural families and increased migration to urban areas.

### ***Family farming organizations and their weaknesses***

Often, tackling the problems posed by Paraíba's rural population's vulnerability is difficult at the individual or family level. Generally, actions of this kind require a capacity for joint or collective action. One of the issues that reinforces the processes of unsustainability mentioned above, which accentuate vulnerabilities, concerns local organizations.

Traditional rural communities are characterized by a system of social institutions that organize local social life. These mechanisms - such as kinship networks and traditional mechanisms of reciprocity - enabled various types of collective action to take place, covering issues such as the management of common resources, the holding of community festivals, the organization of religious events, etc. However, nowadays these structures don't work well in all communities, and in many cases, there is an 'erosion' of traditions. This has led to a weakening of traditional social structures. On the other hand, reality has presented new demands for community organization, mainly related to the actions of other social actors with whom families/communities establish relations. This situation has stimulated the creation of new forms of organization, generally more formalized, which may take on responsibility for old practices, but are essentially created to take on new functions. Among these new forms of organization, community associations stand out.

There are currently many community associations in rural Paraíba. However, it must be acknowledged that they have shortcomings. One of the barriers that reinforce the status quo of unsustainability involves the role of the 'community association' as an effective means of representation and, above all, of organizing collective action at local level. But, as various studies have shown, the creation of associations alone is not enough. It has been found that it is very difficult for these associations to play their potential positive role in the processes of promoting more resilient development spontaneously. Previous experience of various IFAD-supported rural development projects has shown that the role of representing all families vis-à-vis government agencies has posed major challenges for community associations, insofar as these new relationships require them

to perform tasks that are entirely new to them. In the case of associations assisted by development projects, one such task is that of managing community 'projects'.

On the other hand, in the case of rural organizations (usually in the form of cooperatives) created for the purpose of carrying out activities that seek to promote access to markets (such as packaging, processing and marketing local products), they have also encountered many difficulties in establishing themselves in this role. These organizations have significant shortcomings in terms of capacity on issues such as i) administration and finance (including access to sources of funding for working capital), ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people, among other weaknesses. They also often have significant limitations from the point of view of production infrastructure, which does not always allow for product diversification, compliance with health and environmental legislation, the use of renewable energy sources in their processes or adequate waste treatment. This set of factors limit the ability of these organizations to function and their own sustainability, including economic sustainability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, middlemen predominate.

The situation outlined here indicates that most of the existing local organizations - especially community associations and family farmers' cooperatives - will need support, especially in terms of training, so that they can address various types of shortcomings (for example, in organizational processes and associative/cooperative management) and come to play an active and effective role in implementing the various sustainable development initiatives they are called upon to carry out.

On the other hand, the organizations mentioned above only group together and represent a fraction of Paraíba's Family Farmers, and there is still a significant part of this population that is not yet organized. Data from the 2017 Agricultural Census indicates that only 48% of farmers are members of some kind of organization (association, union, movement, etc.) Considering only the members of cooperatives, this proportion drops to just 3.7%.

### ***Limited access to technical advice and funding***

Family farmers in Paraíba also face difficulties in minimally structuring their agricultural activities, as well as incorporating innovations that intensify their production in a sustainable way, due to limited access to technical assistance and credit.

Technical Advice and Rural Extension. After millennia in which knowledge of agricultural and livestock practices was only passed down between generations of the population dedicated to agriculture, modern rural education and extension services emerged in Europe and the United States in the 19th century to work on new agricultural technologies and practices. In Brazil, TA services began to be implemented after the Second World War, expanding nationally as a public service over several decades. Despite the crises experienced by this TA, the expectation remains that a quality Technical Assistance and Rural Extension (ATER) service can play a fundamental role in Brazilian rural development, with emphasis on strengthening family farming, access to public policies, the social organization of farmers, the management of properties and enterprises, the marketing and certification of products, production management, the transition to organic or agroecological systems, the training of farmers, among other

issues . These positive expectations related to TA were confirmed in a recent study, which proved the positive impact - mainly due to the increase in agricultural production and income - of the provision of TA services by the Dom Helder Câmara II Project in various territories of the Brazilian Northeast.

However, despite this widely accepted positive outlook, and even though there was significant investment by the federal government in TA between 2003 and 2015, the 2017 Agricultural Census records that, in Brazil, only 19.9% of family establishments had access to some kind of TA. In Paraíba, 16.8% of establishments had access to TA. Although this figure is higher than that of the Northeast region (which is 7.4%), this proportion is still small.

As of 2017, federal funding for TA services has been severely cut again, leaving millions of Brazilian family farmers without any kind of support. With this redirection of the national TA policy from 2017-18 onwards, it appears that there will be an even greater decrease in the resources made available to fund TA services between 2018 and 2022. With this situation, it is very likely that the proportion of family farms served by TA will be much lower than at the time of the 2017 Agricultural Census.

In addition to this low coverage rate, information gathered during field visits during the design mission indicates that there is a lack of preparation and qualification of technicians from the point of view of knowledge of agroecological practices, which allow production systems to adapt to climate change, among other aspects. Without qualified professionals, farmers face challenges to implement more intensive, sustainable and efficient agricultural practices and adapt to climate change and the challenges of market access and finance access. Correlating this information with the profile of producers, data from the 2017 Agricultural Census shows that in 47.4% of establishments that reported applying pesticides, the person responsible could not read and write and that in 80.4% of cases, pesticide applications were carried out without any technical guidance.

On the other hand, in recent years (especially since 2020), there have been important methodological innovations in the field of TA. Traditionally, TA actions took place face-to-face, in direct interaction between the TA agent and their audience (the farmers). With the advance and popularization of information technology and the Internet, and mainly stimulated and conditioned by the moment of mandatory social isolation imposed by the Covid-19 pandemic, remote and digital forms of interaction and communication have been gaining ground and importance in TA processes, driving a broad process of innovation and learning in the use of instruments for dialogue, interaction and exchange of knowledge at a distance or remotely.

In this process, TA actions have combined the remote tools already in use (such as TV and especially radio) with a whole range of digital tools such as instant messaging applications/platforms (Whatsapp, Telegram), social networks (Instagram, Facebook), institutional websites, YouTube channels (for broadcasting videos). There has also been an increase in the use of meeting/live/videoconferencing applications, such as Google Meet, Zoom, as well as tools such as platforms specially designed for training events, and themed chats on institutional websites.

Thus, the use and application of digital resources in the activities of the technical advisory and rural extension service, which has been called 'digital ATER' in some institutional, political and academic spheres, has enabled farmers to expand their ways of accessing information and technical guidance, constituting an excellent complementary means to the face-to-face TA service.



Access to credit. According to the 2017 Agricultural Census, in the state of Paraíba, 21,151 family establishments (16.9% of all such establishments) had access to some form of financing. According to Santos et al, "better access to financing for family farmers means contributing to greater dynamism in the agricultural sector in the state of Paraíba. The existence of a significant percentage of family farmers without an efficient financing system, both in terms of the quantity of monetary resources and the technical quality of the projects, reflects the extent to which public (financing) policies need to progress to move closer to universal access". It's interesting to note that 76.5% of the families who received funding did so for investment purposes. In addition, only 46.8% of these establishments received financing from government credit programs, PRONAF being the main one.

### ***Deficit in access to other public policies to support Family Farming***

Since the last decade of the last century, an important set of public policies to support Family Farming (FA) has been built up in Brazil. This process was led by the federal government and many states followed suit with similar state policies. Worth mentioning here are the programs: PRONAF (funding and investment credit), Seguro Safra (agricultural insurance), PAA, PAA Leite and PNAE (public food purchases), P1MC and P1+2 (support for Social Technologies for water storage), PNCF (land credit) and the Rural Development Program. In Paraíba, we should mention the State Seed Distribution Program. This set of policies expanded until 2015, when some of these programs suffered budgetary cuts. This process intensified significantly from 2017 onwards, with a significant reduction in federal funding for practically all of these policies, leading some of them to be paralyzed (such as P1MC and P1+2). However, as of the beginning of 2023, this trend has been reversed and there is a prospect that PA will once again be able to count on a wide range of incentive policies.

The existence of these policies, however, does not guarantee access for families. On the contrary, many families find themselves on the margins. Various sources show that few family establishments access them, as shown above in relation to the percentage of family farmers who regularly receive technical assistance services or manage to access credit (especially via PRONAF lines). Access to the PNAE is also limited. According to data from the FNDE, in 2022 Paraíba received only 2% of the Program's total resources, when the number of family farming establishments in Paraíba represents over 3% of the country's total.

Surveys carried out in the field and with policy managers indicate that there are several causes for this situation. The main one is a lack of more detailed and consistent information about the policies themselves, including aspects such as eligibility rules and access mechanisms. Weaknesses have also been identified in the technical teams of government agencies that are responsible for making the policies work in the field.

### ***Gender***

In the state of Paraíba, the Gender Disparity Index is 0.68%, indicating that Paraíba women are 32% less likely to have the same opportunities as men, with the biggest gaps being in the dimensions of political empowerment and economic opportunity. In rural areas, resistance to advances in women's autonomy and rights is even greater. Gender gaps are expressed in restrictions on control and access to natural, social and monetary resources.

One of the fundamental obstacles is the concentration of land ownership in the hands of men, leaving women in a situation of economic dependence. According to the 2017 Agricultural Census in Paraíba, 71.0% of female managers of family farming establishments have land titles, compared to 73.1% of male managers - an inclusion gap of 2.1 percentage points. On the other hand, when it comes to the management of establishments, only 24% of family farming establishments in the project area are run by women. However, between 2006 and 2017, there was a 20.3% increase in the proportion of establishments run by women in the state. There is no data available on joint titling.

In Paraíba, according to the same source, the total area of family farming establishments run by women is 214,500 ha (14.9%), while that of men totals 1,226,714 ha (85.1%). In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.1 hectares, those run by men have an average of 12.9 hectares. Among the multiple legal, cultural and structural barriers that exclude women from land rights are patriarchal ideologies about the gender division of labor in the public and private spheres and the practice of ceding land rights only to one representative of the family - the man. For this reason, the Project will seek to prioritize women in the land regularization work it will promote.

One strategy for rural women to increase their autonomy has been education, with higher levels of education compared to men. According to data from the 2017 Agricultural Census, among female family farmers, illiteracy reached 35.8% of those responsible for establishments, while among men, illiteracy reached 48.1% - a gap in favor of women of 12.3 percentage points (equivalent to 34.4%). Among female family farmers, 19.5% have never been to school, while among men this proportion is 25.7%. Despite better educational indicators, women's average income is lower. In Paraíba, women earn on average 10% less than men and account for 72.5% of people earning up to one minimum wage, according to data from the Inter-Union Department of Statistics and Socio-Economic Studies (DIEESE).

Despite rural women's significant contribution to the family economy and community development, their work is often overlooked because they are not part of the formal labor market and do not generate monetary income from activities such as self-consumption. Among the establishments run by women, 80.8% produce for self-consumption, while for those run by men, the same proportion is 70.7%, a difference of 10.1 percentage points (equivalent to 14.3%). To change this reality, the project will promote the *Agroecological Logbook Methodology*, which makes it possible to measure, value and give visibility to women's fundamental contributions to the family economy and, consequently, to community development.

The main agricultural activities of women in the project area differ from those of men, requiring any public support to take a differentiated approach to meet the specific demands of women. Proportionally, women are more involved than men in temporary crops (37.1% versus 32.9%) and the production of planted/native forests (4.3% versus 2.6%), while men are proportionally more involved in permanent crops, livestock production (56.2% versus 52.4%) and horticulture/fruit growing (3.9% versus 2.8%).

Rural women in the project area also have less access to Technical Assistance (TA). Among female family farmers, 14.9% received TA, while 17.4% of male family farmers received this service, which represents a gender gap of 2.5 percentage points (equivalent to 16.8%). In this context, the project will offer continuous TA to beneficiaries, setting a specific target for women (50%), as well as other measures aimed at developing

women's capacities in areas such as leadership, management, access to public policies, agricultural and non-agricultural activities.

The examination of data on machinery shows that gender inequality is clear. Throughout the country, including in the Northeast, women have less access to tractors, planters and harvesters. In Family Farming, establishments run by men (80.3%) have 93.1% (511,727) of the tractors for this segment of producers, while women have 6.9% (37,845) of the tractors nationwide. These characteristics make women's daily lives tougher, thus impacting on various dimensions of their existence, and even on their desire to migrate from the countryside to the cities.

As far as associations are concerned, there is a higher proportion of women who are members of trade associations/trade unions and producer associations/movements. Among women family farmers, 37.2% were members of trade associations/unions and among men, 31.8% - a difference of 5.4 percentage points, equivalent to 17%, in favor of women. With regard to producer associations/movements, 15.8% of female family farmers were members in 2017, compared to just 13.6% of men. However, even with greater participation, women often do not have an equal voice because they are not equally represented in positions of power.

It is in this context that the project will promote Gender Training to develop the capacities of rural women to play an active role, have a voice and decision-making power in Rural Organizations. In addition, the strengthening of Women's Networks will be supported, thus strengthening the self-organization of rural women and their groups and organizations.

Rural women in the project area also suffer from double working hours. They have a workload that exceeds that of men, including a higher proportion of unpaid domestic responsibilities related to preparing food and collecting firewood and water. In the Northeast, women devote more hours to these activities (23.5 hours), and it is also the region with the greatest inequality in relation to men. The greater dedication to caring for people and/or household chores ends up restricting women's wider participation in the labor market. In Paraíba, women devote an average of 23.9 hours a week to domestic work, 11.5 more than men - above the average difference in the rest of the country.

The activity to be promoted by the project to provide early childhood education services (*Ciranda das Crianças*) will help to reduce women's work overload due to childcare and ensure their participation in the training activities promoted by PROCASE II. The fair division of domestic labor will also be the subject of gender training for beneficiaries. In addition, rural women are more vulnerable than men to environmental and climate challenges because of their social roles, for example as the main collectors of water, food and firewood in a context where increasing pressure on natural resources and environmental degradation are negatively affecting water and food supplies, because of the discrimination they suffer and because of their poverty rates. In this context, the project's investments in social technologies for access to water will also help to reduce the time women spend collecting water.

Violence in rural areas is increasing every year, as shown by the growing number of murders of rural workers. Domestic violence is also dramatic in rural areas and the number of femicides has increased. IPEA data for Paraíba indicates a death rate by femicide of 3.9 women per 100,000 in 2018. In 2023, 4,630 police inquiries were opened in Paraíba to investigate cases of domestic and sexual violence against women, according to the Coordination of Women's Police Stations in Paraíba (COORDEAM).

Violence indices show that black women suffer much more physical and psychological violence and are the biggest victims of female murder (femicide). The lack of facilities in the Network to Combat Violence against Women makes rural women more vulnerable to violence and restricts their access to protection. The prevention of violence against women will be a theme addressed in all the gender training offered by the project.

## **Youth**

Brazil's Youth Statute (2013) defines young people as those between the ages of 15 and 29. In the Project area, there are 893,666 young people. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

In Paraíba, among young people aged 15 to 29, approximately 35.1% neither studied nor worked in 2021, according to the Synthesis of Social Indicators 2022. Young women of African descent have a higher percentage out of school and out of the labor market. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, and young women are the majority in this situation. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department.

As a consequence of the lack of sustainable study and formal work opportunities for young rural people, there is a process of migration to urban centers, mainly of young women with more schooling, which causes the rural population to age (the largest group of migrants is between 16 and 35 years old) and the proportion and number of women to decrease. The phenomenon of young women being the ones who leave the countryside the most is related not only to the lack of opportunities, but also to their refusal to take on the same roles played by their mothers and grandmothers in the family production unit. In the case of young women, the invisibility and devaluation of the labor force, in caring for children and household chores, and in family farming, are also among the factors that stimulate the desire of younger women to leave the rural environment and will therefore be addressed during the project's Gender Training sessions. Comparing the 2006 Agricultural Census and the 2017 Census, the young rural population under the age of 25 fell by 49.7%.

Among the factors that influence staying in rural areas are access to financial resources, education/training suited to the characteristics of rural areas, appreciation of rural ways of life, and the availability of services and conditions that can offer the possibility of success in agricultural production. However, in rural Paraíba, young people who decide to stay in the countryside have limited access to and control over resources, inputs, goods and technologies. The indicators for access to land and credit confirm this.

In the project area, only 9.9% of family farming establishments are run by young people under the age of 35, indicating low access to land. When they get married, few of them are able to acquire a new property, and what often happens is that the family property is divided into smaller plots for the children, which further reduces the productive potential and profitability of agricultural activities. It should be noted that there are gender tensions in inheritance patterns, which disadvantage young rural women.

Access to credit is very limited in the Project area (see paragraph on the subject, above). Although data on access to credit is not available disaggregated by generation, it can be inferred that access to credit by young people is even more limited, as this is the reality throughout the country. The PRONAF Youth program, which was created to facilitate rural youth access to credit, creating conditions to enable rural succession processes in agriculture, still has a very limited number of contracts signed in relation to the proportion of the rural youth population. In 2015-16, a total of only 2,889 contracts were signed across the country. Among the causes of this low level of access is misinformation, the lack of institutions for training young farmers, the difficult bureaucratic requirements that restrict the signing of credit agreements, and the fact that bank agents often assume that young people's inexperience in managing resources will lead them to default.

However, access to technical knowledge is higher among young people under 35 than the average among family farmers in the project area. The quantitative evidence available from the 2017 Agricultural Census indicates that, among young FA managers (under 35), 18.5% received TA compared to 16.8% of all family farmer managers. Despite the higher percentage of access, it can still be said that access to TA among young people is limited. Breaking it down by gender, access to TA was 18.1% among young women and 18.6% among young men, so there is a small access gap of 0.5 percentage points, equivalent to 2.8%, between young male and female managers.

During the field visits carried out during the PROCASE II design mission, an additional growing problem faced by rural youth was identified - vulnerability to violence associated with drug trafficking.

## ***Diversity***

### ***People of African descent and Traditional Peoples and Communities (TPCs):***

Indigenous peoples and quilombola communities are particularly vulnerable due to the historical dynamics of exclusion, high dependence on natural resources, marginalization of their ways of life, exclusion from formulating and accessing public policies and poor access to services, including health, education, sanitation, infrastructure and technical advisory services. In Paraíba, the Indigenous Lands (IL) are located in the coastal region. The Potiguara, with a population of approximately 19,000, are concentrated in three indigenous lands (CARDOSO; GUIMARÃES, 2012) located in three municipalities in the Mata Norte region. In the Mata Sul region there is a population of approximately 750 Tabajara indigenous people, but there are still no Indigenous Lands in this region. On the other hand, the 2022 Demographic Census recorded a population of 16,584 quilombola inhabitants in 6,127 households in the entire state of Paraíba. These population figures include all the inhabitants recognized as quilombolas - both those who live and those who don't live in officially delimited Quilombola Territories. In Paraíba there are 47 quilombola communities with recognized certificates of self-definition. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have officially delimited territory and none have land titles. There are also traditional gypsy populations, artisanal fishermen and shellfish gatherers in the state.

This population is impacted by the combined effects of various forms of discrimination, including gender, race and socio-economic conditions. Root causes of this exclusion are the marginalization of traditional ways of life and structural racism. Afro-descendant and PCT populations face even greater obstacles than family farmers in participating in decisions that affect their territories and in fully realizing their rights, with significant gaps in inclusion in terms of poverty, food insecurity, access to education, TA and land.

In 2023, 67.9% of quilombolas and 73.1% of indigenous people were in poverty or extreme poverty, an average higher than the average percentage of poverty in Paraíba (53.9%). In 2022, 33 million Brazilians were hungry (severe food insecurity) and food insecurity was more prevalent among people of African descent (reaching 6 out of every 10 households whose heads of household identify themselves as black or brown), with women of African descent being the most vulnerable. In terms of education, among the population of white family farmers in the project area, illiteracy reached 39.9% of those responsible for PA establishments, while among those of African descent, it reached 48.1%. With regard to access to Technical Assistance, among white family farmers, 7,694 accessed TA (17.7%), and among Afro-descendants, 12,961 or 16.1% of the total. The gap between white and Afro-descendant family farmers in access to TA is 1.6%. Furthermore, among white family farmers, 77.7% have title deeds, among indigenous farmers, only 44.6% and among Afro-descendants, 70.3%. It should be noted that none of the quilombola communities in Paraíba have land titles.

To help close the various gaps in the inclusion of Afro-descendants and TPCs identified, the project will have specific actions dealing with diversity issues and will prioritize the Afro-descendant and TPC population in the actions of all its components, such as access to TA, land and environmental regularization, access to water and sanitation infrastructure and productive investments. In addition, through Diversity training meetings, as well as cultural recovery activities in the communities benefiting from the project, the valorization and dissemination of traditional knowledge, practices and ways of life in production, food and natural resource management will be promoted, as well as issues related to racism.

People with disabilities. The Northeast is the region with the highest percentage of people with disabilities in Brazil: 10.3% of the population or around 5.8 million people. The highest percentages of people with disabilities are women and people of African descent. According to data from the Si Registry (November 2023), there are 144,655 people with disabilities in the project area, or around 5.6% of those registered.

Disability and poverty are closely linked in Paraíba, with people with disabilities facing significant stigma and discrimination. For example, this group has lower success rates at school and more limited access to economic activities, both of which are major factors contributing to family poverty. In the state, 88.7% of people with disabilities do not work and 74.4% earn less than the minimum wage.

Persons with disabilities face a number of challenges throughout their lives. Children with disabilities dropping out of school is a serious problem across the country. There is a relatively high number of single-parent families headed by women who receive the main tax-funded disability benefit in Brazil, the Continuous Social Assistance Benefit, and this may be related to the high rate of family abandonment by parents who have a child with a disability. The data highlights that people with disabilities do not achieve parity with their non-disabled peers at any level of education. This puts them at a significant disadvantage in a competitive job market. In Paraíba, 24.92% of persons with disabilities are not literate, 37.48% have only primary education and only 4.07% have higher education.

There are some additional gender dimensions that impact the challenges that people with disabilities face. For example, women and girls with some forms of disability are at high risk of abuse, and this is especially the case for those with cognitive disabilities. Furthermore, until the Brazilian Inclusion Law (2015) was enacted, it was still routine for women with cognitive disabilities to be sterilized without consent. Caring for people with

disabilities also has a significant gender dimension. In general, women face the double burden of needing to both earn money and provide care, but this burden is only exacerbated when family members are also disabled. It should also be noted that disabled women can also have a disproportionate burden of care placed on them, as they can still be expected to care for other members of their family.

LGBTQIAPN+ population . . The absence of government data on the socio-economic and political challenges faced by the LGBTQIAPN+ community is indicative of the statistical 'invisibilization' and marginalization of this group. The lack of a social assistance policy, the rural exodus of the LGBTQIAPN+ population to urban centers, the lack of family support, limited access to income and low employability in the countryside, the difficulty of staying in the school environment due to prejudice, especially from the trans population, are some of the factors that favor maintaining the invisibility of data on the LGBTQIAPN+ population in rural areas.

Throughout Brazil, the LGBTQIAPN+ population has been victimized by different forms of LGBTIphobia, placing this group in a situation of vulnerability because they do not fit into a socially referenced heteronormative pattern. Brazil is an extremely unsafe country for this population, as indicated by the upward trend in the number of violent deaths of LGBTQIAPN+ people over the last two decades. Between 2000 and 2022, 5,635 (five thousand six hundred and thirty-five) people died because of gender prejudice and intolerance. In 2022, there were a total of 273 deaths of LGBTQIAPN+ people, a national average of 1.31 deaths per million people. Most of the deaths occurred among young people aged between 20 and 29 and the Northeast region had the highest absolute number of violent deaths. It is possible to relate the number of LGBTQIAPN+ deaths in each Brazilian macro-region to the social, economic and cultural conditions of these spatial units. The Northeast, for example, has historically had lower socio-economic indicators, such as income, schooling, access to public services and life expectancy than the rest of the country, and has a significant vulnerable population. Among the Federative Units, the ones with the highest number of deaths were Ceará (34), São Paulo (28) and Pernambuco (19). According to the Observatory of LGBTI Deaths and Violence in Brazil, 8 violent deaths of LGBTQIAPN+ people were recorded in Paraíba in 2022.

Paraíba recorded 68 cases of violent deaths of the LGBTQIAPN+ population between 2017 and 2022, according to data released in a report by the Secretariat for Women and Human Diversity. In total, 24 municipalities in Paraíba recorded cases. João Pessoa has the highest number of cases, with 29 crimes, followed by Campina Grande and Bayeux, with five cases each, and Patos was in third place, recording four crimes. Gay men represent the largest number of murders in Paraíba, leading with 17 of the 29 cases between 2020 and 2022, followed by transvestites who represent six cases in the same period, and in third place are transgender women, with 4 crimes.

Partial data for 2023 from the Observatory of LGBT Deaths and Violence in Brazil, from January to April, totaled 80 deaths. To date, transvestites and trans women account for 62.50% of all deaths (50); gay men account for 32.50% of cases (26 deaths); trans men and transmasculine people, 2.50% of cases (2 deaths); lesbian women account for 2.50% of deaths (2 deaths); no cases against bisexual people and people identified as other segments have been identified.

PROCASE II includes the LGBTQIAPN+ community as one of its target audiences. The project will consider LGBTQIAPN+ diversity, support their inclusion and respect for their rights in the context of its interventions. Initially, the Project will map LGBTQIAPN+ communities and their social movements and carry out consultations to listen to their

needs and research to understand the socio-economic and political challenges they face. Based on this diagnosis and consultations, the project will seek to define a social inclusion strategy for this group. The proposed activities could include: (i) Awareness-raising campaigns on the rights of the LGBTQIAPN+ community and against LGBTphobia; (ii) Preparation, in partnership with LGBTQIAPN+ movements, of didactic dissemination materials that can support awareness-raising campaigns in schools and rural communities regarding LGBTQIAPN+ rights; (iii) Promoting consultations and collaboration with rural LGBTQIAPN+ movements, such as the LGBT Working Group of the MST; (iv) Diagnosing the socio-economic and political barriers to inclusion of this group in the state of Paraíba, especially in rural areas; (v) Supporting rural LGBTQIAPN+ movements.

### **Nutrition and Food Safety**

Food Insecurity (FI) : According to the II VIGISAN , food insecurity (FI) in 2021/2022 affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it reached 68% of households, where 12.1 million people are going hungry, i.e. at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly hard hit. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of FI were observed in the families of family farmers who were still unable to return to pre-pandemic conditions, especially those who were unable to fully re-establish their production and marketed quantities. More recent research by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger).

Nutrition. Despite the process of nutritional transition, with increased access to food, the state of Paraíba follows the national trend and the rest of the Northeast region and faces a double burden of malnutrition, marked by both malnutrition and an increase in the prevalence of overweight. Among adults in Paraíba, 62.5% are overweight (35.5% overweight and 27.0% obese). Growth retardation affects 4.9% of children under 5, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8%.

The situation in Paraíba is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to have socio-economic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% in the rest of Brazil.

The main root causes of food and nutritional insecurity in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and the low levels of food and nutritional education. It is worth highlighting the direct correlation between food and nutritional insecurity and poverty rates (69.9% of family farmers registered in the Single Registry in the Project area live in poverty or extreme poverty) and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality of water sources). Access to quality water and sanitation plays a fundamental role in



combating different forms of malnutrition. According to data from the Water and Sanitation Institute from 2019, the rural water service index in Paraíba is 24.2% compared to 92.2% in the state's urban areas. In relation to sanitation, the rural sewage collection service rate is 2.7% in Paraíba compared to 50.1% in urban areas.

To tackle the causes of malnutrition and food insecurity, PROCASE II will support agro-ecological gardens, the valorization of Non-Conventional Food Plants (NCFPs) and support for access to water. Among the most common NCFPs in the state are the cactaceous plants which include species such as *Mandacaru*, *Quipá*, *Xique-xique*, *Palmatória*, *Facheiro* and *Coroa-de-frade*. These plants are characterized by the presence of thorns and slimy stems, which allow them to survive dry climates and high temperatures. This will aim to increase the availability of food for the most vulnerable families, increase the availability of water for human consumption and thus improve their food and nutritional security, while also limiting the diseases responsible for the malabsorption of micronutrients. The project will also have a cross-cutting sub-component, in which a Nutrition and Food Security Plan will be drawn up and implemented, focusing on exchanges and training. These actions will enable adults and young people to learn about good food practices, culinary practices and gastronomic culture, and will respond to the needs of families and target groups in terms of processing and promoting their products, particularly those from family farming. All these practices will be integrated into the design and implementation of the Resilient Investment Plans (RIPs), thus seeking effective implementation and results in terms of food and nutritional sovereignty.

### ***The problems of land and environmental regularization***

Land and environmental regularization of rural properties is a big challenge faced by family farmers, especially regarding properties in priority groups. Since at least the 19th century, the instrument that attested to the regularization of a rural property was the title registered at a notary's office. Many of Paraíba's peasant communities have occupied land for generations. In some cases, the properties may even have had a registered title in the past, but the inheritance/inventory processes didn't go through the notary's office. Furthermore, in countless other cases, purchase-sale transactions and other forms of access to land have never gone through the regularization process. There are also other cases, such as federal and state settlements, made up of families who are accessing land but have not completed the regularization process.

In this same context, the case of land owned by quilombola communities - which formally would be vacant land awaiting state action in order to be regularized - deserves special mention, as does the case of Agrarian Reform settlers. As mentioned in the previous section, in Paraíba there are 47 quilombola communities with recognized certificates of self-definition, with approximately 16,000 people. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have their territory officially delimited. Information provided by INCRA's Superintendence in Paraíba confirms that none of the quilombola communities in the state have land titles. In the case of the Agrarian Reform settlers, it is worth mentioning that there are 280 federal settlements in the state, according to data collected from INCRA's Superintendence in Paraíba, with 13,535 settled families. Of these, only 1,835 (13.5%) have land titles.

In addition, a recent law - the Georeferencing Law (Law 10.267/01) in force since 2001 - changed the formal requirements for land regularization, requiring the owner of rural property to inform the National Institute for Colonization and Agrarian Reform (INCRA)

of its exact position, characteristics and extension, as well as its adjoining landowners, for registration in the National Rural Registration System (SNCR) and inclusion in the Land Management System (SIGEF), which became requirements for full regularization. With this, a general and unique land registry was created in Brazil for the first time, with the intention of better organizing a dimension of the rural world that presents major difficulties.

This whole situation means that, today, many family units in Paraíba do not have full legal documentation and do not have formal recognition of their properties. In many cases, not even the owners are fully aware of the situation. The lack of land regularization weakens the situation of farming families/communities in land disputes and conflicts. It also prevents the issuance of permits and licenses of various kinds (such as licenses issued by environmental agencies or water permits necessary for the exploitation of wells or the use of springs) and can hinder access to credit and pensions. The lack of land regularization can lead to legal insecurity, social vulnerability and limitations on access to rights and benefits. This situation directly harms the quality of life of these communities, hindering their sustainable socio-economic development.

On the other hand, there are also problems in the environmental regulatory dimension. The Rural Environmental Registry (RER –CAR on its Brazilian acronym), established by the Brazilian Forest Code of 2012 (Law 12.651/2012), is an important instrument for monitoring and environmentally regularizing rural properties. In Paraíba, the CAR has been widely implemented since it was made compulsory in 2012. However, this instrument still faces important challenges, mainly related to the lack of precision in the delimitation of rural properties, compromising the reliability of the information recorded. There are just over 181,000 establishments registered with the CAR in Paraíba, which is 11% more than the total number of establishments (163,000) in the state. This results in overlapping areas between properties, generating land use conflicts, legal uncertainties and even difficulties in the analysis that must be carried out by the relevant environmental agencies and in defining responsibilities and environmental preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of the CAR.

### ***The shortcomings and potential of Knowledge Management, South-South and Triangular Cooperation actions.***

When it comes to designing policies, programs or projects aimed at tackling the challenges of poverty, environmental sustainability and resilience to climate change, there is a lack of relevant information available on experiences of promoting/supporting inclusive sustainable rural development. In recent years in Paraíba, PROCASE I began systematizing experiences in an attempt to compensate for this lack, with the production and subsequent circulation of a set of products (documents, audio pieces, etc.) which recorded and disseminated relevant knowledge about the work carried out in the Cariri, Curimataú, Seridó and Médio Sertão territories in the semi-arid region of Paraíba. In parallel, other IFAD-supported projects in the Brazilian Northeast have also begun to work in the same direction.

The idea of South-South and Triangular Cooperation is part of this set of initiatives related to the circulation of knowledge between countries in the South, including the funding bodies themselves.

In this context, a Knowledge Management initiative transversally strengthens the implementation of all project components, ensures that knowledge gaps are closed and that good practices, lessons learned and innovations are disseminated and scaled up, as well as facilitating the impact on public policies. To be effective, PROCASE II must make use of the best and most relevant knowledge available on strategic topics for the implementation and achievement of its objectives, based on evidence and practical experience from sources both internal and external to the project.

Thus, Knowledge Management (KM) should play an important role in building individual and institutional capacities so that the actors supported learn and can adapt their interventions when necessary. It is also a key tool for measuring and demonstrating the relationship between learning and better development results. CG is also justified as a means of ensuring that beneficiaries, technicians, project staff and other actors involved in implementation access, use and share the knowledge, good practices and innovations needed for greater impact in promoting sustainable and inclusive rural development.

### 2.3 Objectives of Project

The project aims to reduce rural poverty levels, improve food and nutritional security and adapt the rural population to climate change.

The main specific objectives are:

- Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change;
- Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (TPC) and persons with disabilities;
- Improving the environmental conditions of rural communities and their surroundings;

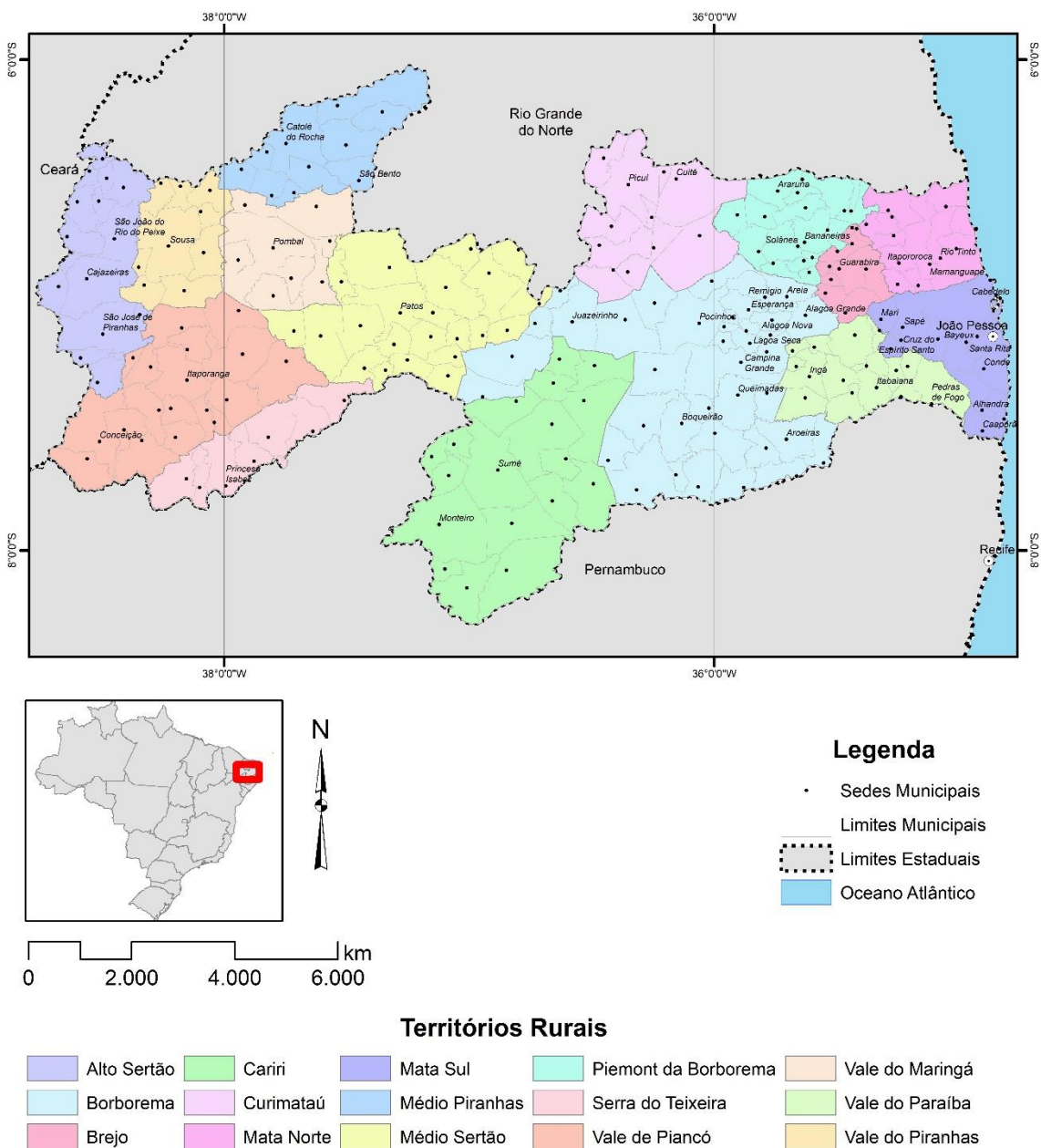
### 2.4 Project Area

The project will cover the entire state of Paraíba, involving its 223 municipalities (see figure below), which are distributed between the Caatinga (194) and Atlantic Forest (29) biomes. The Agricultural Census (IBGE 2017) shows a total of 163,218 agricultural establishments, 76.88% of which are family farms, providing a potential universe for the project.

The project will seek to serve approximately 60,000 families as direct beneficiaries, establishing a preferential focus on the following profiles: women, young people, people with disabilities, Traditional Peoples and Communities and indigenous peoples (including fishermen, gypsies and quilombolas). In any case, specific criteria will be defined for prioritizing and selecting the communities to benefit.

The following map shows Proc case II's area of operation.

**Figure 1 - Area covered by the Project**



Source: IBGE, 2015 - elaboration: Consultoria.

## 2.5 Budget from Procasse II

The total amount planned for Procasse II is 105 million dollars, which will benefit an estimated 600 communities.

**Table 1 - Estimated PROJECT costs (in US\$)**

Components and sub-components	Total Value
<b>C1. Resilient production systems to reduce rural poverty</b>	<b>62.416.000</b>
<i>S1.1 - Implementing resilient biodiverse production systems</i>	56.416.000
<i>S1.2 - Strengthening and diversifying marketing</i>	6.000.000
<b>C2 - Organizational and Farmer Capacity Building and Knowledge Management</b>	<b>32.302.800</b>

<b>Components and sub-components</b>	<b>Total Value</b>
<i>S2.1 - Strengthening the Capacities of Family Farmers</i>	19.252.800
<i>S2.2 - Strengthening Organizations' Marketing Capacities</i>	2.730.000
<i>S2.3 - Diversity, Gender, Youth, Nutrition and Food Security</i>	4.600.000
<i>S2.4 - Land and Environmental Regularization, and Access to Public Programs and Policies for Family Farming</i>	2.600.000
<i>S2.5 - Innovation, Knowledge Management (KM), South-South and Trinagular Cooperation (SSTC)</i>	3.120.000
<b>Project Management, Monitoring &amp; Evaluation</b>	<b>10.281.200</b>
<i>Project Management</i>	8.981.200
<i>Monitoring &amp; Evaluation (M&amp;E)</i>	1.300.000
<b>TOTAL</b>	<b>105.000.000</b>

## 2.6 Description of the components

The PROCASE II components are presented below, highlighting the main information that describes them, including their sub-components.

### Component 1: Resilient Production Systems to Combat Rural Poverty

The aim of this component is to increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change, as well as improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities and people with disabilities .

The specific objectives are:

- Transform existing systems by introducing innovative, more intensive and diversified agroecological practices;
- Seeking greater resilience of production systems adapted to climate change;
- Promote improved food and nutrition security;
- Improving the integration of producers into value chains, prioritizing women, young people, people with disabilities, Traditional Peoples and Communities , indigenous peoples, fishing communities and gypsies;
- Make investments in social technologies, ensuring better access to and reuse of water, and sustainable energies;
- Supporting producer organizations (associations and cooperatives) to enable the processing of production, adding value and, consequently, improving marketing and market insertion, through investments in machinery and minor renovations;

Productive investments, both at community level and at cooperative level, will be accompanied by TA and STA respectively, financed by Component 2, in order to guarantee better business management, marketing and sustainability.

Component 1 is organized into two sub-components: 1.1: Implementing Resilient Investment Plans; and 1.2: Strengthening and diversifying marketing.

### **Subcomponent 1.1. Implementing biodiverse and resilient production systems**

The aim of this sub-component is to strengthen and adapt production systems based on the use of agro-ecological practices and low greenhouse gas emissions, seeking greater resilience and allowing for an improvement and diversification of healthy food production for self-consumption and the market. It is hoped that these activities will improve families' food and nutritional security, while at the same time helping to improve their income.

Investments will also be made in social technologies (small water and energy infrastructures), which play a fundamental role in building and strengthening more resilient production systems and improving the basic living conditions of families.

The technical characteristics of the production proposals supported by the project will be adapted according to the specific agro-climatic characteristics of each biome.

#### ***Product - Resilient Investment Plans (PIR)***

It will be the main instrument for planning and implementing the resources of this subcomponent. It will have a territorial focus and will be prepared with one or more communities, with the support of TA. Each PIR will be carried out by an existing community association, representing the beneficiary community or communities, with which the project will sign an agreement establishing its obligations and rights. The project will pass on the funds provided and the association will make the purchases and contracts provided for in the PIR, reporting back to the project with the support of technical assistance.

The scope of the PIR will be a Local Territory, made up of up to three communities, and the beneficiaries will be the families in these communities. The PIR will support productive activities (new or reinforcing existing activities) geared towards adapting to climate change, with the potential to guarantee food security and improve income through the sale of surpluses. It aims to incorporate concepts of good production practices based on the principles of agroecology, nutritional education and food security for families, as well as ensuring integration with social technologies.

The PIR will finance three areas of intervention: i) Productive and commercialization ii) Environmental and iii) Social Technologies, between which complementarity and synergy will be sought in order to promote sustainable change. As shown below:

**Productive and marketing axis:** The aim will be to develop productive systems at the family level, always based on the use of agro-ecological practices with a low impact on greenhouse gas emissions. This axis will also strengthen capacities to market production in the various channels accessible to families (local fairs, PAA, PNAE, local commerce, etc.) and relevant to the beneficiaries, such as: i) Agroforestry systems (SAFs) for diversified production, goat and sheep farming for milk and meat, dairy cattle farming, and free-range poultry farming; ii) Backyards for fruit and vegetable production, including PANC and medicinal plants; iii) Beekeeping and Meliponiculture; iv) Agroecological consortia for organic production, including cotton. It is important to mention that in the case of support for cattle breeding, the project's strategy will be to support dairy production exclusively (it will not be possible to support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, with the exception of the purchase to replace breeding stock. The list is not exhaustive and other activities may be considered, as long as they

are in line with the demand of the beneficiaries and the objectives and criteria of the project.

Compared to the first phase of PROCASE, which focused on the semi-arid region of the Caatinga biome, the PROCASE II management team will have to pay close attention to identifying relevant proposals for developing productive activities with the potential to adapt to climate change in the Atlantic Forest biome.

All the activities supported under this Productive and commercialization axis will be in accordance with the Environmental and Social Management Plan (PGAS) of each PIR and with the project's Strategic Environmental and Social Management Plan (ESMP).

Extractivism, both in the Caatinga biome and in the Atlantic Forest biome, could also be supported through PIRs, both to enhance non-timber products such as fruit, fibers and lianas, seeds, honey from native bees and other bio-economic products. As it includes an important coastal area, the improvement of artisanal fishing activities, including shellfish gathering, which is generally carried out by women, could be considered when drawing up the RIPs.

In addition to these activities, and considering that part of the project's area of operation has strong potential, economic diversification activities based on tourism (particularly in the coastal Zona da Mata) and handicrafts could be developed through the PIR. These non-agricultural activities, which generally involve women and young people, will be very relevant and in line with the project's objectives.

The Productive and Commercialization Axis will focus on actions to sustainably strengthen primary production and the commercialization of products generally in natura and on the local market. TA will encourage and support the establishment of partnerships with cooperative production processing units supported by the project through subcomponent 1.2. This should make it possible to add value to primary production in order to reach other types of market.

**Environmental Axis:** The aim is to manage and restore the environment, whether or not it is associated with the activities of the RIP's Productive Axis at Local Territory level.

They will have specific resources for collective use to encourage the implementation of territorial environmental actions, such as: i) Casas de Sementes da Paixão (Seed Houses of Passion); ii) Implementation of nurseries with a focus on the production of native species; iii) Reforestation, recovery of permanent preservation areas (springs) and degraded areas; iv) Soil and water protection actions; v) Recycling or composting plans, etc. These actions will be implemented in each territory by an environmental management group made up of project beneficiaries, in which the participation of Local Development Agents (ADL) will be prioritized, as key players in introducing environmental education actions and new environmental practices. To implement these actions, synergies and complementarities will be sought with the actions and competencies of SEMAS (Secretariat for the Environment and Sustainability) and AESA (Executive Agency for Water Management), the State Superintendence for the Environment (SUDEMA), the National Semi-Arid Institute (INSA), Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Empresa Paraibana de Pesquisa, Extensão Rural e Regularização Fundiária (EMPAER), Universidade Federal de Campina Grande (UFCG), Universidade Estadual da Paraíba (UEPB), Universidade Federal da Paraíba (UFPB) and other institutions.

The activities of the Environmental Axis will mainly stem from the Environmental and Social Management Plans (PGAS), which will be drawn up at the same time as the diagnosis of each PIR. The ESMP will provide a simplified analysis of environmental and social impacts in order to promote and encourage the adoption of environmental and agro-ecological practices. Environmental activities will be carried out with the support of TA, which will also take care of production and marketing.

**Social Technology Axis:** The aim of this axis is to implement social technologies at the family level, such as: i) second-water cisterns (agricultural production); ii) a water harvesting system; and iii) trench dams (underground dams). In addition to these technologies, 1st water cisterns (human consumption) and other household sanitation solutions such as evapotranspiration basins, or access to more sustainable domestic energy, such as biodigesters and eco-efficient stoves, will also be implemented.

The social technologies will be implemented by entities contracted by the PMU specifically to provide TA for this axis, taking into account the specific nature of the TS and the legal framework targeted. These entities will be trained by PROCASE II, although most of them have the experience to do so. In addition to implementation, these organizations will also provide training to ensure that these technologies are properly appropriated, used and maintained by the families.

The connection and complementarity between the productive, environmental and social technology axes should be sought and highlighted when drawing up the PIRs, with the aim of maximizing the results of the investments made by the project.

In each of these areas, priority will be given to the introduction of innovative practices and technologies, particularly those that will be supported through Subcomponent 2.5, such as mechanization and the use of tools and equipment adapted to the reality of family farming, with a focus on vulnerable groups such as women, young people and the disabled.

The PIRs will also be able to support the strengthening of the functioning of community associations through the purchase of specific equipment, for example, to improve connectivity, such as audio visual material, etc.

**General aspects about the RIPs:** During the implementation of the PIRs, in addition to a close and permanent synergy with TA actions (including specialized TA in cases where it is justified) and the strengthening of community organizations, complementarities will be established with other Component 2 activities, such as: land and environmental regularization; innovations; actions related to diversity, gender, youth, PCT and families with persons with disabilities.

The PIR will benefit groups of families, prioritizing women, young people, traditional communities and the persons with disabilities, and will finance inputs, tools, equipment and other investments needed to enable the adoption of technologies to improve productivity, adapt to climate change, and improve food and nutritional security.

The investments will be financed with non-reimbursable resources and with an economic counterpart from the beneficiaries of at least 10%.

In all cases, the activities selected will come from the Participatory Rural Diagnosis, which will identify not only the demands, but also the problems, priorities and potential demands of the beneficiary communities and families. These activities must meet eligibility criteria which will be detailed in the Project Operational Regulations (ROP) and present: i) high adherence to the productive means characteristic of the biome, region



and community, ii) allow for productive intensification based on the principles of agroecology, as well as adaptation to climate change and iii) follow the full agreement of the families involved.

The same PIR can support more than one productive activity or environmental axis and include the implementation of various types of Social Technologies, thus seeking coherence with the reality of family farming in order to meet the demands of the communities in a diversified way, and can guarantee the inclusion of various profiles of beneficiaries, particularly women and young people. In these cases, the beneficiaries will be organized into interest groups around the activities selected to make up the RIPs.

During the process of drawing up the PIRs, the integration of new members and partners into existing organizations will be encouraged, giving priority to women, young people and families with persons with disabilities.

**Provision of Technical Assistance and Rural Extension (TA) services:** All PIR beneficiaries and their organizations will receive TA services for two years, contracted by the PMU through a competitive process that meets IDB/IDA standards. These services will be financed by Subcomponent 2.1, in which they are presented in detail. They should enable the beneficiaries to be strengthened and advised on how to design, implement, monitor the operation of and complete the RIPs. This includes advice on production from an agro-ecological perspective and adaptation to climate change, management, organization, access to public policies and marketing, guaranteeing compliance with current health and environmental legislation. The support provided by the TA entities should include support for the beneficiaries to carry out the procurement and accounting processes related to the implementation of the PIRs, considering that the financial resources will be transferred to the beneficiary associations through the procedure defined in the AOP. In the selection of TA services, criteria will be applied that allow for the inclusion of women technicians in the teams, with a view to being as adherent as possible to the specific needs of women and to proposing the most appropriate solutions for the women beneficiaries of the Project's actions. For example, it will be a selection criterion for TA organizations to have a minimum percentage of 30% women on their teams.

In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of the Social Technologies and training the beneficiaries to apply good use and maintenance practices.

**Planned Actions and Products:** The actions planned in this product involve: (i) identification of communities; (ii) community eligibility criteria; (iii) prioritization and selection of communities; (iv) Resilient Investment Plan Drafting Process; (v) drafting of RIPs; (vi) parameters for drafting RIPs; (vii) investments eligible for funding; (viii) fundable Climate Adaptation investments; (ix) fundable Climate Mitigation investments; (x) ineligible investments; (xi) PIR approval process; (xii) evaluation and prioritization criteria.

Details of the planned actions can be found in the **Annex 8.5** of this SESA.

## **Subcomponent 1.2 - Strengthening and diversifying commercialization**

This sub-component aims to improve marketing and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives.

It aims to strengthen cooperatives by means of a Business Plan (PN), with a view to consolidating their management capacities, adding value, diversifying their commercial offer and accessing markets under better conditions. Rather than seeking to create new cooperatives, priority will be given to existing cooperatives to improve their management capacities and those with operational weaknesses.

### **Product - Business Plans**

The preparation of these PNs will take into account the strengthening of production carried out in subcomponent 1.1 through the PIR, with the aim of integrating producers into these cooperatives in order to access the market.

The development of the PN will seek to diversify the markets accessed. In addition to institutional markets, such as PNAE and PAA, other players will be sought, mainly from the private sector. The project will seek to include the organizations in the Regional Information System for Family Farming in the Northeast (SIRAF), created by the Northeast consortium and which has been offering a new channel for establishing contact between producers and buyers.

Business Plans (PNs) will be the main instrument for implementing the subcomponent and will be drawn up with producers' economic organizations, usually cooperatives. The PNs should make it possible to finance structuring investments that could benefit family farmers, including the producers benefiting from the RIPs. Specialized technical assistance services (STA) specially dedicated to the PNs and to strengthening the capacities of the beneficiary organizations will also be financed by the PNs.

The PNs should allow for the implementation of competitive mechanisms, oriented towards innovative and environmentally sustainable solutions, to strengthen network marketing and cooperative centers.

Investments will be focused on existing organizations that have weaknesses in their management processes, that are unable to achieve sufficient levels of commercialization, that find it difficult to comply with environmental and health legislation, or that operate below their capacity. In these cases, the project will strengthen the capacities of the management teams, support the improvement and modernization of equipment and facilities, improving the processing and diversification of products, with a focus on adapting and/or expanding the physical infrastructure (such as processing and storage areas), with the aim of also meeting the health and environmental standards for obtaining certifications (SIF, organic certification, distinctive collective seals, valuing sustainable products from the Caatinga and Atlantic Forest biomes, etc.). Where relevant, the development of participatory guarantee systems (PGS) geared towards certification processes will also be supported. Subcomponent 2.2 will make an important contribution to these activities and complementarities will be built.

In exceptional cases, the project's support may be directed towards structuring the productive capacity of a cooperative, operating within the supported production chains.

These cases will be specific and subject to prior feasibility analysis, taking into account in particular the existence of other similar ventures in the project area.

Strengthening the capacities of the cooperatives' teams will be a key point of the PNs, which will address the issue of best processing practices, as well as others, such as administrative and financial management. In this case, courses are planned on good management practices and the organization of production, processing, adding value, financial management, institutional strengthening, marketing strategies, etc. The management teams of these enterprises will be the main beneficiaries. These courses will mainly be carried out through specialized consultancies (such as individual consultants, EMPAER, EMBRAPA, SEBRAE, SENAR, etc.).

The preparation of the Business Plans will include a diagnosis of the organization's situation, clearly identifying the most important problems and difficulties encountered and also the opportunities that can be seized. The PNs may include agricultural activities of primary production, processing and marketing of this production. Other economic initiatives can also be included, such as handicrafts, community-based tourism and others, provided they have the potential to generate income in a sustainable way. As the object of these plans will be 'business' related, involving production and market issues, it is necessary to include more detailed information such as a 'map' of the production chain identifying flows and actors, an analysis of the products demanded by the market and their trends (volumes, prices), an analysis of the competition, a strategy for operating in the market, a sales plan and an investment management strategy. The Business Plan will identify the material investments that will have to be made (construction/refurbishment, machinery, equipment, etc.). In addition, it should point out the training needs (which may cover production, marketing, administrative and financial management, or other dimensions) that the implementation of the Business Plan will require.

**Provision of Specialized Technical Assistance (STA) services:** Considering the capacities found in the organizations in the region served by the Project, it will be necessary to contract STA services for the preparation and implementation of all the Plans. These services will be contracted by the PMU, through a competitive process that complies with IDB/IDAF standards, with funds provided in the budget for Subcomponent 2.2. However, in certain cases and when the beneficiary organization shows experience and capacity, it could take on the responsibility of contracting the STA directly.

Individuals or legal entities may be contracted to provide these services. The criteria for selecting providers will include: i) experience in providing consultancy services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.

STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and also to meet demands not included in the business plans it supports. Opportunities for cooperation and alliances with the private sector will also be sought whenever possible.

**Planned Actions and Products:** The actions planned in this product involve: (i) Identifying and selecting beneficiary organizations; (ii) Drawing up the PNs; (iii) Eligible investments for financing; (iv) Types of Climate Adaptation investments that can be financed; (v) Types of Climate Mitigation investments that can be financed; (vi) Non-eligible investments for financing; (vii) Criteria for evaluating and prioritizing the PNs; (viii) Implementing the PNs.

Details of the planned actions can be found in the **Annex 8.5** of this SESA.

## **Component 2 - Strengthening Family Farming Capacities and Organizations and Knowledge Management**

The aim is to strengthen the individual and collective capacities of family farmers and their organizations, necessary to increase the adoption of agricultural technologies that promote greater resilience in their systems, to improve productive and social inclusion, as well as the environmental and land conditions of rural communities and their surroundings.

The capacities strengthened through the component will be an essential tool for implementing the investments and innovative practices promoted by Component 1.

To help achieve the project's general objectives, the component will develop a set of activities with the following specific objectives:

- Strengthen the capacities of families and community organizations to implement more resilient and productive production systems, to better manage organizations and to access public policies;
- Strengthening the capacities of rural organizations so that they can develop their production and access markets;
- Strengthen the specific capacities of priority audiences in the areas of gender, youth, TPCs, persons with disabilities, LGBTQIAPN+ population to promote their empowerment.
- Promoting the land and environmental regularization of family farming establishments, agrarian reform settlements and quilombola communities.
- Implementing a knowledge management (KM) and South-South and Triangular Cooperation (SSTC) process to generate, record, share and use relevant knowledge.

The sub-components involved in this C2 are presented below. The full details of each sub-component can be found in the Annex 8.6.

### **Subcomponent 2.1. Developing the Capacities of Rural Community Organizations**

The component will focus on strengthening the capacities of beneficiary families and community organizations, considering the weaknesses identified in various areas, with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations.

It will finance the contracting of Agroecological Technical Advisory Services to carry out activities aimed at increasing beneficiary families' access to adequate, quality information. The main themes to be addressed by Technical Advisory Services will be

the development of more profitable, diversified and resilient agricultural production, the protection and recovery of environmental resources and the improvement of organizational management. It will also seek to integrate them more closely into different value chains in the region, with initiatives to support processing and marketing. And finally, the subcomponent will seek to strengthen the Technical Advisory Services teams contracted to ensure the good quality of this service.

### ***Actions planned***

- Provision of agro-ecological Technical Advisory Services services in communities
- Complementary training/exchange events for farmers, including association leaders.
- Events to improve Technical Advisory Services teams
- Training family farmers in public policies

Approximately 18,000 families will benefit from Technical Advisory Services , of which 50% should be represented by women, 30% by young people and at least 20% by Traditional Peoples and Communities. Part of this same public (approximately 2,600 people) will be served with complementary training events. Approximately 150 technical Technical Advisory Services agents will also be trained.

The Public Policy courses should benefit a total of 32,000 families, of which 50% should be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

### **Subcomponent 2.2. Strengthening Family Farming Organizations for Market Access**

The aim of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) served by the project. Groups/organizations of farmers will also be worked with in order to create or strengthen local fairs and small marketing centers. In the context of improving marketing conditions, the project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories / 'consortia of municipalities'.

The aim is to help family farming organizations and their products enter diversified marketing channels, generating more income for the families who benefit from them.

### ***Actions planned***

- Provision of Specialized Technical Assistance (STA)
- Initiatives to strengthen fairs and marketing centers
- Pilot implementation of the Participatory Guarantee System (PGS)
- Structuring Municipal Health Inspection Services

The provision of STC services will work with 60 Business Plans from economic organizations, benefiting approximately 5,000 families, of which 50% must be represented by women, 20% by young people and at least 5% by Traditional Peoples and Communities and 2% by the persons with disabilities.

The initiative to strengthen local fairs and marketing centers will work with 50 units (fairs and centers), benefiting approximately 800 families.

It is planned to set up 2 Municipal Consortia Health Inspection Services, as well as 15 participatory guarantee systems (SPG).

### **Subcomponent 2.3. Gender, Youth, Diversity, Nutrition and Food Security**

This sub-component will aim to promote the empowerment of women, young people, TPCs, LGBTQIABP+ and persons with disabilities, as well as improving the nutrition and food security of beneficiary families. The activities will work with the project's cross-cutting themes, strengthening and supporting the integration of these themes into all the components.

#### **Focus on gender and diversity**

The project will take a holistic approach to transforming gender relations, promoting the inclusion of Afro-descendants and TPCs, the LGBTQIAPN+ community and people with disabilities, focusing on the environmental, economic, political and cultural causes of the social vulnerability of these groups. In order to transform unequal power relations, shaped by patriarchal and exclusionary structures, norms and practices, as well as empower women, Afro-descendants and TPCs, the LGBTQIAPN+ community and people with disabilities, the following transformation paths will be followed:

- i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development,
- ii) dealing with the issue of women's overload due to domestic and care work, promoting a fairer division of the workload between men and women,
- iii) empower target groups to have a greater voice and decision-making power in rural institutions and organizations,
- iv) promoting advocacy in policies for women, young people and TPCs,
- v) preventing gender-based violence, v) valuing traditional knowledge, practices and ways of life for production, food and management of natural resources and
- vi) promote the inclusion of the LGBTQIAPN+ community and people with disabilities, seeking to empower them, promote their leadership and respect their rights.

Therefore, this sub-component aims to support the mainstreaming of the gender and diversity strategy throughout the Project, which will have an intersectional approach, considering the overlap of multiple discriminations of gender, race/ethnicity, sexual orientation and disability. All the activities and products proposed for this component will be contained in and guided by the Gender and Diversity Strategy and Plan to be drawn up at the start of project implementation.

#### **Focus on youth**

Among the factors that influence staying in rural areas is access to work and income opportunities, education/training that is suited to the characteristics of rural areas, appreciation of rural lifestyles, and the availability of services and conditions that can offer the possibility of success in agricultural production. To respond to these issues raised in the Youth diagnosis and to promote the permanence of young people in the

countryside, as well as offering more opportunities for sustainable income and work for young people in general, the strategy of this subcomponent is based on three main axes:

- i) Promote a broad training program in agricultural and non-agricultural activities that generate greater employment and income opportunities,
- ii) Implement a program to revalue life in the countryside through communication activities,
- iii) Promote the formation of Youth Networks and debates on issues relevant to the development of rural youth.

### Focus on Nutrition

To improve food security, nutritional status and increase the adoption of healthy eating practices by the Project, this PROCASE II subcomponent will implement a strategy centered mainly on food and nutrition education training. There will be 3 main lines of action:

- Raising awareness of good nutrition and health practices (reproductive health, maternal health and child health), in particular to improve the nutritional and health status of women and children;
- Raising awareness of the food culture, healthy eating, which in particular includes the Unconventional Food Plants (UFP) of the target territories; and
- Training vulnerable communities in the processing of healthy local products in order to increase their daily consumption in a sustainable way and foster the empowerment of vulnerable communities, valuing local food culture.

### ***Planned actions and products***

- Gender and Diversity Plan: The Gender and Diversity Plan will be drawn up in the first few months of project implementation by the PMU's Gender and Diversity specialist with the support of a specific consultancy hired to detail the general strategy and implementation methodology for all activities related to gender equity and women's empowerment, as well as the inclusion of PCTs, people with disabilities and LGBTQIAPN+. The activities set out in the Gender Plan should include:
  - Modular training in Gender and Diversity for project and TA teams
  - Gender and diversity training for the project's direct beneficiaries
  - Implementation of the Agroecological Logbook Methodology
  - Training *cirandeira(o)s*
  - Childcare/education activities that allow women to participate in the project's activities
  - Thematic diversity meetings (aimed at people with disabilities and LGBTQIAPN+)
- Youth Plan: A Youth Plan will be drawn up in the first few months of project implementation by the PMU's Youth specialist to detail the general strategy and implementation methodology for all the activities in this subcomponent related to the socio-economic and political empowerment of young people. At least the following cross-cutting activities will be developed for rural youth in the project area:

- Vocational training in agricultural and non-agricultural activities
- Training Young Communicators
- Thematic meetings with young people and the formation of Rural Youth Networks
- Plan to Strengthen Traditional Peoples and Communities (TPCs): A Plan to Strengthen Traditional Peoples and Communities will be drawn up in the first few months of project implementation.
  - Strengthening TPC Networks
  - TPC Policy Integration Fairs
- Nutrition and Food Safety Plan: A Nutrition and Food Safety Plan will be drawn up in the first few months of project implementation.
  - Nutrition education initiative to improve nutrition and maternal and child health in the project's most vulnerable communities
  - Training events on food culture and food processing to enhance local products with a view to improving nutrition and facilitating the empowerment of women and young people
  - Raising awareness of nutrition, health and food culture among students at the Integral Citizen Schools
- Local Development Agents: The project will hire a foundation, which will be responsible for hiring Local Development Agents (LDAs), who are young people from the communities themselves, hired by PROCASE II to carry out tasks such as mobilizing communities and organizations to actively engage in the project. In addition to mobilization, the LDAs will have to play an important role in managing the agreements made by the community associations, supporting the holding of tenders, updating financial information, monitoring the investments made, rendering accounts and keeping the associations fiscally regular. One young person will be hired per Resilient Investment Plan, which in turn serves 3 communities. The young LDAs will receive a series of training courses to develop their skills. By playing the role of LDA, it is hoped that the young people selected will be able to gain experience in leadership and management, becoming references in the communities they represent and continuing to support them even after the end of the Project. The LDAs will also play an important role in supporting the implementation of cross-cutting activities, such as gender, diversity and youth, as well as in communication between the communities, the Project and the TA teams.

#### **Subcomponent 2.4. Land and Environmental Regularization**

The aim of this sub-component is to strengthen the family units served, making the production base more secure by supporting land and environmental regularization.

#### ***Actions planned***

To achieve this goal, actions to support land and environmental regularization will be implemented.

- Support for land and environmental regularization: Seeking to provide solutions to the problem of a large number of family units in Paraíba that do not have complete



legal documentation or formal recognition of these properties, the project aims to implement a land regularization and environmental registration initiative.

- Choice of communities/properties to be benefited
- Implementing the regularization roadmaps: EMPAER's previous experience has allowed it to define a roadmap or sequence of steps that must be taken in order for a rural property to be regularized. It is this roadmap, which covers both the land ownership and environmental registration dimensions, that forms the methodological backbone of the Project's regularization initiative.

It should be noted that the route to be taken by each property to be regularized is slightly different depending on the starting situation of each property, in which case there are two possible initial scenarios: i) Properties with public deeds - areas of ownership and ii) Properties without public deeds - areas of possession. Both routes are similar, with the one for possession areas having a few additional steps. The roadmaps are presented in more detail in the table below.

**Table 2 - Roadmaps for land regularization and environmental registration**

Initial moment: Mobilization and dissemination action, in which the initiative is presented and explained to the beneficiary public, with the aim of identifying/confirming the family units or communities interested in participating and that meet the prioritization criteria (areas without litigation, quilombolas, settlers, PA with less than 25 ha, etc).	
Once the potential participants have been identified, the following activity guides are applied.	
<b>Activity roadmap (i): Domain areas</b>	<b>Activity roadmap (ii) - Ownership areas</b>
1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).	1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).
2 - Georeferencing rural property.	2 - Georeferencing rural property.
3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).	3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).
4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages	4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages
5 - Creation or updating of the registration code in the National Rural Registration System (with issuance of the CCIR ) <sup>1</sup>	5 - Creation or updating of a registration code in the National Rural Registration System (with issuance of the CCIR)
6 - Approval by the agency (INCRA/EMPAER) of the geo-referenced parcel/property in the Land Management System (SIGEF), which allows technical parts (plans and descriptive memorials) of the property to be generated. The delivery of these technical documents certifies the regularization of land ownership, which is georeferencing (in script (i) for ownership areas).	6 - Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows technical parts (plans and descriptive memorials) of the property to be generated. As this is vacant land, the documentation is issued in the name of the state at this stage. The delivery of these documents concludes the first stage of land regularization, which is georeferencing.

<sup>1</sup> CCIR is the Rural Property Registration Certificate, which is issued by INCRA via the Rural Registration System.

	6.1 - Delivery of the plan and memorial to the notary's office, for the creation of the registration and collection of the wasteland.
	6.2 - Analysis by Discriminatory Committee
	6.3 - Updating the technical documents, which will then be in the name of the beneficiary squatter and drawing up a definitive property title in their name (or that of the community in the case of collective land).
	6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).
7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.	7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.
8 - Drawing up the domain recognition title	8 - When stage 6.4 of the notary's office is completed, the property is fit and up-to-date. With the above steps completed, the property's documentation is fully regularized and ready to be handed over to the beneficiary (individual or collective).
9 - The property is ready and up to date. Once the above steps have been completed, the property is ready, with recognition of ownership. The technical documents can be sent to the notary's office for registration of the area. A new, updated certificate can then be issued.	

It is hoped that approximately 5,000 properties (covering around 100,000 hectares) will be able to follow this route with the project, until the desired regularization is achieved. It should be made clear that in agrarian reform settlements (federal or state) and in the municipalities served by EMPAER, title will be granted individually, per beneficiary family. In the case of quilombola communities, the title will be collective, covering the entire georeferenced polygon and in the name of the duly registered residents' associations.

The land and environmental regularization initiative will assist approximately 5,000 rural properties and families, of which 40% will be quilombola communities and federal and state settlements.

### **Subcomponent 2.5. Knowledge Management and South-South and Triangular Cooperation**

Subcomponent 2.5 will develop and implement a knowledge management process capable of generating, recording, sharing and using knowledge generated in the Project. It will also seek to feed the project implementation process with relevant information and knowledge. Knowledge will be made available at different geographical scales: among project participants (at community and territorial level), at state level, in the Northeast region and in other developing countries (via SSTC), and to different target audiences: beneficiaries, Implementing Partners and service providers, the project team, government entities and others. The objectives will be refined during the preparation of

the Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC) plan.

### ***Actions planned***

- **KM and SSTC plan:** This plan will define the detailed objective of the KM and TSSC activities, the products developed for each target group, the distribution channels, among others. PROCASE II will be able to draw on a wide range of resources, products and experiences from other initiatives and projects, including lessons learned from PROCASE I. Therefore, PROCASE II's KM and SSTC activities should avoid duplicating existing material while at the same time utilizing this material in project activities, such as capacity building and training. The main activities and products include:
  - Systematization of experiences, good practices and results and Studies of interest to the Project on specialized topics
  - Communication and Dissemination in Knowledge Management
  - South-South and Triangular Cooperation Actions

Under this subcomponent, 25 systematizations and studies on Knowledge Management will be carried out, 6 annual communication and dissemination phases and 10 South-South Cooperation exchange events.

### **Project Management, Monitoring and Evaluation**

The aim of this component is to create an efficient mechanism for managing and controlling the activities implemented by the Project, allowing them to be fully executed in line with the Project's intervention proposal, as well as guaranteeing the implementation of the Annual Operational Plans (AOP).

It also aims to introduce technological innovations to ensure the monitoring and evaluation of activities, the recording and systematization of Knowledge Management, as well as enabling transparent communication between stakeholders, including knowledge exchange actions.

To meet these objectives, the component will work on the basis of 2 sub-components, as follows.

#### **Project Management**

It will make it possible to support the Project Management Unit (PMU)<sup>2</sup>, by implementing instruments to strengthen: i) Management; ii) Administration; iii) Technical operational capacity; iv) Procurement processes (tenders and contracts); and v) Financial management. This support should facilitate compliance with the contractual clauses of the Loan Agreement.

As a Management Sub-component, its activities converge to comply with IDB and IFAD Guidelines and Policies for financing, such as the specific procedures for: i) tenders and

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<sup>2</sup> The PMU was formally created by Decree No. 44.934 of April 15, 2024, which provides for the Unit and defines the Basic Structure for managing the Paraíba Sustainable Rural Development Project - PROCASE II.

contracts; ii) requests for disbursements and rendering of accounts for the resources contributed, executed and/or committed; and iii) supervision of the implementation of community initiatives, ensuring compliance with environmental and social safeguards, procurement and financial management requirements, including rendering of accounts by beneficiaries.

### ***Product - Project management support***

**Main products:** Project Management Unit operational for 6 years

### **Monitoring and Evaluation (M&E)**

The project will set up a Planning, Monitoring, Evaluation and Systematization (PMES) system for its activities and results, which will be an essential management tool, enabling planning and monitoring of the project's execution, as well as actions to ensure digital inclusion.

### ***Product - Monitoring system***

The project will implement an information management system, where data collected in the field will flow to the PMU. For better organization, a computer system will be developed based on those used in Procase - phase 1, to monitor all the activities to be carried out.

**Main products:** M&E systems developed

### ***Product - Impact assessment studies***

The impact assessment will provide information on whether the project was able to achieve the results set out in the objective, as well as recording the impacts on improving the lives of the target population, such as nutrition, income, production methods, among others.

The research will use the difference-in-differences method, and will therefore be carried out on 2 groups, the treatment (a sample of project beneficiaries) and the control (non-beneficiaries, but who have a similar profile to the treatment group), with field research being carried out at 3 different points in time: i) Baseline, which will be a kind of initial X-ray of the project's beneficiary families, where information on family composition, production, income, etc. will be obtained. will be obtained for later comparison with subsequent studies; ii) Mid-term, which will be carried out between years 3 and 4 of the Project, i.e. halfway through its implementation; and iii) Final Impact Assessment, which will be carried out during the last year of the Project's implementation, on the same group surveyed in the previous stages.

**Main products:** Baseline, mid-term and impact research carried out

### ***Product - Systematization of experiences***

The project will also systematize the innovations, both in terms of processes and activities, highlighting their importance and results. These products will be used by the project team and state officials, as well as in other regions of the northeastern semi-arid region and similar areas, and could support the adoption of other public policies in the Northeast.

**Main products:** 50 systematizations carried out

## 2.7 Definition of the Types of Subprojects

Procasa II is structured around investments involving productive development and small-scale infrastructure works, allocated to Components 1 and 2 as presented above.

Below is information on the types (or models) of sub-projects envisaged in the investments, including general information on the definitions that will form part of PROCASE 2.

### 2.7.1 Types of Subprojects Productive Plans

As shown, the typologies of Productive Plans are part of Component 1 - Resilient productive systems for tackling rural poverty. The models of sub-project typologies structured in the preparation phase of Procasa II are detailed below.

The main characteristic of this typology is the choice of a sustainable production model through agroforestry systems (AFS to be implemented in areas to be recovered or enhanced. In this cultivation method, the basic literature is agroecology and the diversity of the characteristics of localities and rural establishments, respecting the individualities of each area worked on. In addition, a SAF usually has at least one tree, one shrub and one herbaceous extract, starting with a predominance of annual crops (placenta) and gradually evolving to perennial crops and timber in the later stages.

According to INSA<sup>3</sup>, "*The productivity of agricultural systems in the Brazilian semi-arid region is limited mainly by the availability of water and nutrients. Thus, any management technique that leads to an increase in the water stored in the soil can have an impact on productivity. The implementation of agroforestry systems could therefore be a viable alternative for regenerating soil fertility in agroecosystems in the Brazilian semi-arid region. Some studies in the semi-arid region have shown that preserving and planting tree species in pastures and agricultural areas increases soil organic matter and nutrient levels by up to 150 %, favors the formation of "fertility islands" around isolated trees and increases biomass productivity and biodiversity.*"

In this way, it is important to note that, in general, the project itself tends to promote environmental and social improvements in the beneficiary areas.

### Resilient Investment Plan (PIR)

As already mentioned, the PIR will support productive activities (new or reinforcing existing activities) with the potential to guarantee food security and improve income by marketing surpluses. Each plan includes a portfolio of synergistic actions aimed at providing economic development and improving the quality of the natural environment in a sustainable way.

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<sup>3</sup> Agroforestry Systems in the Brazilian Semi-Arid. Available at: <https://www.gov.br/insa/pt-br/centrais-de-conteudo/publicacoes-do-insa/desertificacao/sistemas-agroflorestais-no-semiarido-brasileiro.pdf>

The PIRs developed as a model for the preparation of Proc case II involve the poultry, dairy cattle, dairy goat, fruit and vegetable production sectors. The specific actions envisaged in these models are presented below.

### **PIR Free-range poultry farming**

The PIR model for free-range poultry farming, developed as part of the preparation of Proc case II, was designed to support the development of free-range poultry farming with a view to benefiting members of the Associação De Cooperação Agrícola Dos Produtores Rurais Do Assentamento São Domingos I - ACAPRANE, established in the municipality of Cubati - PB.

The table below summarizes the main information about this PIR and the association/community in question.

**Table 3 - Summary of the PIR model Caipira poultry farming and the association/community**

<b>PIR POULTRY FARMING</b>	
Support for the development of poultry farming	
<b>Location</b>	
<b>Municipality:</b>	Cubati
<b>Community:</b>	São Domingos Settlement I
<b>Productive activity(ies) supported:</b>	Free-range poultry farming
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	30
<b>Proponents Men</b>	02
<b>Proponents Women</b>	28
<b>Young people (out of all applicants)</b>	08
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Agricultural Cooperation Association of Rural Producers of the Nova Esperança São Domingos I Settlement - ACAPRANE
<b>Total value of the PIR (PROCASE II + Beneficiaries)</b>	<b>R\$ 462.133,90</b>
<b>Production and Marketing Section (PROCASE II)</b>	R\$ 280.613,90 (88,6%) Value/benefit: R\$ 9,353.80 (USD 1,889.66)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 36.000,00 (11,4%)
<b>Total Production and Marketing Section</b>	<b>R\$ 316.613,90</b>
<b>Tec. Social and Environmental Sections: PROCASE II</b>	R\$ 130.680,00 (89,8%)
<b>Tec. Social and Environmental Sections: CP Beneficiaries:</b>	R\$ 14.840,00 (10,2%)
<b>Total Tech. Social and Environmental</b>	<b>R\$ 145.520,00</b>

## **Justification**

How many people will benefit?

- 30 families benefited, including 2 men, 28 women and 6 young people.

What are the main problems to be solved by the project?

- Lack of financial capacity to invest in basic infrastructure (chicken coops, equipment, etc.) to conduct the activity properly and make it viable for generating income;
- Farmers have little technical knowledge of how to correctly carry out zootechnical reproductive, feeding and health control practices;
- Lack of knowledge about alternative ways of producing food as a partial substitute for commercial rations;
- The association is poorly prepared to support its members in developing collective actions that help improve access to public policies, marketing and logistics, among others;
- Insufficient quantity and quality of production to access the market.

What practical alternatives have been identified to solve the problems?

- Strengthen families' capacities through the provision of specialized TA services, mitigating the weaknesses identified;
- Investment in equipment for collective use (forage chopper, rattles, scales), motorcycle trailer for general logistical support;
- Investment in equipped rustic chicken coops;
- Individual investment to set up a mini Forage Agroforestry System (AFS-F 900 m<sup>2</sup>), with the aim of expanding the food reserve for grazing poultry and preparing alternative feed;
- Investment in inputs for the first production cycle (chicks, feed, vaccines);
- Implement actions to improve coexistence with the semi-arid region through a variety of social technologies, especially for the most vulnerable families;
- Implement a nursery to produce a variety of seedlings, with a view to strengthening AFSs, restoring native vegetation and diversifying production to feed families.

What opportunities have been identified that can contribute to achieving the project's results?

- Free-range poultry farming can be carried out on small areas and is therefore ideal for family farming;
- Broad market demand for eggs and meat from free-range poultry;
- The association has 08 young members;
- This activity is a source of extra income for the women and young people of the settlement;
- PIR can be installed in areas close to houses, without the need to clear new land.

## **Objectives**

Strengthening family-based poultry farming by structuring family production units individually and collectively, with the aim of raising poultry for consumption and for selling eggs and meat.

Specific Objectives:

- a) Set up suitable structures for the development of breeding, making it possible to carry out food and health management;
- b) Train beneficiaries in animal management practices;
- c) Introduce production practices, conservation of pastures and forage for feed production;
- d) Diversifying work and income opportunities in the community, particularly for women and young people;
- e) Empower beneficiaries to access better opportunities to market their products, both individually and collectively;
- f) Strengthening the collective organization and functioning of the association with a view to improving services and support for members;
- g) To diversify and improve the food and nutrition of the families involved.

## **Structural elements of the project**

### Proposals for Technical Assistance and Rural Extension - TA

The implementation of the PIR requires more intense and frequent, multidisciplinary, agroecological-based TA to provide families with adequate support. In order to guarantee the integration of this new production model, PROCASE II will finance the hiring of an A organization, which will carry out collective and individual activities through courses, workshops, field visits, exchanges and regular visits to the properties of each beneficiary family. This entity will act according to the guidelines mentioned in the National TA Policy (PNATER).

#### Theme 1 - Improving production:

The technical team mobilized will be specialized in raising free-range poultry, where all the technical support will be provided for: i) proper animal management of the flock, according to Good Agricultural Practices; ii) implementation and management of the SAF-F and iii) production of homemade feed and forage storage.

#### Theme 2 - Commercialization:

Sales strategies will be developed at open-air fairs, markets, butchers, restaurants, bakeries, snack bars, directly to consumers and via social networks.

TA will support the association both from an organizational and production point of view, so that they can participate in public calls for tender to sell eggs and other products produced in the community to the PNAE and PAA.

Efforts will be made with EMPAER and the state government to set up or strengthen municipal open-air markets with the granting of standardized market stalls and other



support. The association will be trained to use accessible marketing techniques (social networks) to publicize its work, improving access to markets.

#### Theme 3 - Access to public policies:

Beneficiaries will receive training to increase their knowledge of the best conditions for accessing public policies, so that they can then access the most appropriate ones. These will mainly be policies on access to financing (PRONAF and ABC environmental), crop insurance, policies on access to institutional markets such as PAA and PNAE. This theme will be strengthened with the involvement of banks (Banco do Brasil and Banco do Nordeste), rural workers' unions, city hall, among other partners.

#### Theme 4 - Social inclusion of the project's target groups (young people, women, people with disabilities, LGBTQIA+, etc.)

TA will seek to involve other women and young people in training activities, in addition to those already involved as beneficiaries.

The details of the activities to be carried out by TA during its work on this PIR will be defined in a planning document to be presented and validated by the Project and beneficiaries after its approval for funding, ensuring that the scope of activities is defined at the start of implementation.

#### Proposal related to environmental issues and climate change

- Implement actions to raise awareness about the proper disposal of solid waste, eliminating the practice of burning garbage;
- The families will be trained with courses and technical guidance on composting and practices for the production and conservation of pastures and fodder for feed production;
- Adoption of agro-ecological practices in activities;
- Implementation of a collective nursery for the production of seedlings coupled with a production cistern with a capacity of 52,000 L, where seedlings will be produced for the maintenance and expansion of forage AFSs, as well as other species aimed at recovering native vegetation and fruit trees to diversify backyard production and enrich the families' diet.

#### Proposal related to access to social technologies (access to water, reuse, renewable energies, etc.)

In addition to a production cistern that will be attached to the seedling nursery, the project will finance the installation of 10 grey water reuse systems and 21 eco-efficient stoves, as well as the appropriate training for the proper use of these technologies. During the DRP, the most vulnerable families will be identified and the most suitable type of social technology will be identified.

#### Proposal related to organizational, administrative and managerial aspects

The implementation and management of the PIR will be the responsibility of the Association's Board of Directors, with the support of the beneficiaries, under the guidance and monitoring of TA, local offices and the Project itself. The main focus of the work will be:

- Strengthen the association's collective organization in order to expand and improve the services offered to members, whether in the social, environmental, productive or commercial spheres;
- Support the association in the composition of the various committees necessary for the implementation of the PIR, encouraging and prioritizing the participation of women and young people in the positions;
- Provide all the support (training and frequent monitoring) to the beneficiaries to carry out the purchases and render accounts.
- All actions will be carried out with reference to the criteria defined by the Project Operational Regulations (POR).

For maintenance purposes, the Association will set up a Reserve Fund, with amounts to be defined at the Assembly, for the maintenance and replacement of machinery and tools.

A "Regulation for the Use of Collective Assets" will be defined with the support of the TA entity and approved by the Assembly, guiding the management and use of machinery and equipment, advocating its proper functioning, user safety and conservation.

#### Proposal related to social, environmental and health aspects

The PIR will follow the rules of environmental, health and social legislation, and will also follow the requirements defined in the PROCASE II ESMP.

Environmental legislation: The PIR will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. As it is a small-scale investment using agro-ecological production practices, it is characterized as a low environmental impact PIR, so there will be no need for environmental licenses to be issued by the state agency, falling under the "licensing waiver" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Health legislation: The products will be sold fresh, i.e. unprocessed. These items will be offered in the community itself, in neighboring communities, municipal fairs, markets, restaurants, snack bars, hotels, inns, orders, among others, so it will not be necessary to obtain a health license or permit.

#### Detailed investment

Investments are items necessary for the proper functioning of the project and comprise three sections: i) production and marketing; ii) social technologies and iii) environmental.

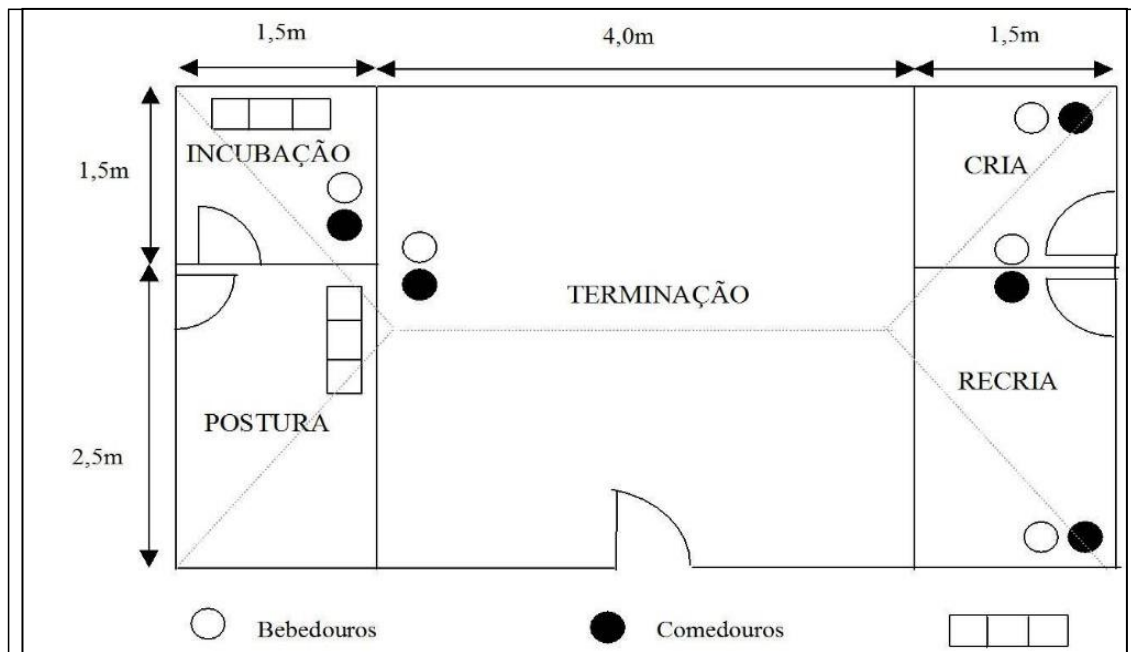
Production and marketing section: focuses on the implementation of three main lines:

- i) installation of small poultry farms and AFSs for 30 beneficiary families;
- ii) provision of various collective items to support production (rattle, crusher/disintegrator, motorcycle trailer, etc.), and
- iii) various inputs for the first production cycle (chicks, starter feed, seedlings, fence wire, etc.).

Social technologies section: according to the needs of each family, identified during the DRP, this involves the installation of a production cistern (connected to the seedling nursery), eco-efficient stoves and gray water reuse systems.

Environmental section: involves the installation of a collective nursery to produce seedlings of various species, both to reinforce AFSs, food security (fruit) and the restoration of native vegetation. Part of the production could be marketed and guarantee the sustainability of the nursery.

**Figure 2 - Illustrated sketch of the project**



### **PIR Dairy Farming**

The PIR model for dairy farming, developed as part of the Procace II preparation, was designed to support the strengthening and support of the sector and coexistence with the semi-arid region, with a view to benefiting members of the Association of Milk Producers of the Municipality of Itaporanga - APLMITA established in the municipality of Itaporanga - PB.

The table below summarizes the main information about this PIR and the association/community in question.

**Table 4 - Summary of the Caipira Poultry PIR model and the association/community**

<b>PIR DAIRY FARMING</b>	
Strengthening and Supporting Dairy Cattle Farming and Coexistence with the Semi-arid Region	
<b>Location</b>	
<b>Municipality:</b>	Itaporanga
<b>Community:</b>	Emas Community
<b>Productive activity(ies) supported:</b>	Dairy farming
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	<b>30</b>
<b>Proponents Men</b>	25

<b>Proponents Women</b>	5
<b>Young people (out of all applicants)</b>	3
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Association of Milk Producers of the Municipality of Itaporanga (APLMITA)
<b>Total value of the PIR (PROCASE II + Beneficiaries)</b>	<b>R\$ 471.075,00</b>
<b>Production and Marketing Section (PROCASE II)</b>	R\$ 282.000,00 (87,9%) Value for money: R\$ 9.400,00 (USD 1.898,99)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 42.900,00 (12,1%)
<b>Total Production and Marketing Section</b>	<b>R\$ 324.900,00</b>
<b>Tec. Social and Environmental Sections: PROCASE II</b>	R\$ 131.175,00 (89,7%)
<b>Tec. Social and Environmental Sections: CP Beneficiaries:</b>	R\$ 15.000,00 (10,3%)
<b>Total Tech. Social and Environmental</b>	<b>R\$ 146.175,00</b>

### **Justification**

How many people will benefit?

- 30 families benefited, 20 men, 10 women and 6 young people.

What are the main problems to be solved by the project?

- Farmers' limited technical capacity to carry out zotechnical reproductive, food and health control practices;
- Negative impacts of the activity on the environment;
- Limited milk storage and conservation capacity (cooling tank);
- Low bargaining power with industries (price, quality, etc.);
- Lack of technical capacity and equipment for forage production and conservation;
- Low milk production and productivity;
- The association is not prepared to support its members in developing collective actions that help improve access to public policies, marketing and logistics, among others;
- Limited generation of work and income.

What practical alternatives have been identified to solve the problems?

- Strengthen families' capacities through the provision of specialized TA services, mitigating the weaknesses identified;

- Investment in equipment for collective use for the production of fodder (chainsaw, baler, brushcutter), an animal vaccination kit (health control) and a cooling tank to strengthen the marketing and quality of the milk;
- Individual investment to set up a Forage Agroforestry System (AFS-F), with the aim of expanding the herd's food reserve, reducing negative impacts on the environment and increasing milk production and productivity;
- Implement actions to improve coexistence with the semi-arid region through a variety of social technologies, especially for the most vulnerable families;
- Implement a nursery to produce a variety of seedlings, with a view to strengthening AFSs, restoring native vegetation and diversifying production to feed families.

What opportunities have been identified that can contribute to achieving the project's results?

- Favorable conditions for increasing the production of forage support and milk;
- Production and marketing chain in operation;
- Participation of some young people in the activity;
- Capacity to generate work and income;
- They have structures for installing more cooling tanks.

### **Objectives**

Strengthening the dairy cattle chain through sustainable, effective and profitable milk production, promoting alternatives for environmental conservation and recovery and the socio-economic development of the producers involved in the activities.

Specific Objectives:

- Encouraging action in dairy farming through the use of new technologies to improve and facilitate herd management activities;
- Ensure forage support for the herd by implementing an Agroforestry Forage System (AFS-F) combining species with protein and energy value, in order to increase forage production and improve the animals' diet;
- Encourage conservation practices and the recovery of degraded areas through reforestation and the construction of a nursery to produce native, forage and fruit seedlings;
- Supporting families in marketing milk and its derivatives;
- Promote the sustainable development of family dairy farmers by creating opportunities to increase their income;
- Promote training for family dairy farmers in herd management, fodder production, herd health control and genetic improvement.
- Providing advice on how to enter public and private markets;
- Implement appropriate social technologies to improve coexistence with the semi-arid region;

- Promoting income generation in the community, especially for young people and women

### ***Structural elements of the project***

#### *Proposals for Technical Assistance and Rural Extension - TA*

The beneficiary families lack adequate and sufficient TA services. In this context, the implementation of the PIR requires more intense and frequent, multidisciplinary, agroecological-based TA to provide families with distinct, adequate and frequent support. In order to guarantee the integration of this new production model, PROCASE II will finance the hiring of an TA organization, which will carry out collective and individual activities through courses, workshops, field visits, exchanges and regular visits to the properties of each beneficiary family. This entity will act according to the guidelines mentioned in the National TA Policy (PNATER).

#### Theme 1 - Improving production:

The technical team mobilized will be specialized in cattle breeding, where all the technical support will be provided for: i) proper animal management of the herd, according to Good Agricultural Practices; ii) implementation and management of the SAF-F and iii) production and storage of fodder.

#### Theme 2 - Commercialization:

TA will support the association to strengthen both its organizational and production aspects, with a view to expanding and diversifying milk marketing channels. In the case of social programs, it will support the creation of partnerships with cooperatives or private companies that have formalized dairies, to provide milk pasteurization services, so that they can sell to the PAA and PNAE.

Strategies will be developed to make farmers aware of the advantages of joint milk marketing, as a condition for increasing their bargaining power with buyers and in the search for better prices and logistical solutions. The investment in the milk cooling tank will be important for implementing this strategy. The association will be trained to use accessible marketing techniques (social networks) to publicize its work, improving access to markets.

#### Theme 3 - Access to public policies:

Beneficiaries will receive training to increase their knowledge of the best conditions for accessing public policies, so that they can then access the most appropriate ones. These will mainly be policies on access to financing (PRONAF and ABC environmental), SAFRA insurance, Livestock Costs, policies on access to institutional markets such as PAA and PNAE. This theme will be strengthened with the involvement of banks (Banco do Brasil and Banco do Nordeste), rural workers' unions, town halls and other partners.

#### Theme 4 - Social inclusion of the project's target groups (young people, women, people with disabilities, LGBTQIA+, etc.)

ATER will seek to involve other women and young people in training activities, in addition to those already involved as beneficiaries.

The details of the activities to be carried out by TA during its work on this PIR will be defined in a planning document to be presented and validated by the Project and

beneficiaries after it has been approved for funding, ensuring that at the start of implementation, the scope of activities is defined.

*Proposal related to environmental issues and climate change*

- The proposal is to set up a Forage Agroforestry System (AFS-F) in each family unit with an area of 0.5 ha, enriching the caatinga by planting forage and other species;
- The families will be trained with courses and technical guidance on agroforestry systems, seedling production, techniques such as lowering and thinning and soil management, avoiding deforestation and burning, among others;
- Encouraging organic production, reducing the use of chemical products and seeking more sustainable management of the soil and natural resources;
- Implementation of a nursery for the production of seedlings coupled with a production cistern with a capacity of 52,000 L, where seedlings will be produced for the maintenance and expansion of the forage AFSs, as well as other species aimed at recovering native vegetation and fruit trees to diversify the production of the backyards and enrich the families' diet.

*Proposal related to access to social technologies (access to water, reuse, renewable energies, etc.)*

In addition to a production cistern that will be attached to the seedling nursery, the project will finance the installation of 1 grey water reuse system and 6 biodigesters, as well as the appropriate training for the proper use of these technologies. During the DRP, the most vulnerable families will be identified and the most suitable type of social technology will be identified.

*Proposal related to organizational, administrative and managerial aspects*

The implementation and management of the PIR will be the responsibility of the Association's Board of Directors, with the support of the beneficiaries, under the guidance and monitoring of Technical Assistance, local offices and the Project itself. The focus of the work will be:

Strengthening the association's collective organization in order to expand and improve the services offered to members, whether in the social, environmental or productive spheres;

Support the association in the composition of the various committees necessary for the implementation of the PIR, encouraging and prioritizing the participation of women and young people in the positions;

Provide all the support (training and frequent monitoring) to the beneficiaries to carry out the purchases and render accounts.

All actions will be carried out with reference to the criteria defined by the Project Operational Regulations (ROP).

For maintenance purposes, the Association will set up a Reserve Fund, with amounts to be defined at the Assembly, for the maintenance and replacement of machinery and tools.

A "Regulation for the Use of Collective Assets" will be defined with the support of the TA entity and approved by the Assembly, guiding the management and use of machinery and equipment, advocating its proper functioning, user safety and conservation.

Proposal related to social, environmental and health aspects

The PIR will follow the rules of environmental, health and social legislation, and will also follow the requirements defined in the PROCASE II ESMP.

Environmental legislation: The PIR will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. As it is a small-scale investment using agro-ecological production practices, it is characterized as a low environmental impact PIR. There will be no need for environmental licenses to be issued by the state agency, and the PIR falls under the "licensing exemption" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Sanitary legislation: Families will be instructed in Good Agricultural Practices (GAP), ensuring that the milk reaches the processing industry with the appropriate quality for the manufacture of different types of products.

Detailed investment

Investments are necessary items for the proper functioning of the project and comprise three sections: i) production and marketing; ii) social technologies and iii) environmental.

Production and marketing section: focuses on the implementation of three main lines:

- i) installation of 0.5 ha of Forage AFS for 30 beneficiary families;
- ii) the supply of various collective items to support silage production (chainsaw, baler, brushcutter), milk cooling tanks (to increase milk production and quality) and vaccination kits (herd health control), and
- iii) various inputs such as seedlings (palm, gliricidia) and fence wire.

Social technologies section: according to the needs of each family, identified during the DRP, this involves the installation of a production cistern (connected to the seedling nursery), gray water reuse systems and biodigesters.

Environmental section: involves setting up a nursery to produce seedlings of various species, both to reinforce AFSs, food security (fruit) and the restoration of native vegetation. Part of the production could be marketed and guarantee the sustainability of the nursery.

**PIR Dairy goat farming**

The PIR model for dairy goat farming, developed as part of the preparation of PROCASE II, was designed to support the strengthening and support of the sector and coexistence with the semi-arid region, with a view to benefiting members of the Soledadense Association of Goat and Sheep Breeders - ASCCO established in the municipality of Soledade - PB.

The table below summarizes the main information about this PIR and the association/community in question.

**Table 5 - Summary of the Caipira Poultry PIR model and the association/community**

<b>PIR DAIRY GOAT FARMING</b>
Strengthening and supporting dairy goat farming and coexistence with the semi-arid region



<b>Location</b>	
<b>Municipality:</b>	Soledade
<b>Community:</b>	Rue
<b>Productive activity(ies) supported:</b>	Dairy Goat Farming with Forage SAF
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	<b>30</b>
<b>Proponents Men</b>	15
<b>Proponents Women</b>	15
<b>Young people (out of all applicants)</b>	11
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Soledad Association of Goat and Sheep Breeders - ASCCO
<b>Total value of the PIR (PROCASE II + Beneficiaries)</b>	<b>R\$ 467.175,00</b>
<b>Production and Marketing Section (PROCASE II)</b>	R\$ 282.000,00 (87,9%) Value for money: R\$ 9.400,00 (USD 1.898,99)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 39.000,00 (12,1%)
<b>Total Production and Marketing Section</b>	<b>R\$ 321.000,00</b>
<b>Tec. Social and Environmental Sections: PROCASE II</b>	R\$ 131.175,00 (89,7%)
<b>Tec. Social and Environmental Sections: CP Beneficiaries:</b>	R\$ 15.000,00 (10,3%)
<b>Total Tech. Social and Environmental</b>	<b>R\$ 146.175,00</b>

### **Justification**

How many people will benefit?

- 30 beneficiaries (15 men and 15 women, 12 of whom are young people), living in various communities in the municipality of Soledade.

What are the main problems to be solved by the project?

- Lack of technical capacity and equipment for forage production and conservation;
- Low forage productivity in the caatinga biome;
- Negative impacts of the activity on the environment;
- Depletion of native grassland;
- Limited technical capacity of beneficiaries to carry out zotechnical reproductive, food and health control practices;
- Very limited milk storage and conservation capacity (cooling tank);

- Poor conditions for increasing milk production, productivity and quality and, consequently, improving income.

What practical alternatives have been identified to solve the problems?

- Strengthen families' capacities through the provision of specialized TA services, mitigating the weaknesses identified;
- Investment in equipment for collective use to produce fodder and strengthen marketing (cooling tank);
- Individual investment to set up a Forage Agroforestry System (AFS-F), as an alternative way of producing food for livestock in adequate quantity and quality, reducing the negative impacts on the environment caused by livestock grazing in the caatinga.
- Implement actions to improve coexistence with the semi-arid region through a variety of social technologies, especially for the most vulnerable families;
- Implement a nursery to produce a variety of seedlings, with a view to strengthening SAFs, restoring native vegetation and diversifying production to feed families.

What opportunities have been identified that can contribute to achieving the project's results?

- Dairy goat farming is an activity developed in the region and has been increasing through government incentives;
- Support from Soledade City Hall for the development of the activity;
- Experience and an important level of organization among farmers in controlling the processes of receiving, storing and shipping chilled milk to the cooperative;
- Existence of a commercial relationship with the cooperative;
- Two families have an area of AFS with a focus on the protein bank;
- The association has 12 young members.

### **Objectives**

Strengthening family-based dairy goat farming, structuring family production units, promoting the adoption of practices to live with the semi-arid region and encouraging agro-ecological transition, with the aim of ensuring the herd's food security, conserving the environment and improving families' incomes.

Specific Objectives:

- Promoting food security for livestock through the production of fodder adapted to the semi-arid region;
- Support the formation of a protein bank to supplement animal feed;
- Provide guidance on reproductive management to improve the genetic quality of the existing herd; train beneficiaries in animal management practices and agroforestry system management;
- Providing advice on how to enter public and private markets;

- Implement appropriate social technologies to improve coexistence with the semi-arid region;
- Develop actions aimed at environmental conservation;
- Promote income generation in the community, especially for young people and women.

### ***Structural elements of the project***

#### *Proposals for Technical Assistance and Rural Extension - TA*

The beneficiary families lack adequate and sufficient TA services. In this context, the implementation of the PIR requires more intense and frequent, multidisciplinary, agroecological-based TA to provide families with distinct, adequate and frequent support. In order to guarantee the integration of this new production model, PROCASE II will finance the hiring of an TA organization, which will carry out collective and individual activities through courses, workshops, field visits, exchanges and regular visits to the properties of each beneficiary family. This entity will act according to the guidelines mentioned in the National Technical Assistance and Rural Extension Policy (PNATER).

#### Theme 1 - Improving production:

The technical team mobilized will be specialized in goat farming, where all the technical support will be provided for: i) proper animal management of the herd, according to Good Agricultural Practices; ii) implementation and management of the AFS-F and iii) production and storage of fodder.

#### Theme 2 - Commercialization:

The TA responsible will support the association to strengthen both its organizational and productive aspects, with a view to expanding and diversifying the milk marketing channels. In the case of social programs, it will support the creation of partnerships with cooperatives or private companies that have formalized dairies, to provide milk pasteurization services, so that they can sell to the PAA and PNAE.

Strategies will be developed to make farmers aware of the advantages of joint milk marketing, as a condition for increasing their bargaining power with buyers and in the search for better prices and logistical solutions. The association will be trained to use accessible marketing techniques (social networks) to publicize its work, improving access to markets.

#### Theme 3 - Access to public policies:

The beneficiaries will receive training to overcome their lack of knowledge about the conditions for accessing public policies, so that they can then access the most appropriate ones. These will mainly be policies on access to financing (PRONAF and ABC ambiental), SAFRA insurance, and policies on access to institutional markets such as PAA and PNAE. This theme will be strengthened with the involvement of banks (Banco do Brasil and Banco do Nordeste), rural workers' unions, town halls and other partners.

#### Theme 4 - Social inclusion of the project's target groups (young people, women, people with disabilities, LGBTQIA+, etc.)

TA will seek to involve other women and young people in training activities, in addition to those already involved as beneficiaries.

The details of the activities to be carried out by TA during its work on this PIR will be defined in a planning document to be presented and validated by the Project and beneficiaries after its approval for funding, ensuring that the scope of activities is defined at the start of implementation.

*Proposal related to environmental issues and climate change*

- The proposal is to set up a Forage Agroforestry System (AFS-F) in each family unit with an area of 0.5 ha, enriching the caatinga by planting forage species;
- The families will be trained with courses and technical guidance on agroforestry systems, agroforestry system management, seedling production, techniques such as lowering and thinning and soil management;
- These practices will follow the principle of agroecology;
- Implementation of a nursery for the production of seedlings coupled with a production cistern with a capacity of 52,000 L, where seedlings will be produced for the maintenance and expansion of the forage AFSs, as well as other species aimed at recovering native vegetation and fruit trees to diversify the production of the backyards and enrich the families' diet.

*Proposal related to access to social technologies (access to water, reuse, renewable energies, etc.)*

- All the families have rainwater harvesting cisterns for human consumption.
- In addition to a production cistern that will be attached to the seedling nursery, the project will finance the installation of 5 grey water reuse systems, 2 biodigesters and 15 eco-efficient stoves, as well as the appropriate training for the proper use of these technologies. During the DRP, the most vulnerable families will be identified and the most suitable type of social technology will be identified.

*Proposal related to organizational, administrative and managerial aspects*

The implementation and management of the PIR will be the responsibility of the Association's Board of Directors, with the support of the beneficiaries, under the guidance and monitoring of Technical Assistance, local offices and the Project itself. The main focus of the work will be:

- Strengthening the association's collective organization to expand and improve the services offered to members, whether in the social, environmental or productive spheres;
- Support the association in the composition of the various committees necessary for the implementation of the PIR, encouraging and prioritizing the participation of women and young people in the positions;
- Provide all the support (training and frequent monitoring) to the beneficiaries to carry out the purchases and render accounts.

All actions will be carried out with reference to the criteria defined by the Project Operational Regulations (POR).

For maintenance purposes, the Association will set up a Reserve Fund, with amounts to be defined at the Assembly, for the maintenance and replacement of machinery and tools.

A "Regulation for the Use of Collective Assets" will be defined with the support of the TA entity and approved by the Assembly, guiding the management and use of machinery and equipment, advocating its proper functioning, user safety and conservation.

#### Proposal related to social, environmental and health aspects

The PIR will follow the rules of environmental, health and social legislation, and will also follow the requirements defined in the PROCASE II ESMP.

Environmental legislation: The PIR will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. As it is a small-scale investment and uses agro-ecological production practices, it is characterized as a low environmental impact PIR. There will be no need for environmental licenses to be issued by the state agency, and the PIR falls under the "licensing exemption" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Sanitary legislation: Families will be instructed in Good Agricultural Practices (GAP), ensuring that the milk reaches the processing industry with the appropriate quality for the manufacture of different types of products.

#### Detailed investment

Investments are items necessary for the proper functioning of the project and comprise three sections: i) production and marketing; ii) social technologies and iii) environmental.

Production and marketing section: focuses on the implementation of three main lines:

- i) installation of 0.5 ha of Forage AFS for 30 beneficiary families;
- ii) provision of various collective items to support silage production (ensilage maker, crusher, baler, feed mixer) and milk cooling tanks (to increase milk production and quality), and
- iii) various inputs such as seedlings (palm, moringa, gliricidia and leucena) and wire for fencing.

Social technologies section: according to the needs of each family, identified during the DRP, this involves the installation of a production cistern (connected to the seedling nursery), eco-efficient stoves, grey water reuse systems and biodigesters.

Environmental section: involves setting up a nursery to produce seedlings of various species, both to reinforce AFSs, food security (fruit) and the restoration of native vegetation. Part of the production could be marketed and guarantee the sustainability of the nursery.

#### PIR Productive Backyards

The PIR model for productive backyards developed as part of the Procasa II preparation was designed to support the development of productive backyards in a collective area, with a view to benefiting members of the Association of Agroecological Farmers of the South Coast of Paraíba, established in the municipality of Pitimbu - PB.

The table below summarizes the main information about this PIR and the association/community in question.

**Table 6 - Summary of the Caipira Poultry PIR model and the association/community**

<b>PIR PRODUCTIVE BACKYARDS</b>	
Support for the development of productive backyards in collective areas	
<b>Location</b>	
<b>Municipality:</b>	Pitimbu
<b>Community:</b>	APASA Settlement
<b>Productive activity(ies) supported:</b>	Vegetable and fruit production
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	<b>30</b>
<b>Proponents Men</b>	7
<b>Proponents Women</b>	23
<b>Young people (out of all applicants)</b>	8
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Association of Agroecological Farmers of the South Coast of Paraíba
<b>Total value of the PIR (PROCASE II + Beneficiaries):</b>	<b>R\$ 458.169,00</b>
<b>Production and Marketing Section (PROCASE II)</b>	\$ 282.078,00 (89,9%) Value/benefit: R\$ 9,402.60 (USD 1,899.52)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 31.561,00 (10,1%)
<b>Total Production and Marketing Section</b>	<b>R\$ 313.639,00</b>
<b>Tec. Social and Environmental Sections: PROCASE II</b>	R\$ 129.690,00 (89,7%)
<b>Tec. Social and Environmental Sections: CP Beneficiaries:</b>	R\$ 14.840,00 (10,3%)
<b>Total Tech. Social and Environmental</b>	<b>R\$ 144.530,00</b>

### **Justification**

How many people will benefit?

- 30 members: 23 women and 07 men, 08 of whom are young.

What are the main problems to be solved by the project?

- Low productive capacity of families;
- High marketing costs, given the small amount of production available for sale;
- Unavailability of continuous and specialized TA;

- Lack of financial capacity to invest in basic infrastructure, such as an efficient irrigation system, appropriate tools for productive management, equipping the well to allow access to water for production;
- Association with limited knowledge to support its members in developing collective actions that help improve access to public policies, marketing, logistics and the environment, among others.

What practical alternatives have been identified to solve the problems?

- Strengthen families' capacities through the provision of specialized TA services, mitigating the weaknesses identified;
- Investment in equipment for collective use (solar energy generation, motorcycle cultivator, sprayer), transport trailer for motorcycles for general logistical support;
- Investment in market stalls to strengthen marketing;
- Investments in irrigation kits, tool kits, containers and other items for individual use, aimed at increasing the productive capacity of families;
- Investment in inputs for the first production cycle;
- Implement actions to strengthen production through a variety of social technologies, aimed at the collective development of families and the preservation of the environment;
- Set up a nursery to produce a variety of seedlings, with a view to strengthening the restoration of native vegetation and diversifying production to feed families.

What opportunities have been identified that can contribute to achieving the project's results?

- Exploitation of the association's collective area for productive purposes, without the need to clear new areas to implement the TA;
- There is good market potential, particularly because the settlement is located in a tourist area as well as important urban centers, which can guarantee the flow of the expanded production;
- Existence of a drilled well with a flow rate and water quality capable of guaranteeing the efficient use of water in small irrigation systems;
- Attendance by young people and women interested in the activity.

### **Objectives**

To implement vegetable and fruit production systems that are sustainable and adapted to climate change, promoting the generation of work and income for women and young people, increased food security and greater social integration between families in the settlement.

Specific Objectives:

- Implement efficient irrigation structures that allow the activity to develop without wasting water;

- Introducing agro-ecological production practices that conserve soil, preserve biodiversity and adapt to climate change, in particular to reduce evapotranspiration losses;
- Implementing social technologies that aim to guarantee financial savings for families as well as an improvement in well-being, and allowing for a lower impact on the environment;
- Diversifying work and income opportunities in the community, particularly for women and young people;
- Enable beneficiaries to access institutional and proven markets collectively and frequently;
- Strengthening the collective organization and functioning of the association with a view to improving services and support for members;
- To diversify and improve the food and nutrition of the families involved.

### ***Structural elements of the project***

#### ***Proposals for Technical Assistance and Rural Extension - TA***

The implementation of the PIR requires more intense and frequent, multidisciplinary, agroecological-based TA to provide families with adequate support. In order to guarantee the integration of this new production model, PROCASE II will finance the hiring of an TA organization, which will carry out collective and individual activities through courses, workshops, field visits, exchanges and regular visits to the properties of each beneficiary family. This entity will act according to the guidelines mentioned in the National Technical Assistance and Rural Extension Policy (PNATER).

#### ***Theme 1 - Improving production:***

The technical team mobilized will specialize in the production of vegetables and fruit, where all the technical support will be provided for: i) agro-ecological and, in the future, organic production; ii) management of irrigation systems, with a view to better production with the rational use of water; iii) production and use of natural fertilizers and pesticides, as well as topics related to production management (costs and income).

#### ***Theme 2 - Commercialization:***

Sales strategies will be developed at open-air markets, and direct sales to markets, restaurants, snack bars, hotels, inns and to consumers and through social networks.

ta will support the association both from an organizational and production point of view, so that they can participate in calls for tender to sell in the PNAE and PAA.

Efforts will be made with EMPAER and the state government to set up or strengthen municipal free fairs, as well as increasing the association's logistical support to take part in fairs in other municipalities in the region. The association will be trained to use accessible marketing techniques (social networks) to publicize its work, improving access to markets.

#### ***Theme 3 - Access to public policies:***

Beneficiaries will receive training to increase their knowledge of the best conditions for accessing public policies. These will mainly include policies on access to financing



(PRONAF and ABC environmental), crop insurance, and policies on access to institutional markets such as PAA and PNAE. This theme will be strengthened with the involvement of banks (Banco do Brasil and Banco do Nordeste), rural workers' unions, town halls and other partners.

Theme 4 - Social inclusion of the project's target groups (young people, women, people with disabilities, LGBTQIA+, etc.)

TA will seek to involve other women and young people in training activities, in addition to those already involved as beneficiaries.

The details of the activities to be carried out by TA during its work on this PIR will be defined in a planning document to be presented and validated by the Project and beneficiaries after its approval for funding, ensuring that the scope of activities is defined at the start of implementation.

Proposal related to environmental issues and climate change

- To raise awareness of the importance of agroforestry in mitigating climate change and conserving biodiversity;
- Implement soil and water conservation practices in productive areas, such as the use of mulch and soil water retention techniques, crop consortia and diversification, and the implementation of windbreaks;
- Implement actions to raise awareness about the proper disposal of solid waste, eliminating the practice of burning garbage;
- Training families with courses and technical guidance on composting and biofertilizer production;
- Adoption of agro-ecological practices in activities;
- Implementation of a nursery for the production of seedlings coupled with a production cistern with a capacity of 52,000 L, where seedlings of interest to the families will be produced, as well as species aimed at recovering native vegetation and fruit trees to diversify production in the backyards and enrich the families' diet.

Proposal related to access to social technologies (access to water, reuse, renewable energies, etc.)

- Financing collective actions:
  - Installation of a production cistern that will be attached to the seedling nursery;
  - Installation of a biodigester to produce biofertilizer;
  - To enable access to water, the existing artesian well will be equipped with a pump and the necessary accessories;
  - To overcome the lack of electricity and reduce production costs, investment will be made in solar panels to generate clean energy.
- Financing individual actions:
  - Installation of 18 eco-efficient stoves;
  - Installation of 04 gray water reuse systems.

The appropriate training will be provided for the proper use of social technologies.

During the DRP, the most vulnerable families will be identified and the most suitable type of social technology will be identified.

Proposal related to organizational, administrative and managerial aspects

The implementation and management of the PIR will be the responsibility of the Association's Board of Directors, with the support of the beneficiaries, under the guidance and monitoring of TA, local offices and the Project itself. The main focus of the work will be:

- Strengthen the association's collective organization in order to expand and improve the services offered to members, whether in the social, environmental, productive or commercial spheres;
- Support the association in the composition of the various committees necessary for the implementation of the PIR, encouraging and prioritizing the participation of women and young people in the positions;
- Provide all the support (training and frequent monitoring) to the beneficiaries to carry out the purchases and render accounts.

All actions will be carried out with reference to the criteria defined by the Project Operational Regulations (POR).

For maintenance purposes, the Association will set up a Reserve Fund, with amounts to be defined at the Assembly, for the maintenance and replacement of machinery and tools.

A "Regulation for the Use of Collective Assets" will be defined with the support of the TA entity and approved by the Assembly, guiding the management and use of machinery and equipment, advocating its proper functioning, user safety and conservation

Proposal related to social, environmental and health aspects

The PIR will follow the rules of environmental, health and social legislation, and will also follow the requirements defined in the PROCASE II ESMP.

Environmental legislation: The PIR will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. As it is a small-scale investment using agro-ecological production practices, it is characterized as a low environmental impact PIR, so there will be no need for environmental licenses to be issued by the state agency, falling under the "licensing waiver" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Health legislation: The products will be sold fresh, i.e. unprocessed. These items will be offered in the community itself, in neighboring communities, municipal fairs, markets, restaurants, snack bars, hotels, inns, orders, among others, so it will not be necessary to obtain a health license or permit.

Detailed investment

Investments are items necessary for the proper functioning of the project and comprise three sections: i) production and marketing; ii) social technologies and iii) environmental.

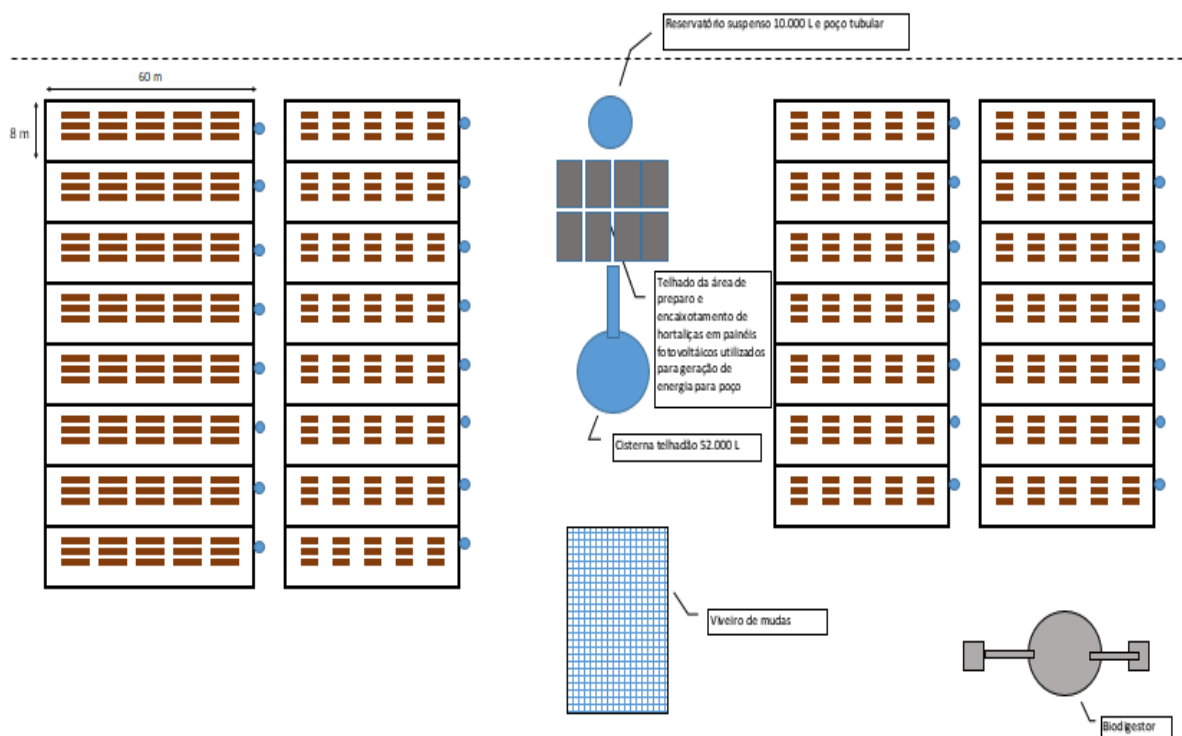
Production and marketing section: focuses on the implementation of three main lines:

- i) installation of individual production areas of 500 m<sup>2</sup> for 30 beneficiary families, including irrigation kit and water tank, etc;
- ii) provision of various collective items to support production (pump for artesian well, mini solar power plant, motorcycle cultivator, sprayers, motorcycle trailer, market stall, area for preparing and packaging food, etc.), and
- iii) various inputs for the first production cycle (seeds, seedlings, shade, etc.).

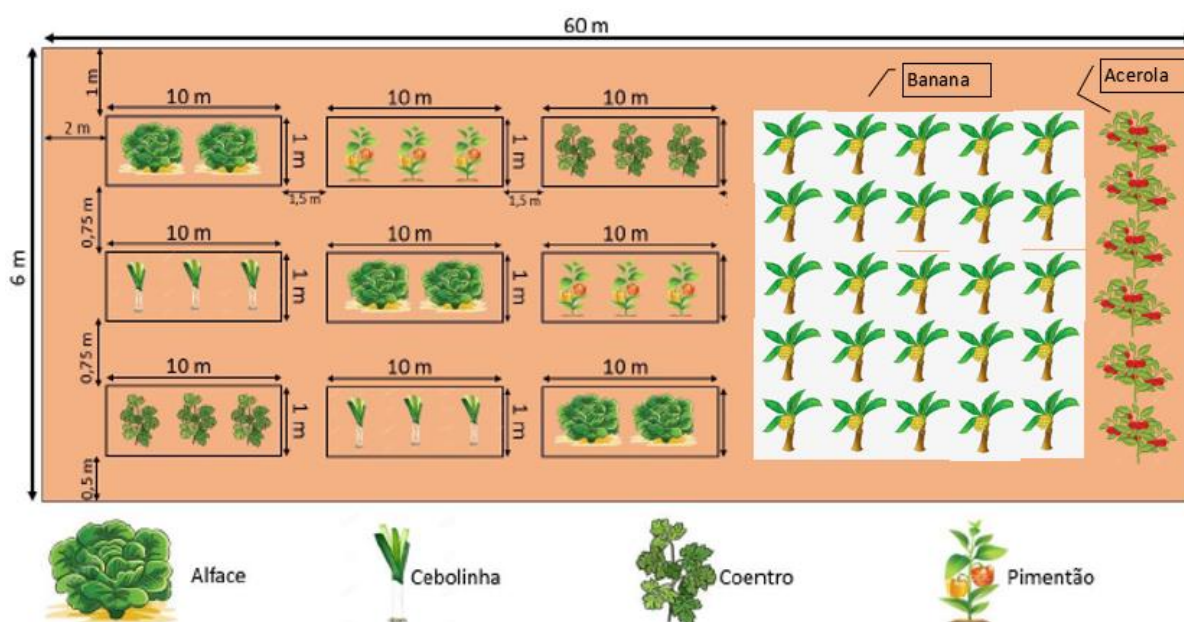
Social technologies section: collective - sidewalk cistern, mini solar power plant, artesian well equipment and biodigester. Individual - eco-efficient stoves and gray water reuse systems.

Environmental section: involves setting up a nursery to produce seedlings of various species, both to reinforce food security (fruit) and to restore native vegetation, plant windbreaks and living fences, etc. Part of the production could be marketed and guarantee the sustainability of the nursery.

**Figure 3 - Illustrative sketch of the project**



**Figure 4 - Sketch of the beds**



### Business Plans (PNs)

As already mentioned, the PN aims to support the strengthening of production through the PIRs, in order to integrate organized producers to access the market.

The development of the NPs will seek to diversify the markets accessed beyond the conventional institutional markets, such as the PNAE and PAA, looking for fronts associated mainly with the private sector.

The PNs developed as a model for the preparation of PROCASE II involve the production sectors of agroecological cotton farming and beekeeping. The specific actions envisaged in these models are presented below.

### **PN Agroecological Cotton Farming**

The PN model for agroecological cotton farming, developed as part of the preparation of Proc case II, was designed to support the development of the sector with a view to benefiting members of the Borborema Agroecology Network (RBA) in the Queimadas Settlement in the municipality of Remígio, PB.

The table below summarizes the main information about this NP and the association/community in question.

**Table 7 - Summary of the Caipira Poultry PIR model and the association/community**

<b>PN AGROECOLOGICAL COTTON FARMING</b>	
Support for the Development of Agroecological Cotton Farming in the Queimadas Settlement	
<b>Location</b>	
<b>Municipality:</b>	Remígio

<b>Community:</b>	Queimadas Settlement
<b>Productive activity(ies) supported:</b>	Cotton farming
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	90
<b>Proponents Men</b>	44
<b>Proponents Women</b>	46
<b>Young people (out of all applicants)</b>	14
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Borborema Agroecology Network
<b>Total value of the PIR (PROCASE II + Beneficiaries)</b>	<b>R\$ 355.607,00</b>
<b>Production and Marketing Section (PROCASE II)</b>	R\$ 283.607,00 (79,8%) Value/benefit: R\$ 3.151,19 (USD 636,60)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 72.000,00 (20,2%)

### **Justification**

How many people will benefit?

- 90 members: 44 men and 46 women, 14 of whom are young people.

What are the main problems to be solved by the project?

- Lack of financial capacity to invest in their own mini cotton processing plant;
- Vulnerability in plume quality control (outsourced service);
- Current high logistical costs for processing;
- Limited capacity to expand cotton farming due to lack of control over the processing process;
- Unavailability of access to ongoing Specialized Technical Assistance (STA) to strengthen RBA's business management capacity;
- Lack of marketing tools and strategies (website, social networks, etc.) to give visibility to the RBA and provide a more favorable environment for the development of new institutional and commercial partnerships.

What practical alternatives have been identified to solve the problems?

- Strengthen the capacities of network managers through the provision of continuous STA services, mitigating the weaknesses identified above;
- Investment in equipment to install a mini-mill for processing cotton, with a gin and press, among other accessories;
- Investment in personal protective equipment;

- Investment in IT equipment;
- Investment in website development with e-commerce and social networks.

What opportunities have been identified that can contribute to achieving the project's results?

- Organic production with high added value;
- Growing market;
- Many experienced farmers;
- Significant reduction in the distance between the field and the mini power plant, reducing the cost and problems with logistics and the impact on family income;
- RBA board compromised;
- Good institutional coordination to develop partnerships to expand activity and improve working conditions in the field;
- The presence of young people and women interested in the productive activity and management of the RBA.

### **Objectives**

Promote the strengthening of organic cotton farming in the area covered by the RBA, as well as improving the income of family farmers by adopting sustainable production and management practices.

Specific Objectives:

- Setting up a mini-processing plant for agroecological cotton;
- Implement proper management practices at the mini-mill, ensuring that as many farmers as possible have access to it;
- To absorb more cotton and increase the scale of production of the mini-mill, optimizing its operating cost, increasing its potential to serve the market and, consequently, achieving the sustainability of the RBA;
- Strengthen the management of the RBA, through Specialized Technical Consultancy, particularly by encouraging greater involvement of women and young people;
- Implement strategies to strengthen the RBA's institutional and commercial structure;
- Implementing effective sustainable measures to reduce the environmental and climatic effects that interfere with the production of cotton and other intercropped crops;
- Expand and improve the generation of work and income.

### **Structural elements of the project**

#### Proposals for access to raw materials

The implementation of the mini-mill will help to increase the volume of cotton to be processed, so it will be the main tool that will determine the potential for expanding the

activity in the region. RBA, with the support of STA, will develop a plan to organize the processes.

#### Proposal related to improving processing infrastructure and adding value

The installation of a mini-mill consisting of a ginning machine and a press will allow RBA to control the planning of the activity, both in the field and in the processing process, thus improving the services offered to members. It will also make it possible to control all the stages of the processing process, from transporting the branches to storing the lint, thereby guaranteeing the quality of the end product and better remuneration for the product.

Better control over cottonseed production will help farmers to obtain direct and indirect income from its use, either by selling it or by using it as seed or animal feed.

STA will contribute to the planning of the use and maintenance of the mini power plant, as well as identifying tools (software) to help carry out the programmed activities in a professional manner.

#### Proposal related to market access and commercialization

Marketing has not been a problem for RBA, given the commercial model developed with partner buying companies. However, given the possibility of expanding production and processing, it is necessary to invest in professionalizing the network's commercial sector. To this end, STA will train the people responsible for the sector and support the development of the website and social networks.

#### Management-related proposal

The actions to be carried out by the STA will be focused on improving the management process as a whole, while prioritizing the sectors with the greatest weaknesses. This process should be conducted in such a way as to provide the RBA with sufficient technical knowledge to ensure sustainable growth, while respecting the principles of self-management adopted by the Network and its volunteers. In this context, opportunities should be identified to increase the participation of women and young people on the board of directors.

The purchase of computers and printers will be financed to improve working conditions.

The implementation and management of the NP will be the responsibility of the RBA's board of directors, under the guidance and monitoring of the STA, local offices and the project itself.

#### Proposal related to social, environmental and health aspects

The NP will comply with environmental, health and social legislation, as well as the requirements set out in the PROCASE II ESMP.

Environmental legislation: The PN will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. As it is a small investment, the mini cotton processing plant is characterized as a low environmental impact project, so there will be no need for environmental licenses to be issued by the state agency, falling under the "licensing waiver" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Health legislation: not applicable.

### Detailed investment

In order to achieve the objectives set out in this PN, investments have been planned in different areas:

- i. Processing and adding value: implementation of a mini-plant with equipment and support materials such as scales, moisture meters, pallets and personal protective equipment.
- ii. Market and Commercialization: development of a website with e-commerce and social networks for institutional and commercial strengthening.
- iii. Management support: acquisition of IT items.

### PN Beekeeping

The PN model for beekeeping developed as part of the preparation of Procase II was based on support for strengthening the beekeeping production chain of the Cooperativa dos Apicultores do Sertão Paraibano - COASPA, established in the municipality of Aparecida - PB, in the Vale dos Piranhas territory.

The table below summarizes the main information about this NP and the cooperative/community in question.

**Table 8 - Summary of the Caipira Poultry PIR model and the association/community**

<b>PIR BEEKEEPING</b>	
Support for strengthening the beekeeping production chain in the Piranhas Valley territory	
<b>Location</b>	
<b>Municipality:</b>	Aparecida
<b>Community:</b>	Acauã Settlement
<b>Productive activity(ies) supported:</b>	Honey and wax warehouse
<b>Beneficiaries</b>	
<b>Total number of families benefiting</b>	82
<b>Proponents Men</b>	43
<b>Proponents Women</b>	39
<b>Young people (out of all applicants)</b>	12
<b>Identification of the Proponent:</b>	
<b>Name of Entity:</b>	Cooperativa Agropecuária dos Apicultores do Sertão Paraibano - COASPA
<b>Total value of the PIR (PROCASE II + Beneficiaries):</b>	<b>R\$ 323.085,00</b>
<b>Production and Marketing Section (PROCASE II)</b>	R\$ 256.085,00 (79,3%) Value/benefit: R\$ 3.122,99 (USD 630,91)
<b>Production and Marketing Section: CP Beneficiaries</b>	R\$ 67.000,00 (20,7%)



## **Justification**

How many people will benefit?

- 82 members: 43 men (7 young) and 39 women (5 young).

What are the main problems to be solved by the project?

- Idle production capacity at the warehouse due to the low volume of honey extracted under suitable conditions;
- Low marketing volume and difficulty in expanding commercially due to the unavailability of certified honey;
- Lack of financial capacity to invest in basic primary honey extraction infrastructure, such as certified honey houses;
- Unavailability of access to ongoing Specialized Technical Assistance (STA) to strengthen COASPA's business management capacity;
- Unavailability of equipment to produce honeycomb wax, causing cooperative members to pay high prices on the specialized market;
- Lack of marketing tools and strategies (website, social networks, etc.) to give the cooperative visibility and increase its potential for market access.

What practical alternatives have been identified to solve the problems?

- Strengthen the capacities of the cooperative's managers through the provision of continuous STA services, mitigating the weaknesses identified above;
- Investment in a mobile honey house (illustrative image in Annex 8.2), made from a container structure, able to be certified by the municipal health inspectorate (structure transported by truck to the place where it will be installed, and can be removed if necessary);
- Investment in suitable equipment for the full operation of the honey house;
- Investment in equipment to produce honeycomb wax;
- Investment in IT equipment;
- Investment in instruments for the quality control laboratory;
- Investment in website development with e-commerce and social networks.

What opportunities have been identified that can contribute to achieving the project's results?

- High honey production by cooperative members;
- Many trained cooperative members;
- Associação dos Apicultores Criadores de Abelhas Melíferas Europeias - ATACAMEL, located in Triunfo - PB, 86 km from COASPA, interested in receiving the mobile honey house and providing the necessary counterparts (place with electricity, floor and roof for installation, piped water or 16,000 L cistern);
- COASPA's board committed;

- Good institutional coordination to develop partnerships that enable this project to be replicated;
- The presence of young people and women interested in the productive activity and management of the cooperative.

### **Objectives**

Promote the strengthening of the beekeeping production chain in the area covered by COASPA, as well as improving the income of beekeepers by adopting sustainable production and management practices.

Specific Objectives:

- Ensuring that COASPA's operations comply with health regulations, guaranteeing the legality and quality of the honey sold;
- Introducing innovative actions in the beekeeping chain, with the installation of a mobile honey house;
- Absorbing more honey from the cooperative members and increasing the scale of the warehouse's production, optimizing its operating costs, increasing its potential to serve the market and, consequently, achieving the cooperative's sustainability;
- Training, through specialized technical consultancy, directors, managers and interested cooperative members, particularly women and young people, to carry out the management of the cooperative professionally in all its dimensions;
- Implement strategies to strengthen the cooperative institutionally and commercially;
- Implementing effective sustainable measures to reduce the environmental and climatic effects that interfere with beekeeping production;
- Expand and improve the generation of work and income.

### **Structural elements of the project**

#### Proposals for access to raw materials

As previously reported, COASPA's problem is gaining access to significant volumes of quality honey, guaranteed to be extracted in regulated honey houses. Most of the honey is produced by small beekeepers who do not have the means to travel long distances to extract the honey in suitable structures, or even to invest in such structures. The STA will draw up a diagnosis to identify the main problems related to the primary processing of honey and propose a short- and medium-term plan to reduce the problems and impacts on the production chain (quitting the activity, low prices, strong involvement of middlemen, low quality, etc.), and consequently increase the flow of larger volumes of honey through the warehouse.

#### Proposal related to improving processing infrastructure and adding value

The installation of a mobile honey house with extraction equipment that meets sanitary standards has important advantages over the traditional masonry model, including lower initial investment, less complexity and time to get up and running and not requiring land documentation (deeds, etc.) as it is not a fixed building, but equipment that can be transferred to another location. Given the experience, level of organization and

geographical location of the ATACAMEL association, the installation of the honey house at its headquarters will help to evaluate this pilot project and its potential for multiplication. All stages of this process will be monitored by STA.

Investing in equipment to produce honeycomb wax will enable beekeepers to access this important production input at a much lower price than the market.

Honey quality control will be improved by investing in instruments and reagents, modernizing the warehouse's laboratory and helping to make analysis more reliable.

#### Proposal related to market access and commercialization

Considering that the actions proposed in the project will increase the volume of honey processed at the warehouse, COASPA, supported by STA, will develop a plan to expand and professionalize the cooperative's commercial sector. The plan will propose actions to overcome the problems pointed out above and strengthen the commercial experiences that are already in place. To this end, STA will carry out training, review labels and packaging, seek out partnerships, such as SEBRAE, which supports cooperatives in participating in specialized fairs nationwide, among other demands to be identified. The development of a website with e-commerce and social networks will be funded, with the aim of increasing the cooperative's sales and visibility in the market.

#### Proposal related to cooperative management

The actions to be carried out by STA will be focused on improving the management process as a whole, while prioritizing the sectors with the greatest deficiencies. This process should be conducted to provide COASPA with sufficient technical knowledge to ensure sustainable growth. In this context, opportunities should be identified to increase the participation of women and young people on the cooperative's board of directors.

To improve working conditions, the purchase of computers and printers will be financed.

The implementation and management of the NP will be the responsibility of COASPA's board of directors, under the guidance and monitoring of the CTE, local offices and the project itself.

#### Proposal related to social, environmental and health aspects

The PN will comply with environmental, health and social legislation, as well as the requirements set out in the PROCASE II ESMP.

Environmental legislation: The NP will respect environmental laws, especially in relation to the preservation of forests, water, soil and air. Because it is a small investment, the mobile honey house is characterized as a low environmental impact project, so there will be no need for environmental licenses to be issued by the state agency, falling under the "licensing exemption" regime, with the issuance of the DBIA (Declaration of Low Environmental Impact) carried out by SEMAS (Secretariat for the Environment and Sustainability).

Health legislation: the honey warehouse will comply with current health legislation. The warehouse has the seal issued by the Federal Inspection Service (SIF) of the Ministry of Agriculture, Livestock and Supply (MAPA).

#### Detailed investment

To achieve the objectives, set out in this PN, investments have been planned in different areas:

- Adding value and diversifying production: implementing a mobile honey house and equipment for extracting honey to the standards required by the health inspectorate, and equipment for making honeycomb wax.
- Quality control: purchase of a kit of laboratory instruments for quality control of the honey received and sold.
- Market and Commercialization: development of a website with e-commerce and social networks for institutional and commercial strengthening.
- Management support: acquisition of IT items.

**Photo 1 - Illustrative photo of the honey case**



Source: Business Plan - Product description template

## 2.7.2 Types of Subprojects from Social Technologies

Social technologies are provided for in Component 1, Subcomponent 1.1 (Implementation of Resilient Biodiverse Production Systems). The Social Technology section (Access to water, reuse of waste and renewable energy) includes:

- Access to water for human consumption: Household Cisterns and Equipped Wells;
- Access to water for agricultural production and animal husbandry: Production cisterns, Construction and renovation of small dams; Underground dams, Barreiros and stone tanks;
- Reuse of waste: grey and black water reuse system, evapotranspiration basins (BETs) and pilot solid waste initiative in rural areas;
- Renewable energy production units;
- Domestic eco-technologies for energy management.

The Preliminary Diagnostic Report - Product 2, referring to the social technologies to be considered in PROCASE II, expressed the Social Technologies listed by the Federal Government, of which the Cisterns for human consumption and production, the reuse of gray water by vermifilter unit (*minhocário*), the reuse of black water by green pit unit, the underground dam, mud yard and stone tank are in accordance with the Federal Government's list for this purpose.

The Banana Tree Circle is a technology that has been cited in scientific papers and books and is used to treat gray water and/or black water. Its operation is similar to that of *wetland* sewage treatment units, which have already been endorsed by the new NBR 17076/2024, but it requires the implementation of a sewage pre-treatment unit. In this case, IN nº 1 SEISP/SEDS/MC of 2020 in its article 1 informs "... Any change in the technical specifications of the social technologies for access to water supported by the Cisterns Program contained in the operational instructions and normative instructions in force must be submitted for prior analysis by this Ministry and must be accompanied by a study or technical report issued by federal or state public universities or federal or state public agencies that proves its suitability and feasibility."

Thus, based on what has been presented, it is necessary to define the term Social Technology to be used in PROCASE-II and thus ratify the technologies adopted.

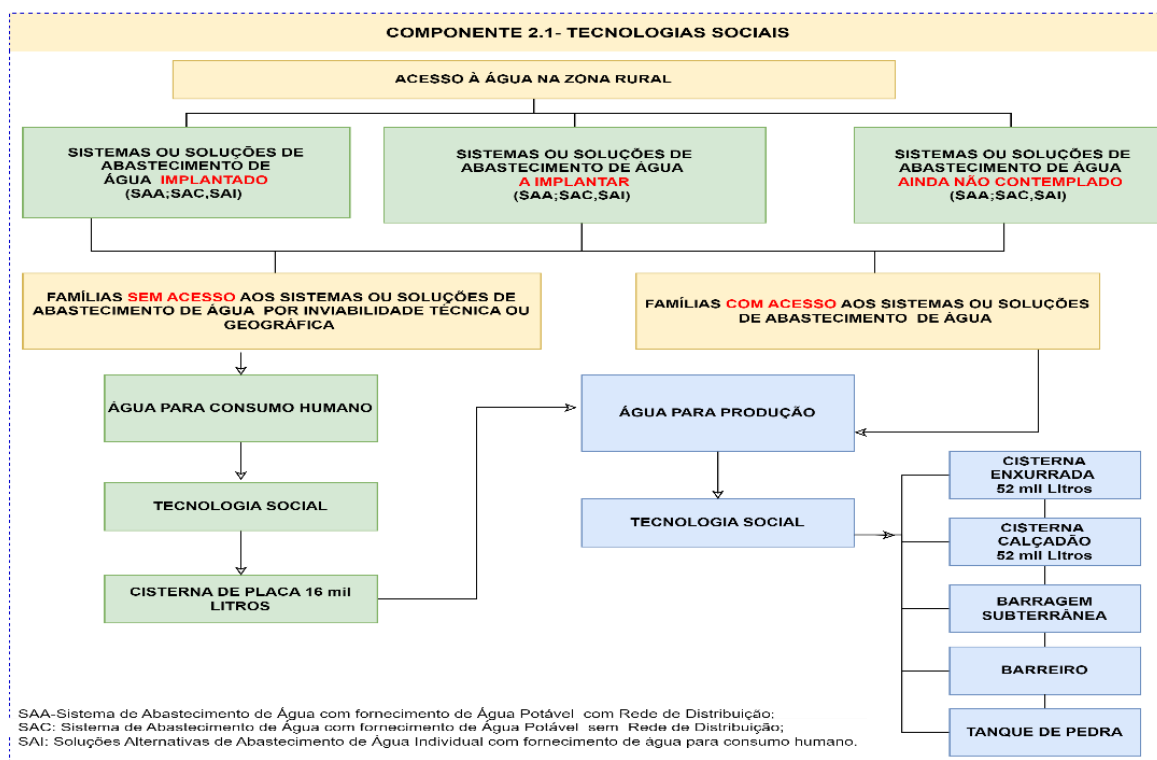
Solid waste management in rural areas and renewable energy units are units that add to the objective of Component 1 and require information from Component 2 activities in order to structure the selection criteria.

### **Water supply for human consumption and agricultural production**

Among the list of Social Technologies adopted by the Federal Government, the following water supply technologies are in line with PROCASE II: slab cisterns for human consumption and production, underground dams, mud pits and stone tanks. Water is a scarce commodity and in order to be consumed, whether for human consumption or agricultural production, it needs control and/or treatment depending on the purpose for which it is intended, which in this case may be:

- Water for human consumption: The water used for human consumption will be rainwater stored using the 16,000-liter Plate Cistern Social Technology and its collection, treatment and handling accessories. According to the regulations, this technology will be used in areas with water stress or regular water shortages, covering the whole of Paraíba. However, the families benefiting will be those in extreme poverty, who consume raw water as a priority or who consume drinking water by means other than drinking water supply systems or solutions. And even if the household is in the areas covered by drinking water supply systems or solutions, it cannot be connected due to technical or geographical impossibility;
- Water for agricultural production: The Social Technologies for storing water used for agricultural production will be a 52,000-liter rainwater cistern, a 52,000-liter cistern, an underground reservoir, a mud pit and a stone tank. They will be used in areas with water stress or regular water shortages. However, they should only be used in areas that guarantee access to water for human consumption, to prevent families from using this production water for drinking. Families that have already received a 16,000-liter cistern will therefore have priority in the application of Social Technologies for production water, where appropriate.

**Figure 5 - Guide to the implementation of water supply technologies.**



Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

### **Water Supply for Human Consumption**

Proc case II will benefit families in technically and geographically unfeasible areas (remote locations), when the alternative is the installation of Plate Cisterns for human consumption water, distributed in the 04 Water and Sewage Microregions (MSB) of the state of Paraíba and must follow the criteria preliminarily established<sup>4</sup>.

**Table 9 - Household Eligibility Criteria for Water Supply for Human Consumption.**

Criteria for choosing the families benefiting from water for human consumption-	Considerations
Social Technology	16,000-liter <b>plate cistern</b>
Paraíba Water and Sanitation Microregion: Alto Piranhas; Espinharas, Borborema and Litoral	There must be at least one beneficiary family located in one of the 04 MSBs
Municipal Basic Sanitation Plan (Guarantees municipal planning for SSS or SAC interventions)	Prioritize municipalities with a completed Municipal Basic Sanitation Plan.
Families in vulnerable situations	Families without access to water for human consumption, i.e. who use raw water for drinking.
Families in vulnerable situations	Families without access to drinking water, i.e. who buy water to drink

<sup>4</sup> These criteria are still being revised by the Proc case II preparation teams

Families in vulnerable situations	Isolated houses that limit interconnection with the SAA or SAC due to their geographical location, demand long stretches of pipe and/or alter the basic project (geographical or technical unfeasibility)
Families without access to WSS in place (located near WSS, but not connected)	Location of the house that makes it impossible to connect to the SAA for technical (hydraulic) reasons.
Families without access to the SAC (located near the SAC, but requiring some form of transportation to collect water)	Location of houses far from the fountain that makes it impossible to collect and transport the water from the support point to the residence.
Component 1	Families benefiting from component 1 activities that meet any of the above criteria.
Families with SAI access implemented	Families with plate cisterns set up by other organizations or projects, such as the P1MC, should not be chosen.

**OBS: Each choice must be justified in terms of rural water supply planning in the state, i.e. if the area is not subject to investment from other projects, whether municipal, state, NGO or other, in order to avoid overlapping resources.**

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

The 16,000-liter slab cistern is a cylindrical, covered, semi-underground water reservoir that allows rainwater to be collected and stored from the roofs of houses using zinc or PVC gutters. It is necessary to dispose of the first rainwater and use the popular water pump social technology (Bomba Manual) (Annex to IN SESAN, March 2023).

Water from the 16,000-liter cistern should be used for drinking, personal hygiene and cooking, and should not be used for washing clothes or cleaning the house. It should also be avoided in places close to corrals, pits, garbage dumps, in order to avoid contamination, rainwater should never be mixed with other sources of raw water, the water should be filtered and chlorinated before being consumed and the first rainwater should never be used. Therefore, the eligibility criteria must be added to the technical criteria<sup>5</sup> set out in the following table.

**Table 10 - Technical criteria for choosing 16,000 liter slab cisterns**

Criteria for choosing the families benefiting from water for human consumption-	Considerations
Adequate basic design, with didactic and easy-to-interpret specifications to serve the target audience and support TA staff;	It should be developed by professionals, including engineering and social specialists. The project must contain the hydraulic parameters and execution processes in accordance with the ABNT Technical Standards, but it must present a chapter with colloquial language, where the support of the social professional is necessary. <sup>6</sup>

<sup>5</sup> These criteria are still being revised by the Proc case II preparation teams

<sup>6</sup> All social technologies, including cisterns, will be implemented through specially contracted technical assistance entities, within the existing legal framework developed by the federal government. The calls for tenders describe the minimum conditions (experience, composition of technical teams, etc.) that these entities must meet.

Installation of devices for: detour of first rainwater, overflow of surplus volume, protective screens at the inlet and outlet, among others;	Technical procedures with a clear message about why each device should be used. Preparation of a booklet.
Manual water pump: avoid contamination when removing water with other utensils that could contaminate the water during handling;	A relevant device in terms of sanitizing water collection, and the importance of sanitizing other utensils from transport to storage in the home should be added.
Identify the type of soil, whether sandy, stony and shallow or clayey.	Cracks in walls are quite common and backfilling, depending on the inappropriate material or improper construction method, can contribute to structural failure;
Implement sanitary barriers;	Avoid building near trees and bushes, keep away from corrals, latrines, garbage dumps, septic tanks and drains.
Avoid keeping the cistern empty for too long to prevent cracks;	Avoid filling the cistern with raw water.
A qualified professional with experience in rural areas.	Support for the PROCASE II team in choosing the beneficiary families and technical support for the construction process, preventive and corrective maintenance;

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

### **Water Supply for Production**

The water supply for production will be for the use of agricultural activities and animal watering, its implementation must be associated with technical training and training for water management t, benefiting families who are covered by Plate Cisterns for human consumption or families covered by water supply systems or solutions (SAA, SAC or SAI), and must cover the 04 MSB of water and sewage of Paraíba, in areas with water scarcity and regular lack of water, the technologies adopted for this purpose are:

- **52,000-liter boardwalk cistern:** social technology that should guarantee access to rainwater from a 200 m<sup>2</sup> boardwalk for food production and/or animal watering for families benefiting from Procase II. It is a type of cylindrical water reservoir, covered and semi-underground, which allows rainwater to be collected and stored from a 200 m<sup>2</sup> sidewalk. The 3.2 m radius, 1.8 m deep reservoir has the capacity to store approximately 52 m<sup>3</sup> of rainwater. Covered and enclosed, it is protected from evaporation and contamination caused by animal waste and other impurities carried by the wind. The rainwater catchment area, called the *calçada*, has its area delimited by a curb, and is on a higher level than the reservoir, with a small slope to lead the water to a settling box and from there to the reservoir. (Annex to IN SESAN, March 2023);
- **52,000-liter rainwater cistern:** a social technology that guarantees access to rainwater from a rainwater bed for the production of food and/or animal feed for families benefiting from Procase II. It is a type of cylindrical water reservoir, covered and buried in the ground, with an internal diameter of 6.20m and a depth of 1.80m, capable of storing 52 m<sup>3</sup> of rainwater collected in the flood axis;
- **Underground Dam:** a social technology that should guarantee access to rainwater from flood beds for food production and/or animal watering for families benefiting



from Procace II. The underground dam is a barrier across the bed of torrents, streams and temporary creeks, by fixing a flexible plastic blanket in an excavated trench until it meets the crystalline or impermeable thickening, which is a rocky layer characteristic of the soils of much of the Brazilian semi-arid region. Its function is to retain rainwater that flows over and through the interstices of the soil, allowing the formation or elevation of the water table. There are two models of dam:

- a) Submerged dam: when the dam is at ground level and has no spillway. This model is indicated when the dam is built in the bed of temporary streams;
- b) Submersible dam: when the dam extends above ground level and accumulates a sheet of water on the surface of the land for a short period of time, usually two to three months after the rains have stopped. In this type of dam, a masonry spillway is built to drain the excess water and preserve the slope above ground, usually 0.6 m high. (Annex to IN SESAN, May 2023);
- Barreiro Trincheiro: a social technology that should guarantee access to rainwater from flood beds for the production of food and/or animal feed for families benefiting from Procace II. They are excavated in the ground to form a long, narrow tank with a bottom that stores rainwater. Their dimensions prevent the action of wind and sun, minimizing the effect of evaporation during periods of drought;
- Stone Tank: a social technology that should guarantee access to rainwater from flood beds for the production of food and/or animal feed for families benefiting from Procace II. It is used to store rainwater in rocky outcrops, which are sized to prevent evapotranspiration and the accumulation of rainwater in the dry season, where they are reinforced with walls to ensure the ideal height and waterproofing of cracks to prevent infiltration. It is a technology that provides access to water for production and animal husbandry, similar to the *microaçude*.

The social technology must be located in areas with water scarcity or regular water shortages. In addition, the Criteria<sup>7</sup> for choosing the beneficiary families must be observed, according to the table below.

**Table 11 - Eligibility Criteria for Choosing the Families Benefiting from Social Technology for Agricultural Production Water.**

Criteria for choosing the families benefiting from Social Technology for Agricultural Production Water	Considerations
Families with access to drinking water	Avoiding the use of production water for human consumption, Families in vulnerable situations who do not have access to drinking water.
Families benefited from a 16,000 liter plate cistern through Procace II	Balancing water management in the areas benefiting from Procace II.
Families with priority use of water for animal watering.	Ensuring access to and management of water for production
Families with agricultural activities	Ensuring access to and management of water for production

<sup>7</sup> These criteria are still being revised by the Procace II preparation teams

Support from a qualified professional.	Engineers in the civil/environmental/agricultural field to help locate the social technology, based on technical and environmental criteria.
Support from a qualified professional.	Engineers and technicians for support and guidance on execution, operation and maintenance.

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

### Reuse of gray and black water (Green Trench)

Domestic sewage encompasses numerous peculiarities and specificities that influence the most appropriate treatment, which depends on the purpose for which it is intended: it can be dispersed in the soil, in the water body and/or used for reuse.

Among the list of Social Technologies adopted by the Federal Government, the following sewage technologies are in line with PROCASE II: gray water reuse (by physical and biological treatment - use of earthworms<sup>8</sup>) and black water reuse (Green Trench), both without the need for pre-treatment or post-treatment units for release into the soil or water body.

- Gray water reuse: treats wastewater that does not come from the toilet. The treatment of these effluents through the reuse system consists of a filtering process using biological and physical impediment mechanisms. Initially, the gray water, rich in chemical and organic waste, is directed to a filter where the organic matter is biodegraded by a population of microorganisms and earthworms (*eisenia fetida*), resulting in the removal of its main pollutants (Annex, IN SESAN/MDS No. 36, March 2024). This treatment is of the Vermifilter type<sup>9</sup>. In addition to this, the Banana Tree Circle can also be used, which is specified in academic works<sup>10</sup>, but not yet regulated in the Federal Government's Normative Instructions specifically for grey or black water, and for the treatment of black water a pre-treatment must be installed.
- Black water reuse: treats the specific water from the toilet. The evapotranspiration basin (Green Trench; Ecological Trench) will be used, which is regulated by the Federal Government's Normative Instruction and does not require pre-treatment of sewage for its use.

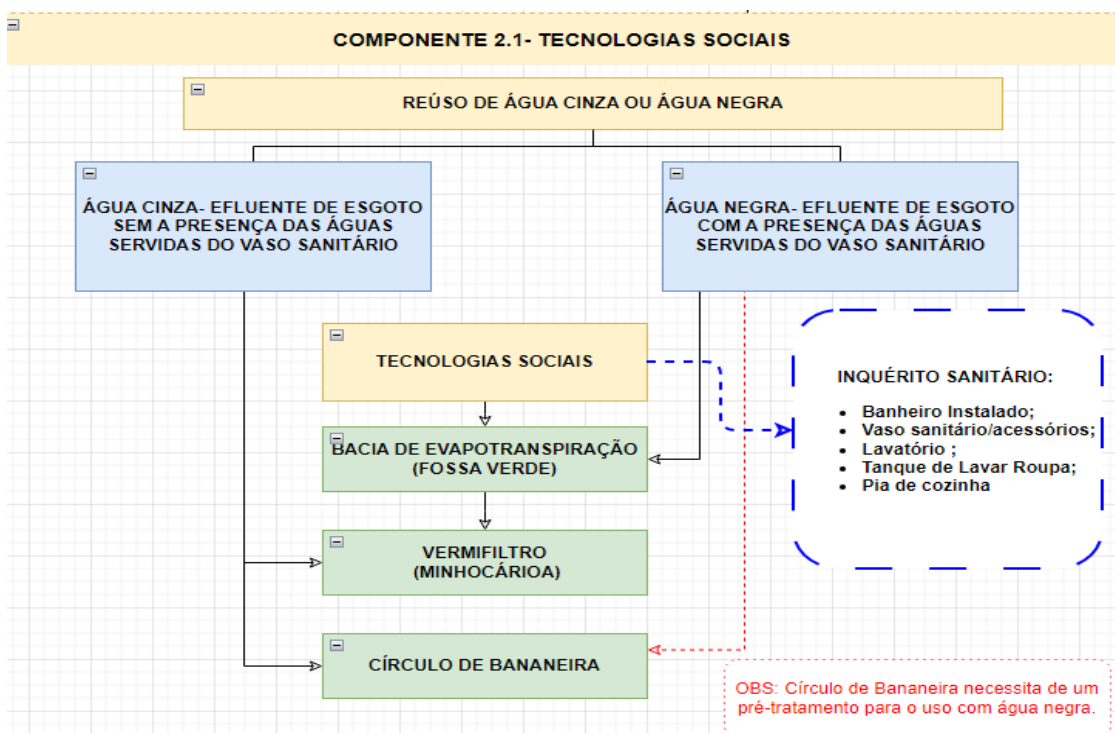
The following figure illustrates the technologies mentioned in this topic and includes the Sanitary Survey as a support for evaluating the beneficiaries of these technologies, highlighting the importance of the scenario for implementing the technologies and the accessories for their applicability, such as the grease trap and the bathroom with toilet.

<sup>8</sup> Consulting and Sustainable Oriented Technical Training - ATOS, in partnership with the Federal Rural University of the Semi-Arid, the International Fund for Agricultural Development - IFAD and the Dom Helder Câmara Project, which resulted in the Manual for the implementation and management of the family bio-water system: reuse of domestic gray water for food production in family farming in the Brazilian semi-arid region.

<sup>9</sup> Vermifilter can be used for black water, domestic sewage, but it is necessary to carry out a pre-treatment technology such as a septic tank.

<sup>10</sup> The Banana Tree Circle is not included in Brazilian standards, but it is suggested by FUNASA (FUNASA, 2015 and 2018) and its effectiveness has been proven by academic research (FIGUEIREDO, in press) and by its current use in permaculture and agroecology projects (Book Domestic Sewage Treatment UNICAMP, 2018).

**Figure 6 - Diagram Sanitary Sewage and Reuse of Treated Domestic Effluent**



Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

The reuse of grey water and black water considered in this Component will support families who are in a situation of extreme vulnerability and who have the minimum conditions for eligibility and should be a determining factor in transforming the local reality in terms of eliminating local pollution and managing the use of water, for which it is important to have the minimum conditions for implementing these technologies, which can be verified in the following Table<sup>11</sup>.

**Table 12 - Minimum Conditions for Access to Social Technologies for Treating Greywater or Blackwater.**

Criteria for choosing beneficiary families Social Technology for Reusing Grey or Black Water.	Considerations
Families with the right profile to receive social technology	Reuse needs to be well accepted by the beneficiaries and supported in terms of application, operation and maintenance.
Type of sewage and use	Specific for domestic sewage effluent and not used for vegetables.
Families benefiting from Proc case II plate cisterns for drinking water	Contribute to the control of water use, avoid local pollution. Households with open sewage drains.
Families benefiting from Proc case II plate cisterns for production water	Contribute to the control of water use, avoid local pollution. Households with open sewage drains.
The homes served must have a toilet and sink	Ensuring sanitary areas for the implementation of technologies.

<sup>11</sup> These criteria are still being revised by the Proc case II preparation teams

Kitchen sink	Ensure the implementation of the grease trap as Social Technology for gray water
Toilet bowl	In the case of Social Technology for black water.
Area available for construction of treatment units	Space for the implementation of social technologies and sanitary barriers for protection, so that treatment takes place in and around the home.
Areas for vegetable production and near the residence	Recommendation of a qualified professional regarding the choice of execution site
Location of gray water outlets in houses.	Kitchen sink, tank or washing machine, shower, hand basin.
Health survey	Draw up a questionnaire on the health situation of beneficiary families

**NOTE: Social Technologies for gray water and black water do not necessarily have to be implemented at the same time, but they can only be implemented if the other waters have been properly treated and disposed of.**

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

In this project, specific social technologies will be implemented for the reuse of gray water and black water, as set out above. The Social Technologies for the reuse of gray water will be Vermifilter by Worm Cultivation or Banana Tree Circle, and for black water it will be the Evapotranspiration Basin (Green Trench).

### Study of Solid Waste Management in rural areas

The areas covered by Procase II should be interconnected with the Municipal Solid Waste Plan to ensure the proper disposal of waste generated in rural areas and avoid the formation of dumps. In principle, the municipality must be supported in adding value or inputs to existing municipal planning, and the municipality's capacity to receive the new waste must be proven.

The following figure illustrates the possible phases encountered during the rural solid waste management process.

**Figure 7 - Solid Waste Management in Rural Areas**



Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

The study of solid waste management in rural areas should cover at least one of the municipalities belonging to Paraíba's four MSBs and aim to provide the means, among

the five alternatives, to transform the local reality, in other words, to eliminate the pollution caused by the lack of solid waste management. In this way, the actions to be implemented must be integral and articulated with municipal solid waste management, supported by means referenced by the 05 alternatives.

Beneficiary rural areas must comply with the minimum conditions proposed<sup>12</sup> in the following table.

**Table 13 - Minimum Conditions for Implementing a Rural Solid Waste Management Study**

Criteria for choosing community associations to be covered by rural solid waste management actions.	Considerations
Municipalities belonging to the MSB of Paraíba	Municipality that has a landfill with the capacity to receive waste generated in rural areas.
Municipalities belonging to the MSB of Paraíba	Municipality that has a Controlled Sanitary Landfill and that must only receive recyclable waste from rural areas.
Community associations with component 1 activities	Sorted by level of waste generator (starting with the most polluting)
Community associations with the highest percentage of recyclable waste	Eliminate the generation of waste and/or guarantee the final disposal of waste.
Community associations with the highest percentage of organic waste	Families willing to set up a composting area with natural or accelerated organic decomposition that can benefit more than one household.
Community associations with the highest percentage of organic waste	The family is receptive to setting up a composting area with natural organic decomposition that can benefit just one household.

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

In addition to the criteria in the table above, PROCASE II can support the implementation of actions, among others, in isolation or as a group, as follows:

- Purchase of collectors for packaging waste;
- Implementation of a voluntary drop-off point - PEV;
- Acquisition of any type of transport, large or small, to support municipal waste management;
- Implementation of recyclable sorting units;
- Support for the creation or renovation of sites for recycling activities;
- Support for waste pickers;
- Support for the implementation of natural or accelerated composting;
- Training;
- Proof that the action implemented will change the local scenario in terms of the generation, storage and final disposal of solid waste in the areas covered.

<sup>12</sup> These criteria are still being revised by the Proc case II preparation teams

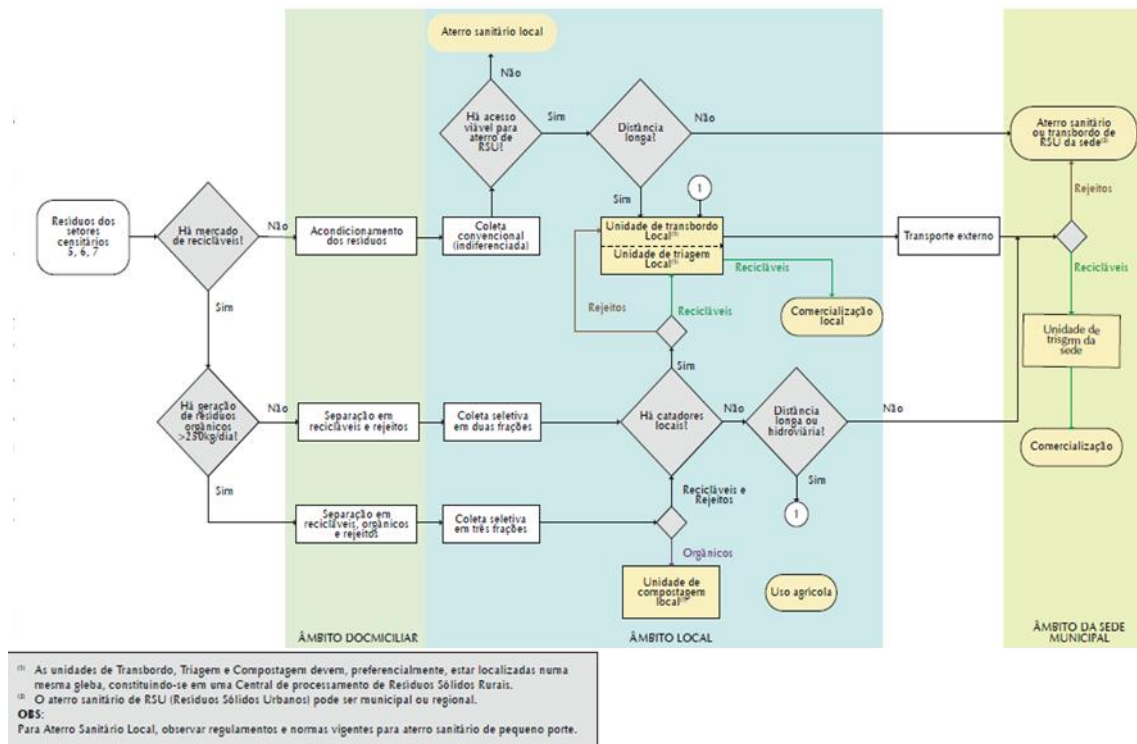
The following figures show an outline of solutions for solid waste management in rural areas, drawn up by the National Policy for Rural Sanitation (PNSR -FUNASA), which can serve as a basis for this study, the first referring to the types of census sectors shown in the other figures.

**Figure 8 - Census Sectors.**



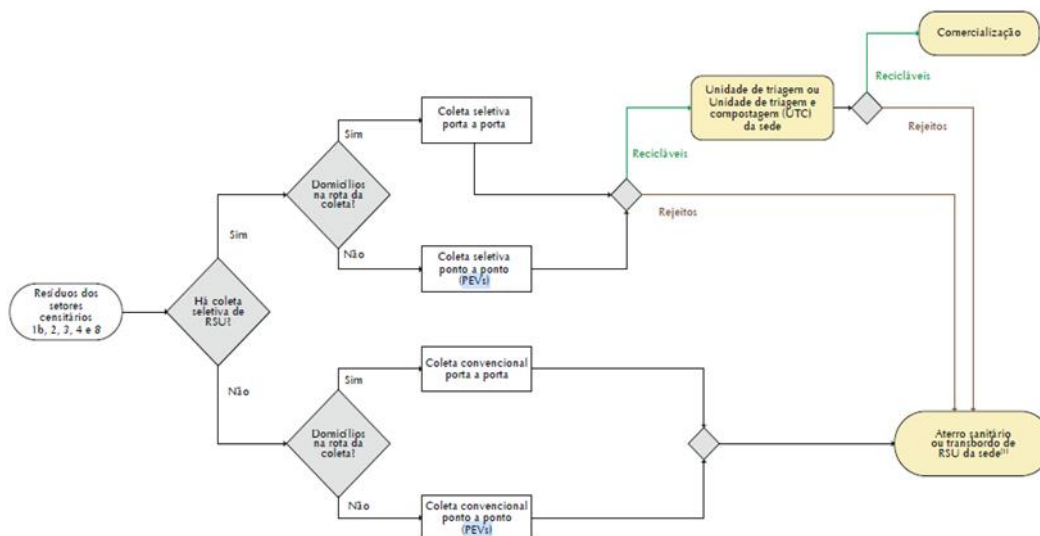
Source: Didactic booklet - Sustentar-FUNASA Program 2020.

**Figure 9 - Technological Matrix of Collective Solutions for Solid Waste Management**



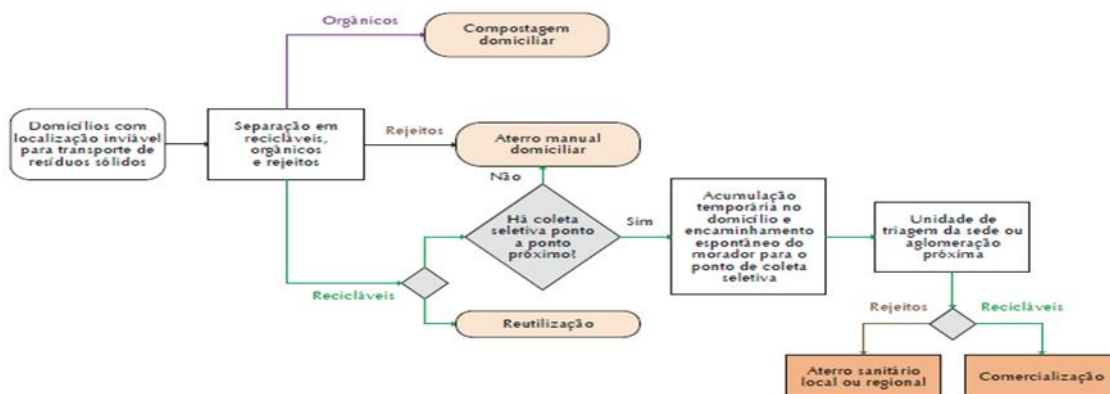
Source: PNSR (FUNASA), 2019

**Figure 10 - Technological Matrix of Collective Solutions for Solid Waste Management with Urban System Integration**



Source: PNSR (FUNASA), 2019

**Figure 11 - Technological Matrix of Individual Solutions for Solid Waste Management**



Source: PNSR (FUNASA), 2019

### Renewable Energy

The renewable energy to be used within the scope of the project is photovoltaic (solar energy), which can be implemented in wells for agricultural production, especially those defined in water projects for agricultural production, and can be implemented together with the social technology for production water, as support for collection and reservoirs. It is also expected to be used as an energy source for irrigation equipment and in processing plants. Biodigesters can also be used.

The Biodigester is a domestic sewage treatment unit that does not require pre-treatment, but it is necessary to install a post-treatment unit for the treated effluent so that it can be disposed of in the ground or in a water body. During the sewage treatment process, gas is generated that can be used for cooking, lighting or heating water. However, the biodigester is not only used as a domestic sewage treatment unit, it can also be used to

produce biofertilizers. The organic materials used in the biodigester can be waste from plant production (leaves, straw, crop residues) or animal production (such as manure and urine).

This product will be developed based on these three premises:

- a) water supply and reuse of gray or black water,
- b) Solid Waste Management study in rural areas and
- c) renewable energy.

Technical and socio-cultural criteria will be developed, as well as the specificities and peculiarities of the areas to be covered, ranging from the agricultural activities of component 2 to the social, economic and political aspects of the 223 municipalities in the state of Paraíba. This will lead to the presentation of eligibility guidelines for the choice of typologies that can be adopted in all of Paraíba's municipalities.

Among the actions under Component 1, three proposals were presented regarding the use of renewable energy to strengthen PROCASE II's objectives of reducing rural poverty levels and producing actions to combat and mitigate climate change: i) photovoltaic energy; ii) biodigester and iii) eco-stoves.

- i) Photovoltaic energy: solar energy can be used directly in Social Technologies for production water, with the exception of 52,000 liter plate cisterns, when installing wells to support agricultural activities. They can also directly benefit the agricultural activities of interdependent associations under Component 1;
- ii) Biodigester: a unit for the treatment of domestic sewage effluent and a unit for the production of biofertilizer supplied with waste from plant production or animal production (animal urine and manure). The use of the biodigester for domestic treatment must be accompanied by sewage post-treatment units that guarantee the disposal of the treated effluent in the soil or water body. Biogas and biofertilizer are produced. Given the lack of sanitary sewage in rural areas and the characteristics of the families benefiting from the supply of water for human consumption, the implementation of a biodigester for the treatment of domestic effluent in this project is not effective due to the numerous variables required for its use, especially with regard to the regularization of sanitary sewage in the benefited areas, such as the execution, renovation or expansion of toilets and/or sewage treatment units. Therefore, the biodigester will be implemented with vegetable or animal production waste.
- iii) Eco-stoves: the ecological stove uses sticks, corn cobs and tree bark as fuel, as opposed to the wood stove, which is fueled only by firewood.

Photovoltaics must be directly related to social technologies for supplying water for production (with the exception of 52,000-liter cisterns) and must be a priority criterion, not an exclusion factor.

Biodigesters and stoves should be prioritized rather than excluded. However, these two can also be linked to solid waste management when they require organic waste for their operation.



### 2.7.3 Analysis of Alternatives for Subproject Typologies

The alternatives for the types of sub-projects highlighted under PROCASE II are presented and evaluated below.

#### **Alternatives for Resilient Investment Plans - RIPs**

The discussions on alternatives for the PIRs involved socio-environmental concerns that touched on some important constraints.

Among these constraints, the following were addressed:

- Productive investments in permanent preservation areas (APP for springs);
- Productive investments in permanent preservation areas (river APP);

The options for each of these issues linked to the definition of PIRs are assessed and commented on below.

#### **Productive investments in permanent preservation areas (river APPs)**

River APPs are areas that must be protected and recovered from the point of view of their natural state, following the possibilities and guidelines prescribed in the Forest Code law. In addition, it is important to observe the premises of ESPS 6 of the IDB's ESPF and Standard 1 of IFAD's SECAP, which deal with issues of biodiversity conservation and sustainable management of natural resources.

Discussions about the alternatives involved joint debates between the PROCASE team, socio-environmental consultants preparing the project, local universities and representatives of environmental agencies (SUDEMA, SEMAS).

With this in mind, the following scenarios were evaluated for the project, with the following results:

#### **Implementation of SAF in APP of springs**

Springs are very sensitive areas, as they involve water production areas that need to be in their most natural state possible, in which the use of their resource should be avoided in order to boost the production of the resource, including avoiding its scarcity.

As a result of the evaluations and discussions, the implementation of SAF in these spring preservation areas could lead to a process of depletion or a significant reduction in the resource and water production due to the water demand that the SAF plants could require.

*This alternative was therefore discarded from the project.*

#### **Planting a SAF in a river APP**

On the other hand, it was noted that the possibility of implementing SAF in river APPs could bring ecosystem benefits to the natural environment. In this case, the process of recovering degraded APP areas, even with the strategy of implementing SAF, has proved to be very positive in terms of increasing the sustainability of the areas. Through observation of real cases in productive areas and discussions with institutions (scientific,

management and control/supervisory), the following results were reached for alternatives for implementing SAF in APPs:

- For the project to be successful, the **soil must first be restored with target species that are** useful for this purpose. Implementing SAF without this strategy could lead to increased erosion and loss of soil nutrients;
- **The use of exotic species can be useful for recovering the soil before inserting native tree species**, as well as some being important fodder, but preference should be given to: (i) native species; (ii) exotic species that are adapted and/or do not have invasive characteristics, and that are not new species inserted into the environment. The application of species with the aim of soil recovery and productive use must be carefully controlled;
- It was observed in the experiments carried out and in the discussions that strengthening the ecosystem with strengthened soils and good biological diversity brings greater resistance and resilience to the environment.
- The implementation of SAF in river APP **can be considered in conjunction with irrigation systems for production**, thus bringing greater sustainability to the use of available water resources.

*In this sense, this is a viable alternative with positive results for the project.*

#### **Alternative to not implementing SAF in a river APP**

According to the results of the evaluations, this would not be a good alternative, given that:

- This can exclude many rural properties from eligibility for the program, given that many rural producers with the profile to benefit have small properties (Small: up to 4 fiscal modules; Medium: between 4 and 15 fiscal modules)<sup>13</sup>. This issue, coupled with the presence of APP on the property, ends up fatally reducing the area available for production.
- The implementation of SAFs in APP areas, provided they are carried out in a careful and sustainable manner, helps to combat and recover degraded areas on river banks, benefiting both the natural environment and the rural producer.

*Experience has therefore shown that it is better not to consider this alternative of non-execution.*

<sup>13</sup> According to INCRA, the classification of property size can vary between 2ha and 100ha, depending on a series of established criteria such as the region/municipality and type of production. The classification is defined by Law 8.629, of February 25, 1993, amended by Law 13.465 of 2017, and takes into account the fiscal module, which varies according to each municipality. The fiscal module is one of the Basic Cadastral Indices used by INCRA to set parameters for characterizing and classifying rural property by municipality, according to its size and regional layout. The current indices were defined by Incra through Special Instruction No. 5 of 2022.

## Alternatives for Social Technologies

The evaluation of alternatives for Social Technologies addressed the following situations:

- Alternatives for water supply and the use/reuse of water in rural areas, considering the region's water availability and the extensive semi-arid area in the state of Paraíba;
- Alternatives for sanitation in rural areas;
- Alternatives for eco-efficient energy technologies.

The options for each of these issues linked to the definition of Social Technologies are evaluated and commented on below.

### Water Supply for Human Consumption

Firstly, the approach to defining alternatives was focused on technical aspects (rainfall irregularity, production flow) and/or the difficulty of accessing existing water sources (widely dispersed houses and/or the need to lay large stretches of raw or treated water pipeline).

Bearing in mind that some essential parameters for defining the typology can only be verified when the subproject is drawn up, specifically with regard to the community to be benefited, which has not yet been defined, the types of water treatment will depend on the standards of potability for its use.

Article 2 of Ordinance GM/MS No. 2.472/2021 states that for human consumption, water must come from:

- Water Supply Systems (WSS);
- Alternative Collective Water Supply Solution (ACWSS);
- Alternative Individual Water Supply Solution (AIWSS);
- Water truck.

The table below shows the alternative ways of supplying water.

**Table 14 - Characteristics of Water Supply Modalities**

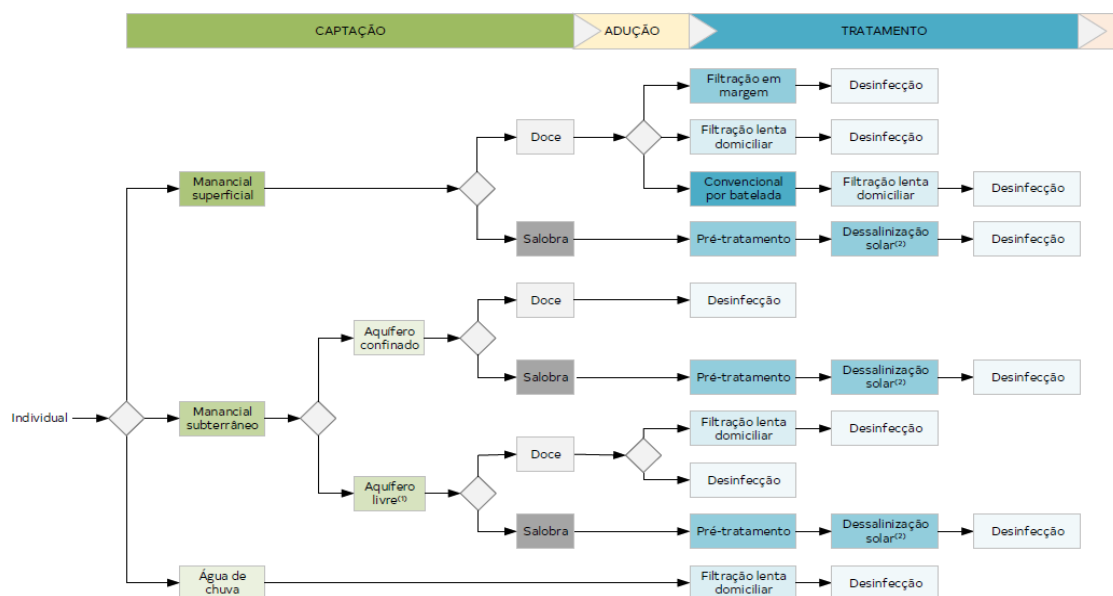
Mode of Supply	Scope	Distribution	Example
<b>1-Individual Alternative Solution - IAS</b>	Single-family	Simple piping	Direct abstraction from springs and wells
<b>2-Collective Alternative Solution- SAC</b>	Press conference	Single pipe and reservoir	Collection, supply and reservoir (fountain)
<b>4-Water Supply System - WSS</b>	Press conference	Distribution Network	Collection, adduction, reservoir and distribution network and building connections

Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

The Water Supply Solution or System is implemented in areas where water is supplied from surface or underground sources. The ACWSS and WSS must have a qualified technician responsible for the operation, with the respective ART issued by the Class Council.

The individual water supply can be provided in two ways: by Alternative Individual Water Solutions or by rainwater, both of which must be treated by disinfection and filtration, as shown in the figure below.

**Figure 12 - Types of Treatment for an Individual Water Supply System or Solution.**



Source: National Rural Sanitation Program - FUNASA-2019

The parameters that defined the choice of the best alternative for the project were:

- Best alternative for areas with low rainfall;
- The areas usually have surface or underground springs with low catchment flows;
- Many springs have water characteristics that do not meet the normative and legislative parameters for drinking water and require special technologies for water treatment and control, generating the expectation of investment;
- Often there are long distances between the water catchment and homes, requiring long stretches of raw or treated water pipelines, generating a high investment value;
- The best technology should help reduce the distance traveled to collect the water;
- The dispersion of houses in communities is likely to require a large investment to install a distribution network, depending on the technology chosen;
- The alternative should reduce the risk of water-related diseases;
- The best alternative should not compromise family income for the purchase of water for drinking and storage;
- The best alternative should provide an option for the rational use of water.

The components of a rainwater harvesting system using cistern technology are:

- Catchment surface: favorable roofs: high water run-off coefficient and less chance of contamination;
- Transport system: Prefabricated gutters that collect rainwater and can be made of galvanized steel, aluminum or PVC;
- Sanitary Protection System: avoid the first millimeters of rain, impurities and debris; hand pump and keep away from corrals, pits, garbage dumps, among others;
- Storage system: ensure technical support in terms of execution to avoid possible damage such as cracks, leaks, as well as operation and maintenance (predictive and preventive).

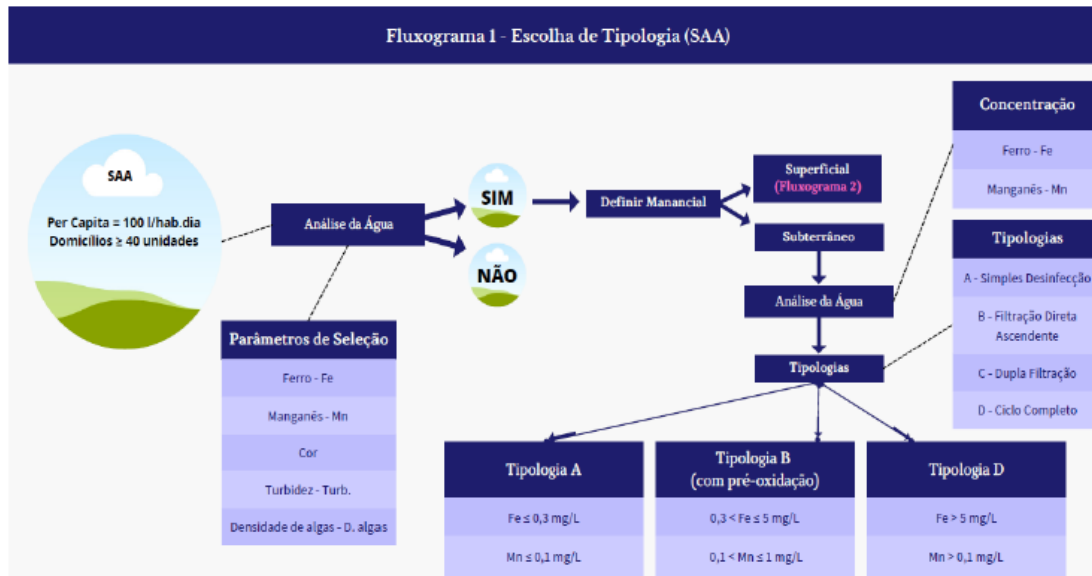
The SAls serve one family or a family nucleus (households), the catchment can be by spring, well, water tanker and cisterns, the treatment is done by simple disinfection and/or filtration. The Social Technology Cistern for human consumption is an Individual Alternative Water Supply Solution.

The WSS with a distribution network are commonly carried out in urban areas, city centers and districts with a high population density, which is reflected in the design of the project to meet hydraulic parameters, such as: adequate per capita flow, long stretches of pipeline, hydraulic design with the need for water pumping stations (WPS), hydraulic transients (TAU, Stand-PIPE, Suction Cups), among others. In addition to access difficulties for operation and maintenance, all of this can generate technical and/or financial unfeasibility and imply limiting factors, especially in rural areas, which present a scenario with low population density, dispersed houses, inhabited regions without urban planning, access difficulties, large territorial extensions, unpaved roads, large agricultural areas. In Paraíba, most of the territory is located in the semi-arid region or in a region with a regular lack of water, which is reflected in the low level of service provided to the rural population by WSS (only 24.16%).

In rural areas with a high population density and water sources that allow treatment by simple disinfection and filtration, families are generally served by WSS with a distribution network. On the other hand, those with low-flow springs and widely dispersed houses are served by fountain-type ACWSSs. Often, due to a lack of financial resources, part of the community is served by WSS (simple disinfection) and part is served by fountains (SAC), in addition to those served by cisterns for human consumption.

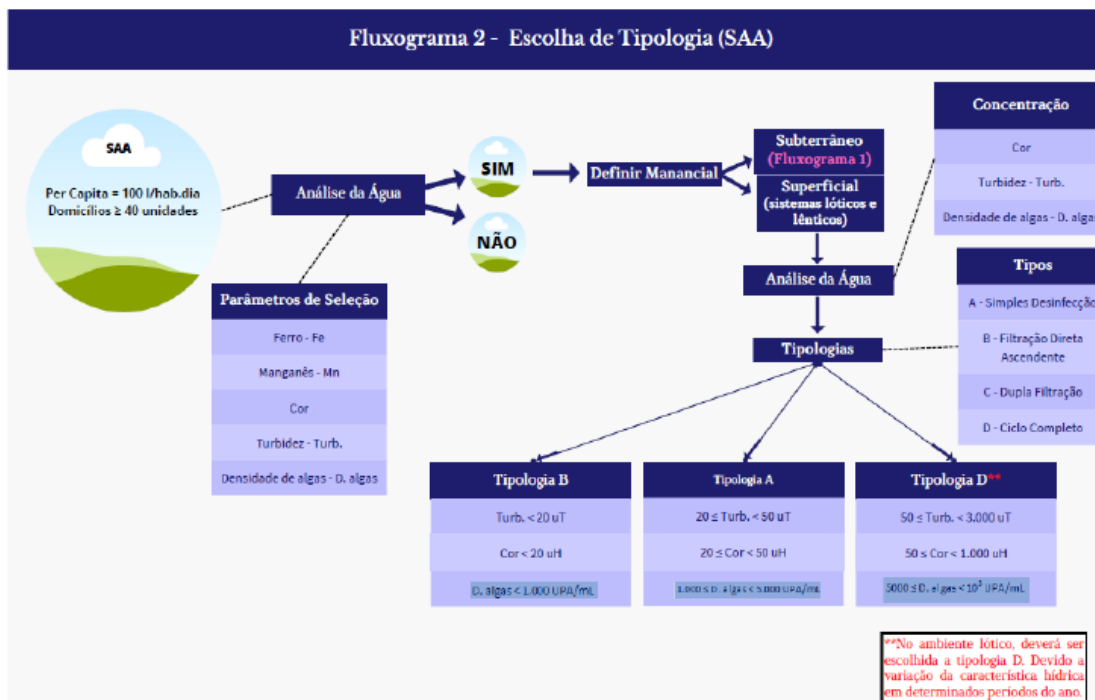
The choice of an alternative type of water supply when it involves abstraction from surface or underground water resources (except rainwater) goes through a process that takes into account the composition of the water to define the source to be used and the type of solution adopted, as defined in the flowchart below.

Figure 13 - Flowchart of the choice of WSS typology for surface water



Source: MACS / Adapted from Ponte, 2011.

Figure 14 - Flowchart of the choice of WSS typology for groundwater



Source: MACS / Adapted from Ponte, 2011.

Thus, the SAI, consisting of cisterns, was the best alternative for the Typology of Social Water Supply Technology, meeting the parameters of choice of alternative, low cost of implementation and operation, as well as low maintenance.

## **Water Supply for Agricultural Production and Animal Husbandry**

The supply of water for production helps to support agricultural activities and animal husbandry in areas affected by water scarcity. Therefore, the use of Social Technologies for this purpose complements actions to control water and mitigate climate change, since, if well controlled, they reduce the negative effects of droughts.

*The alternative technologies to be adopted by Procasa II for water supply in agricultural production and animal husbandry are Production Cisterns, Underground Dams or Trench Barriers.*

*These technologies have a low environmental impact, low implementation, operating and maintenance costs and meet the parameters similarly presented for the supply of water for human consumption.*

*In any case, these alternatives should also be evaluated from the point of view of the environment in which they are inserted, since this particularity can define the best choice.*

### **Production tank**

The production cisterns are a system made up of a plate cistern with a storage capacity of 52,000 liters accompanied by a sidewalk with an area of approximately 200m<sup>2</sup> that retains rainwater. In addition to these units, decanting boxes must be built to prevent water from accumulating on the sidewalk and to sediment sand and other debris in the water. The water is removed by hand pump.

### **Underground dam**

A social technological alternative that helps reduce the negative effects of long periods of drought is the underground dam (SILVA et al., 2007, p 1).

The technology consists of intercepting the surface and underground flow of a pre-existing or created aquifer with the construction of an impermeable wall, built with masonry, concrete, compacted clay or plastic sheeting, depending on the local conditions of the producer and the availability of materials in the region (BRITO et al., 1989).

Underground dams are built in areas of shallows, streams and creeks, in places where the most water flows when it rains. It is built by digging a trench down to the impermeable layer of soil, the rock. This trench is lined with plastic sheeting and then closed again. In this way, a barrier is created to store rainwater under the ground and keep the soil moist for a longer period.

### **Brickyard**

They are excavated in the ground to form a long, narrow tank with a bottom that stores rainwater. Their dimensions prevent the action of wind and sun, minimizing the effect of evaporation during dry periods. It should be built close to the production areas and is also used for animal watering.

These technologies do not need to be interdependent with social technologies for the supply of water for human consumption, and can be implemented in areas where there are difficulties in accessing water for production. However, the eligibility criteria for beneficiaries must be interdependent with component 1.

## **Stone Tank**

The stone tank stores rainwater in rocky outcrops, which are sized to prevent evapotranspiration and the accumulation of rainwater in the dry season, where they are reinforced with walls to ensure the ideal height and waterproofing of cracks to prevent infiltration.

The choice of the type of social technology will depend on the farming activities carried out by the family and the characteristics of the benefiting property and its environment, i.e. the minimum area needed to implement the social technology, ease of access for implementation, maintenance and operation, and the existence of environmental constraints.

## **Drainage**

The studies carried out to analyze the alternatives for the sanitation sub-projects resulted in the possibility of applying 10 different types of systems that could be implemented in the communities:

- Septic tank;
- Ascending Flow Anaerobic Reactor (AFAR);
- Anaerobic filter;
- Sand Filter and Filtration Ditch;
- Biodigester;
- Constructed Lagoon Systems;
- Vermifilter;
- Bananeiras Circle;
- Drain;
- Infiltration trench.

In the alternative analysis, the definition of the type of sewage system to be built in communities listed as beneficiaries of PROCASE II basically depends on two factors: (1) demographic density and (2) per capita water consumption, classified according to the parameters.

For the environmental criteria, it is important to look at the magnitude of the impact of implementing each Social Technology, both during implementation and operation (interference with the soil, construction waste, sludge generation, etc.).

The most suitable sewage treatment still depends on various criteria: physical, chemical and biological, also taking into account the location and effects of the disposal of the treated effluent, i.e. whether it will be discharged into the ground, into a water body or used for reuse, which depends directly on the specificities and peculiarities of the destination areas. This treatment can be of the following types: Preliminary, Primary, Secondary and Tertiary, i.e. from the simplest to the most complex.

More complex treatments, such as sewage treatment plants, require advanced technologies and qualified personnel to implement, operate and maintain them. In addition, there are the same concerns listed for water supply, such as the need to install

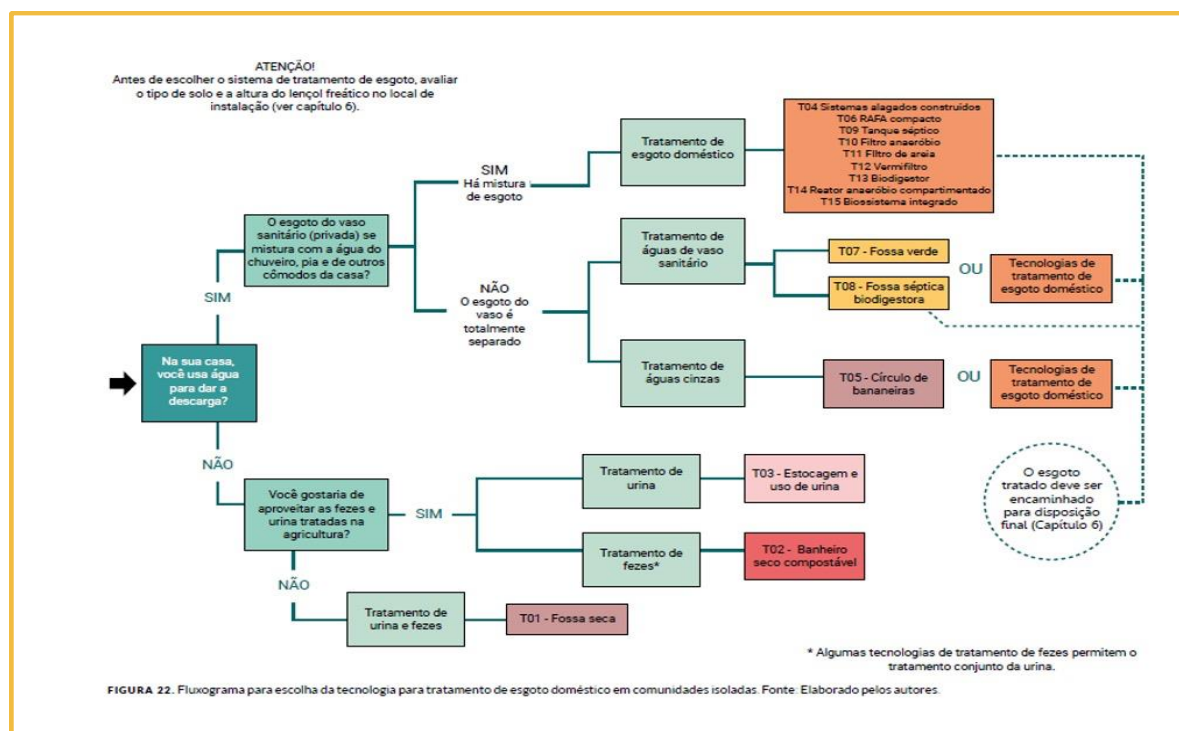


sewage networks and pumping stations, among other factors that make it more expensive and difficult to implement effective solutions for communities.

As the PROCASE II areas to be covered are in the rural areas of Paraíba where water supply systems with simple disinfection and filtration predominate, as well as alternative individual or collective water supply solutions, the best alternative indicated for sewage treatment will also be of the simple operation and maintenance type, without the need for qualified personnel to handle it, where the beneficiary, when trained, can carry out the operation and maintenance with the state's supervision.

The best alternative in sewage technology for rural areas is generally the individual type, with service per family, and which, for reasons of normative regulation, is the Septic Tank followed by the Sump, however due to the basic sanitation deficit in rural areas, the scarcity of water, the need for pollution control and the rational use of water, other types of Social Technology have already been adopted with the aim of meeting these demands, as can be seen in the figure below. These technologies may or may not be accompanied by Septic Tanks and/or Sumps.

**Figure 15 - Types of Sewage Treatment in Rural Areas**



Source Book: *Domestic Sewage Treatment in Isolated Communities*.

To choose these technologies, it is necessary to identify the type of sewage collected and the waste generated (sludge):

- Grey water: from sanitizing: kitchen sinks (grease traps), drains (bathroom sinks and showers);
- Black water: from the toilet;
- Domestic sewage: black water + gray water;
- Pre-treatment: necessary for the treatment of domestic sewage,

- Sludge removal.

This is due to the project's proposal to use technologies that are simple to operate and maintain, with a low cost of execution and the implementation of the reuse of treated effluents, which avoids the pollution of areas (open sewers) and contributes to mitigating climate change.

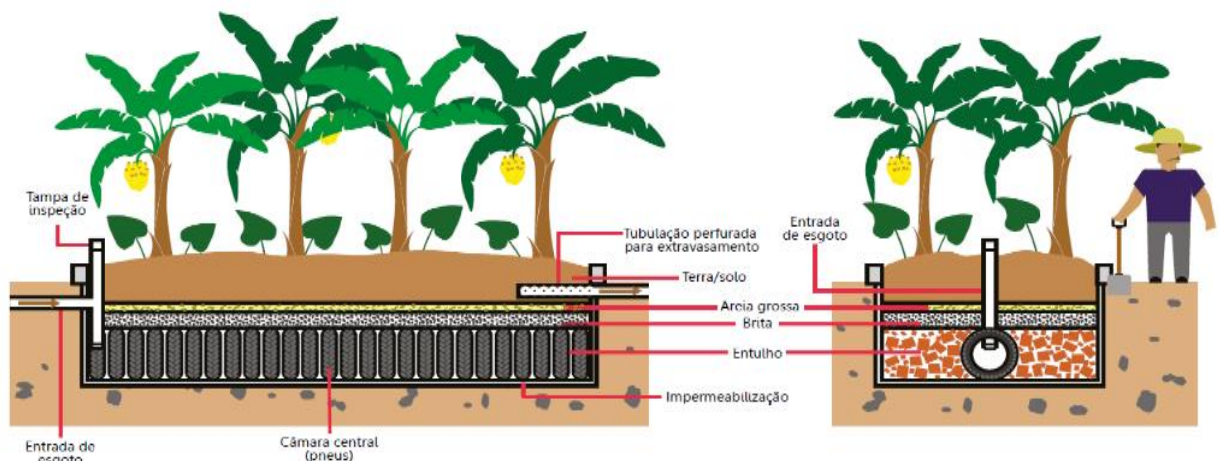
*Therefore, the best technological alternatives defined for the project are: Evapotranspiration Basin (Green Trench), Banana Tree Circle, Vermifilter and Biodigester.*

*In addition, such technologies are characterized by adopting nature-based solutions, avoiding or reducing the use of chemicals and processing for the technology.*

### **Evapotranspiration Basin (Green Trench):**

- Specific treatment for toilet water;
- A buried waterproof box divided into three compartments: a central chamber for receiving sewage, a filter layer and an area planted with banana trees;
- Masonry building material;
- 1st compartment: made up of materials such as old tires or hollow ceramic blocks, the solids are sedimented and the sewage is digested;
- 2nd compartment: composed of rubble, gravel and sand, anaerobic degradation of sewage;
- 3rd compartment: layer of soil where banana trees and other plants are planted;
- It can be built on sites with sandy or clay soil and on sites with a low water table.

**Figure 16 - Evapotranspiration Basin (Green Trench)**



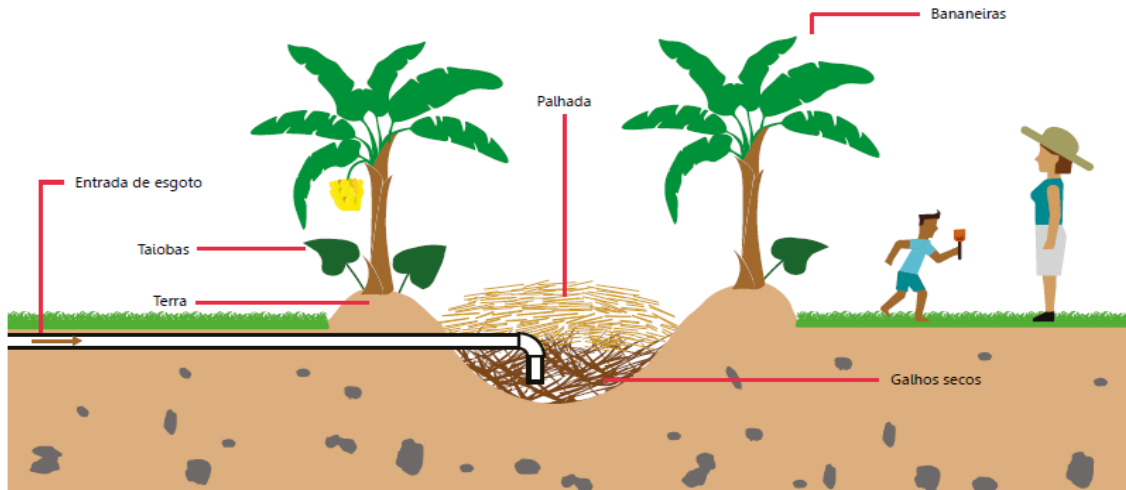
Source: Book: Domestic Sewage Treatment in Isolated Communities.

### **Banana Tree Circle**

- Specific treatment for gray water or complementary sewage treatment;
- A circular trench filled with branches and straw is planted around banana trees or other plants specifically designed for moist, nutrient-rich soils;

- Water and nutrients from the sewage will be consumed by the banana trees and food waste and soap will be degraded by microorganisms present in the soil of the ditch;
- It should be kept away from groundwater and springs.

**Figure 17 - Banana tree circle**

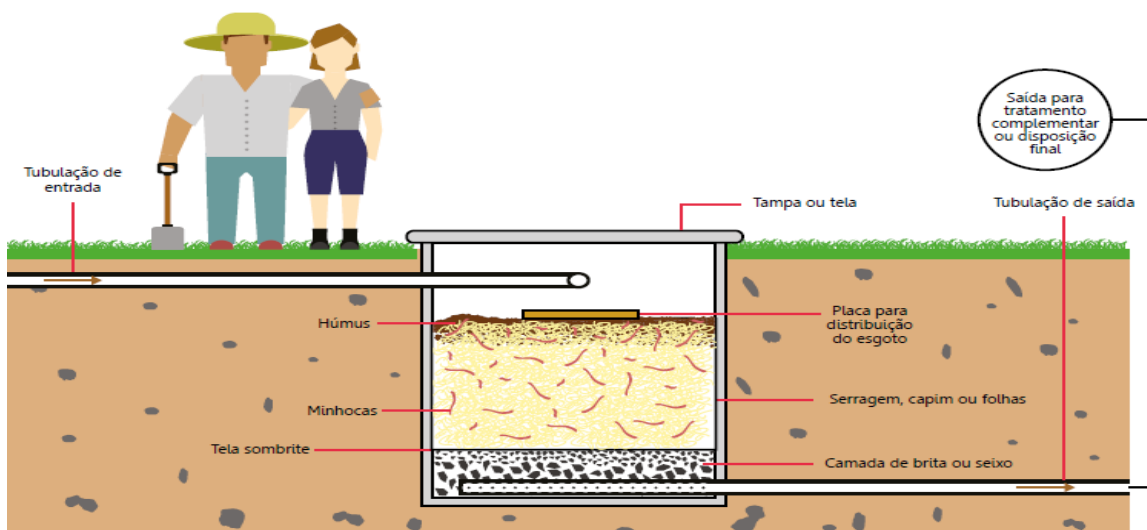


Source: Book: *Domestic Sewage Treatment in Isolated Communities*.

### **Vermifilter**

- The tank can be built in concrete rings, masonry, water tanks or any other material that guarantees waterproofing;
- It consists of two layers: the top layer is made up of sawdust, humus and earthworms and the bottom layer is made up of filtering materials, gravel or rolled pebbles divided into layers of different granulometries.
- The earthworm humus must be removed and can be used as fertilizer;
- For the treatment of domestic sewage, septic tank pre-treatment must be installed

Figure 18 - Vermifilter



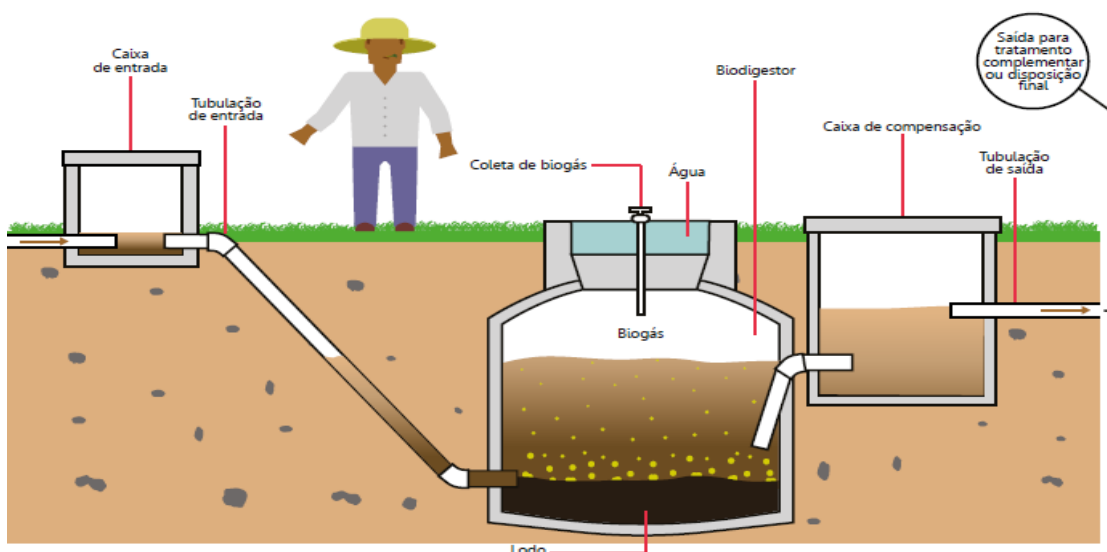
Source: Book: Domestic Sewage Treatment in Isolated Communities.

### Biodigester

Treatment for black water, domestic sewage, fresh manure and food waste;

- Treatment by anaerobic digestion;
- It produces biogas that can be used as cooking gas;
- Can be used in individual or collective systems;
- Care must be taken in construction and operation;
- Sludge removal required;
- It needs complementary treatment depending on its intended purpose.

Figure 19 - Biodigester



Source: Book: Domestic Sewage Treatment in Isolated Communities.

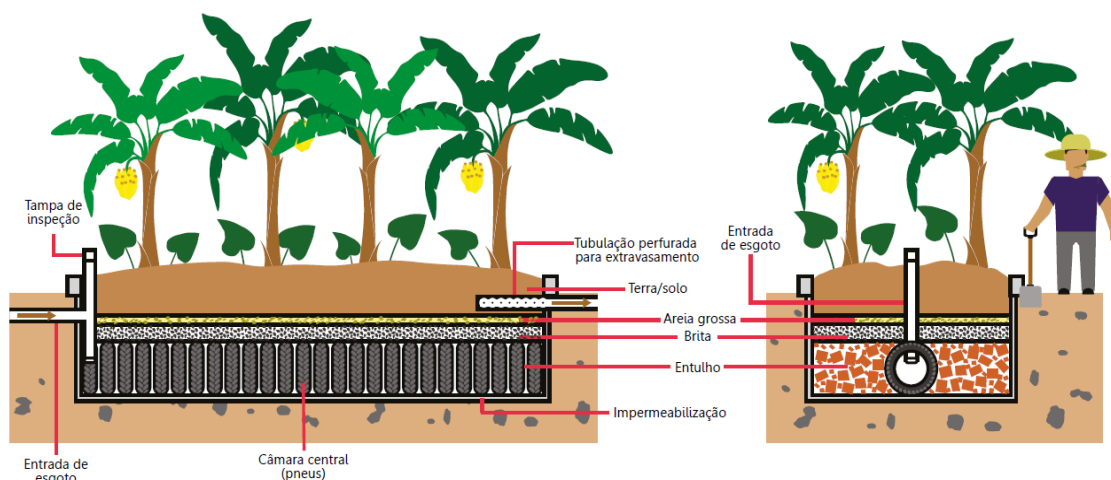
## Wastewater Reuse and Green Fossa

Among the technologies chosen, the Banana Tree Circle and the Vermifilter can be used for gray water reuse and are in line with the Procasse II guidelines. The criteria for implementation in the project area are diverse:

- Area with toilets and open sewage;
- Use of the treated effluent in some activity in the community;
- Increased water supply for other regions and activities;
- Reduction in the discharge of treated effluent into water bodies, reducing pollution and contamination;
- Vermifilter reuse already being implemented (in the semi-arid region used by the Dom Helder Câmara project).

The green cesspool (BET) is a toilet water treatment system that makes use of the water and nutrients present in sewage. The BET can be divided into three parts: a central compartment for receiving and initially digesting the sewage, a filter layer and an area planted with banana trees. Other names for the same system are: evapotranspiration tank (Tevap), ecofossa, bioseptic pit, plant bioremediation, banana pit, bioseptic bed.

**Figure 20 - Green Trench - Evapotranspiration**



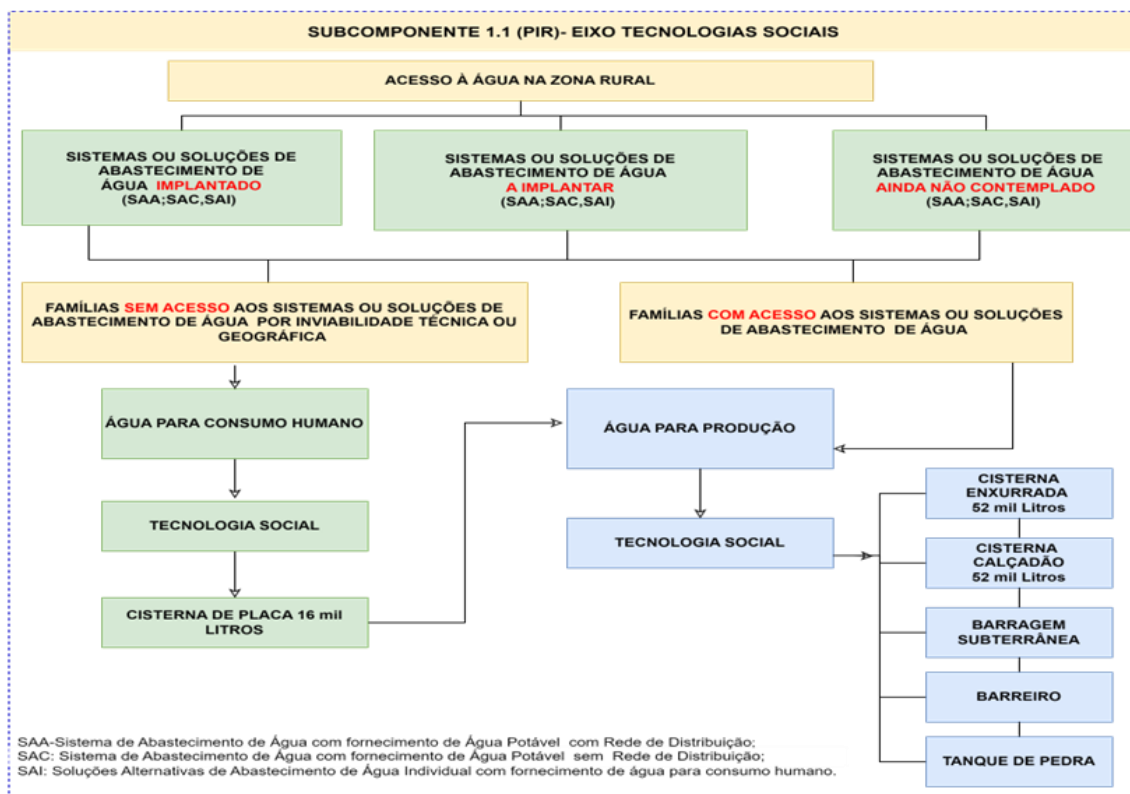
Source: Book: *Domestic Sewage Treatment in Isolated Communities*.

### **Method for choosing an alternative in the PROCASE II implementation phase**

In order to promote the health, environmental and social objectives of the project, the health conditions of the families benefiting from the supply of water for human consumption must be observed, whether by Water Supply Systems, Water Supply Solutions or Social Technologies for drinking water, depending on local conditions, the proposed Social Technologies for water reuse must be implemented.

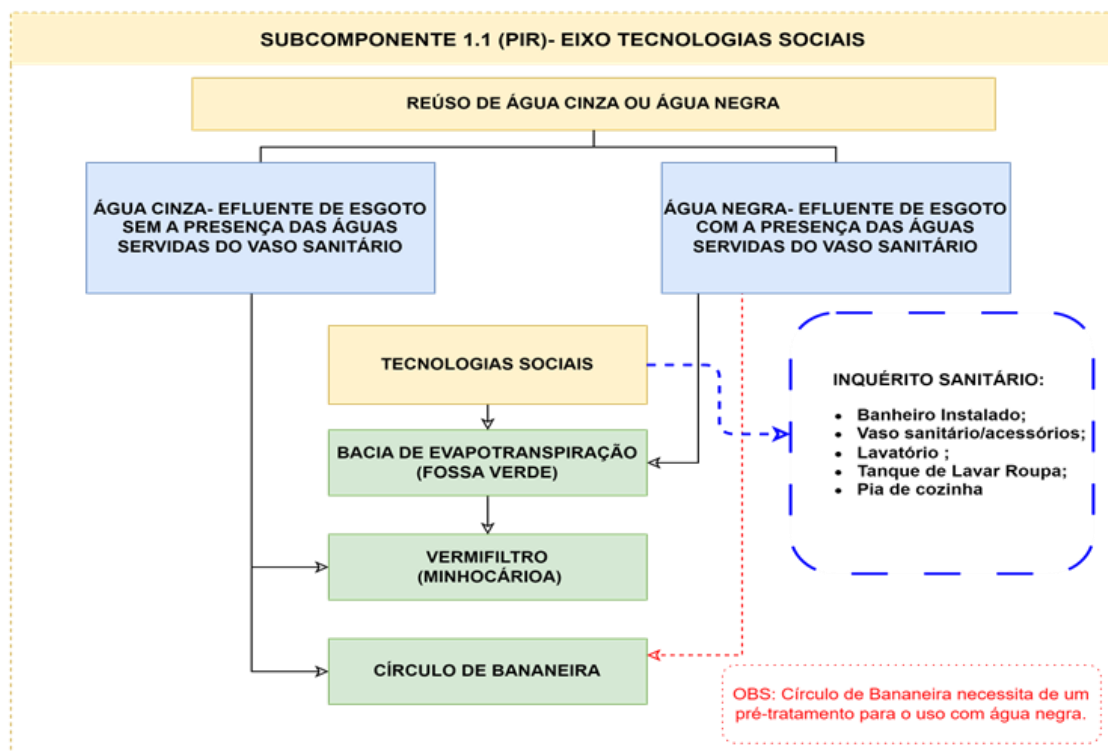
Thus, the following figures present a guiding scheme that can direct the choice of technologies.

Figure 21 - Flowchart for defining the Water Supply Social Technologies to be implemented



Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

Figure 22 - Flowchart of Sanitary Sewage Reuse of Treated Domestic Effluent



Source: Lima, A.F.F. Product 3 - PROCASE II Diagnostic Report.

### **Renewable energy: photovoltaics, biodigesters for use in agriculture and eco-stoves.**

Biodigesters for use in farming and eco-stoves are on the list of the RIP's Social Technologies axis. They are easy to operate and maintain and can be implemented at family level.

Photovoltaic energy is also an interesting option for ensuring greater energy stability in production processes and reducing emissions, as well as helping to reduce costs for producers.

- Biodigester: a domestic sewage effluent treatment unit and biofertilizer production unit supplied with plant or animal production waste (animal urine and manure). Biogas and biofertilizer are produced.

*The biodigester solution to be implemented could be of the sertanejo type, supplied by waste generated by 20 pigs and 10 cattle, and could provide energy equivalent to an average of 7.8 cooking cylinders per month.*

- Eco-stoves: ecological stoves use sticks, corn cobs and tree bark as fuel, as opposed to wood stoves, which are fueled only by wood.

*Eco-stoves are applied in rural areas and the guidelines for implementation must follow the guidelines of the environmental axis, it is a technology that is easy to handle and should reduce the consumption of firewood.*

## **2.8 Institutional arrangement**

The **State Secretariat for Family Farming and Semi-Arid Development (SEAFDS)** is the project's coordinating body, responsible for financial execution, procurement and contracting, as well as carrying out the necessary coordination, monitoring and supervising its execution.

To manage the project, SEAFDS will have a **Project Management Unit (PMU)**, which will be based in João Pessoa, and regional offices located at strategic points throughout Paraíba. The PMU and Regional Offices will be responsible for coordination, planning, institutional coordination, implementation and monitoring of the actions promoted, working in close collaboration with the SEAFDS coordinators and technical advisors.

The arrangement will also include the participation of a **sub-executing agency** formed by the **Research, Rural Extension and Land Regularization Company (EMPAER/SEDAP)**. EMPAER's directorate dedicated to technical advice and rural extension (the former EMATER) will take on the task of providing part of the Technical Assistance (TA) services, both in Component 1 and Component 2. EMPAER's directorate dealing with land issues (the former INTERPA) will be the entity in charge of carrying out the land regularization provided for in the Project. EMPAER's scientific research directorate (formerly EMEPA) will be in charge of carrying out some of the technological exchanges provided for in the Project.

EMPAER has experience in carrying out technical assistance and rural extension, land management and scientific research aimed at technological development.

There are also plans to set up an **Executive Productive Investment Management Committee (CEGIP)**, a collegiate body made up of the executing agency, sub-executing agencies, government bodies and representatives of organized civil society, which will have to approve PROCASE II's annual operational planning.

CEGIP will be set up by means of Rules of Procedure. According to Article 2 of the CEGIP Rules of Procedure, the Committee is responsible for:

I.To assess and approve the Resilient Investment Projects (PIR) submitted by the PMU/PROCASE;

II. Requesting, at any time, information from the PROCASE State Coordinator on projects and investments carried out within the scope of the territorial collegiate bodies in the state of Paraíba;

III. Monitoring the efficiency of the socio-environmental safeguard policies and actions adopted by PROCASE in the Strategic Environmental and Social Management Plan - ESMP;

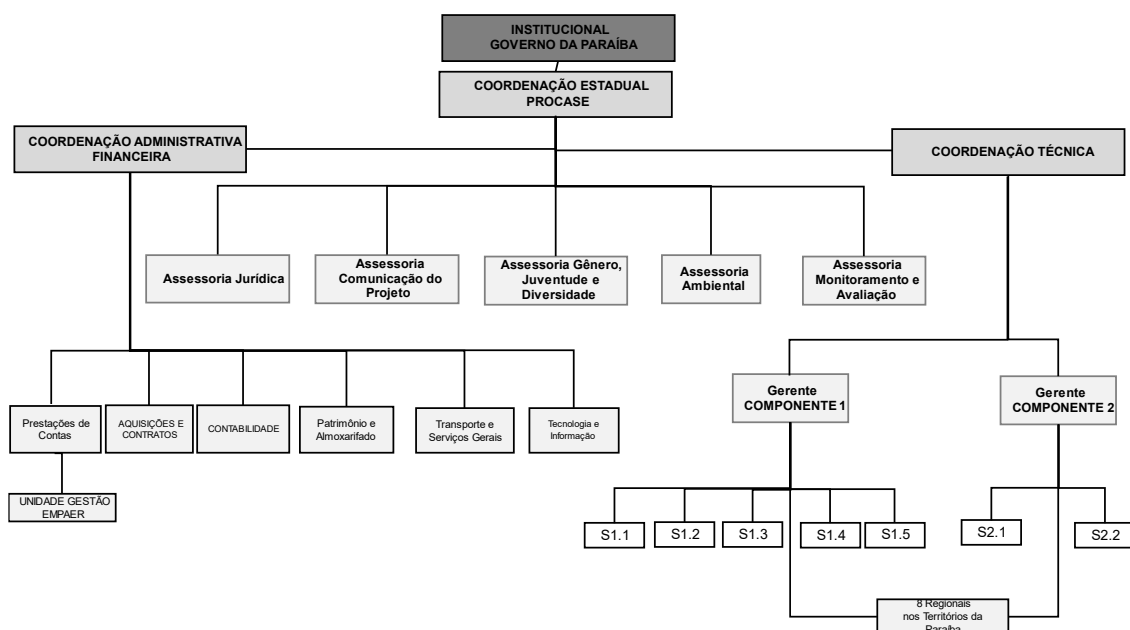
IV.To monitor, every six months, the progress measured by the results indicators and products delivered by the Sustainable Rural Development Project, in accordance with the guidelines of the Project Operational Report .

CEGIP will have the following composition:

- Head of the State Secretariat for Family Farming and Semi-Arid Development (SEAFDS) as President, with the Executive Secretary of this portfolio as Alternate;
- A representative or alternate from the Paraíba Research, Rural Extension and Land Regularization Company - EMPAER;
- A representative or alternate from the State Secretariat for the Environment and Sustainability (SEMAS);
- A representative or alternate from the Secretariat for Planning, Budget and Management (SEPLAG);
- A representative or alternate from the Ministry of Agrarian Development (MDA);
- A full representative or an alternate from the State Coordination of Territorial Collegiates;
- A representative or alternate from the Federation of Agricultural Workers (FETAG);
- Full and alternate representative of the Federation of Agricultural Workers (FETRAF);
- A representative or alternate from the Articulação do Semiárido Brasileiro (ASA);
- A representative or alternate from the Landless Workers' Movement (MST);
- A representative or alternate from the Pastoral Land Commission (CPT);
- Full representative or an alternate from PROCASE;
- State Secretariat for Human Development (SEDH);
- State Secretariat for Women and Human Diversity (SEMDH);
- Executive Secretariat for Youth, Sport and Leisure (SEJEL);



**Figure 23 - General organization chart of the Proc case II institutional arrangement**



## Regional Offices

PROCASE II will have eight Regional Project Management Units (RPMU), each made up of a team of three specialized consultants. These consultants will have backgrounds in the areas of Agricultural Sciences, Environmental Sciences and Human Sciences.

Consultants in agricultural sciences may have a background in agronomy, agroecology, agricultural engineering, zootecnics, veterinary medicine, among others.

In the area of Environmental Sciences, consultants may have a background in Biology, Ecology, Environmental Engineering, Environmental Management, among others natural sciences.

The Human Sciences consultants include professionals from the fields of Anthropology, Sociology, Psychology, Social Work, among others social sciences.

The team is multidisciplinary, reflecting the complexity and necessity of the project. This diversity of specializations allows for a holistic and integrated approach to the various demands of PROCASE II.

Within this structure, one of the consultants will be responsible for territory coordination, with the aim of supervising and coordinating the teams of consultants in their assigned territory, ensuring that project activities are aligned with project needs and local realities.

Each of the 8 PROCASE II Regional Offices are strategically located in municipalities that have regional centralities in the Rural Territories, providing, in addition to face-to-face service, a telephone number, WhatsApp and e-mail. All these channels will be incorporated as part of PROCASE II's Complaints Management Mechanism.

The following table shows the addresses and contact telephone numbers of all the regional offices:

**Table 15 - Possible addresses for Regional Offices**

MUNICIPALITY	Address
João Pessoa	Avenida Rio Grande do Sul, nº 1.345, Bairro dos Estados, Edifício Evolution Business Center, 16º andar, CEP: 58.030-021
Campina Grande	Av. Jorn. Assis Chateaubriand, 2630, Estacao Velha, Edifício do CDRM, CEP: 58.105-421
Cuité	Av. Petrônio Figueiredo, 811-859, Jardim Planalto, Edifício da Casa da Cidadania, CEP: 58.175-000
Sumé	Rodovia BR-412, 425, Centro, Edifício do NEXT/UFCG, CEP: 58.540-000
Ducks	Rua João da Mata, 90, Centro, CEP: 58.700-080
Sousa	Rua Emídio Pires, 84, Centro, CEP: 58.802-270
Catolé do Rocha	Av. Deputado Américo Maia, 37, Centro, CEP: 58.884-000
Itaporanga	Rua Elvidio de Figueiredo, S/N, Margens PB 386, Bairro Loteamento João Silvino, CEP: 58.780-000

Source: PROCASE, 2024.

### **Bodies/Entities and Entities that are partners in the implementation of actions**

The project will also seek to strengthen partnerships with other government bodies, whether federal, state or municipal. These include:

- The **Secretary of State for Women and Human Diversity (SEMDH)**, with the executive departments for gender equity and racial equity responsible for implementing public policies for women and traditional communities and actions to strengthen these groups.
- The **Executive Secretariat for Youth**, an important partner in carrying out activities for young people in PROCASE, such as exchanges and training.
- The **INSA (National Semi-Arid Institute)**,
- **UFCG (Federal University of Campina Grande)**,
- The **UFPB (Federal University of Paraíba)**.
- The **Federal Institutes and EMBRAPA Cotton** (which has its headquarters in Campina Grande), which will also seek to strengthen collaboration with other EMBRAPA units.

It will also be of the utmost importance to establish partnerships with town halls, as several of the project's actions will require this collaboration. Another important dialogue will be with social movements aimed at strengthening family farming and developing the semi-arid region and the forest zone. Whenever possible, the project will seek to establish partnerships with the private sector, be it business or the third sector.

### **Entities involved in environmental licensing**

In principle, Proc case II projects do not require licensing and, where applicable, these should be simple, involving simplified authorizations.

In any case, information on the state entity responsible for environmental inspections and authorizations is described below.

### **Superintendence of Environmental Administration (Sudema)**

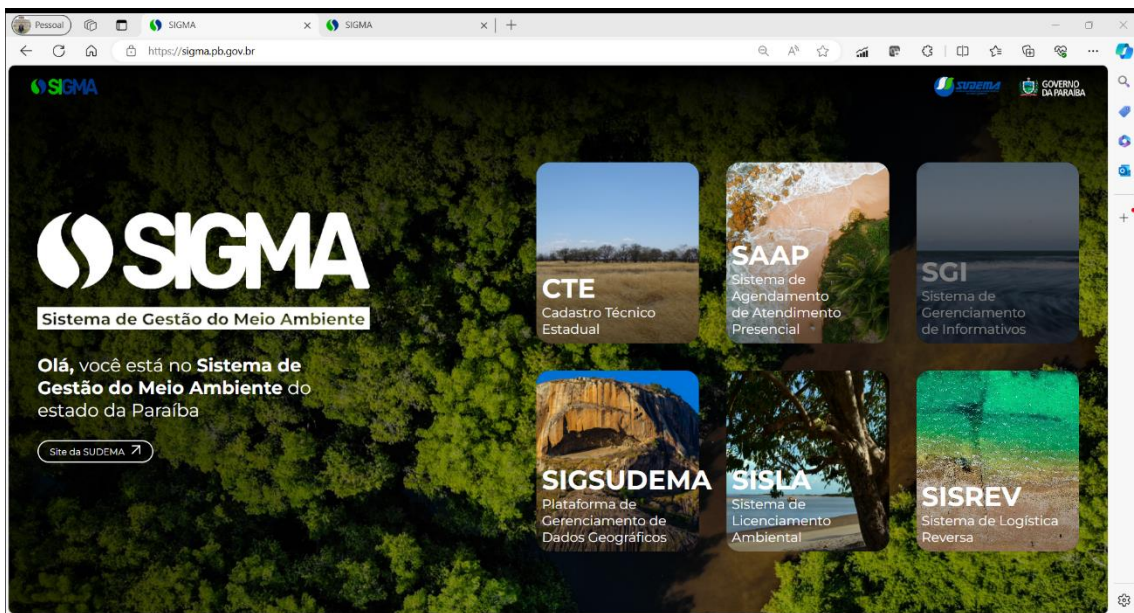
The **Superintendence of Environmental Administration (Sudema)** was created by the Paraíba State Government on December 20, 1978, by means of Law No. 4.033, with the aim of developing an environmental protection policy. As well as João Pessoa, Sudema also has offices in the cities of Patos and Campina Grande.

Sudema's mission is to develop policy actions for environmental protection, prevention and education, as well as strategies aimed at guaranteeing current and future generations a quality of life compatible with the harmony of nature and free from predatory aggression, constantly practiced by man himself. Its structure includes the following departments:

- CEDA - Environmental Education Coordination
- DIFLOR - Forestry Division
- CCA - Environmental Control Coordination
- CMA - Coordination of Environmental Measurements
- Pollution Control Division
- CEA - Coordination of Environmental Studies
- CCF - Accounting Coordination
- Financial Execution Division
- CPD - Data Processing Coordination
- CRH - Human Resources Coordination
- CSG - General Services Coordination
- Archive Division
- Customer Service Division
- DIFI - Inspection Division
- CPL - Permanent Tender Committee
- DITEL - Telecommunications Division
- SETGEO - Geoprocessing Sector
- SRS - Solid Waste Sector
- CAEIA - Commission for the Analysis of Environmental Impact Studies
- COMEG - Coastal Management Commission
- Botanical Garden Director

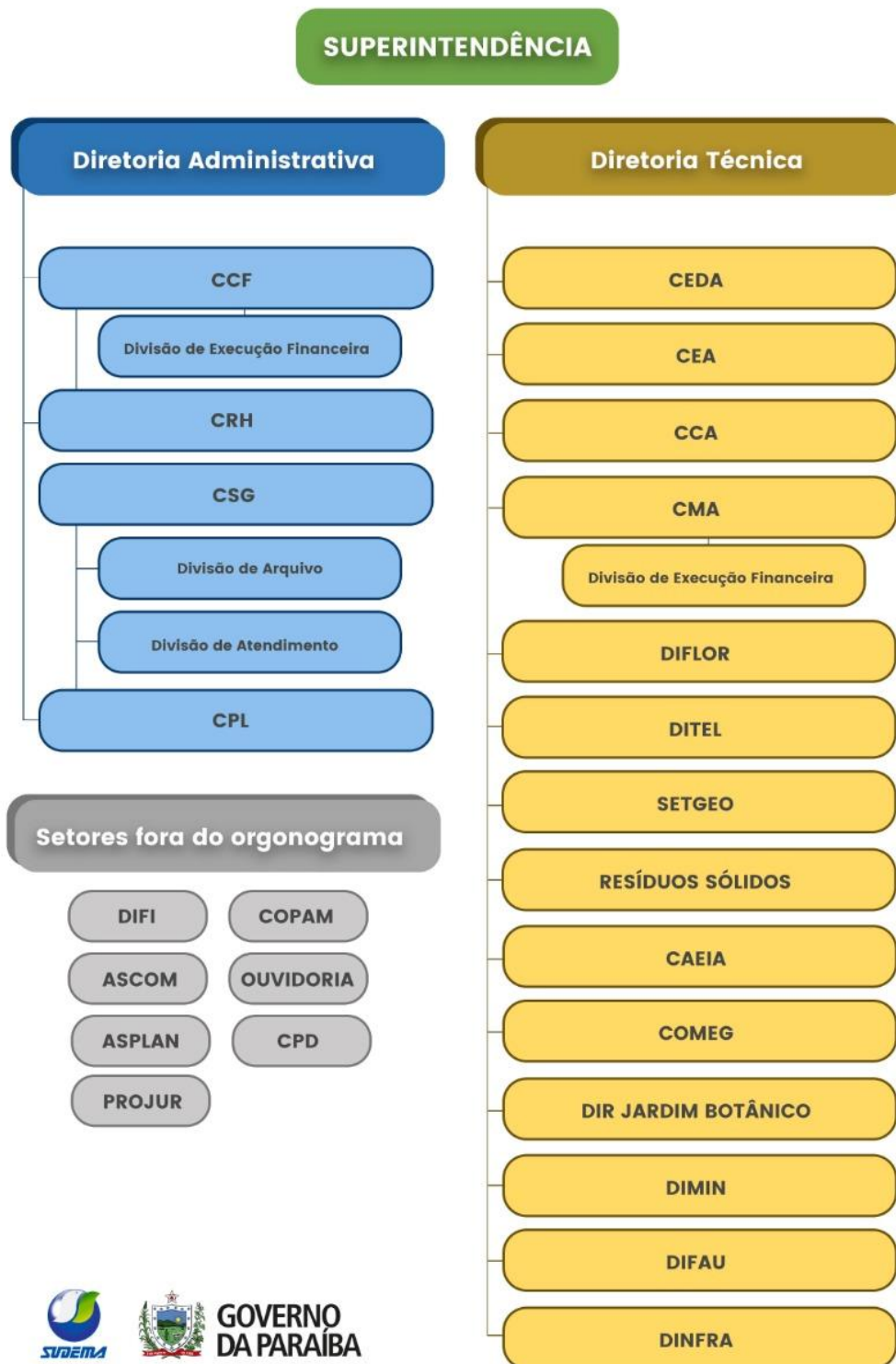
Sudema also has a computerized environmental management system (SIGMA), which includes modules for registration, scheduling, information, geographic data management, reverse logistics and environmental licensing.

Figure 24 - SIGMA website - Sudema's Environmental Management System



Source: <https://sigma.pb.gov.br/>

Figure 25 - Sudema's organizational chart



Source: <https://sudema.pb.gov.br/institucional/organograma>

### **Environmental Protection Council - COPAM**

The Environmental Protection Council - COPAM, created under the terms of Law 4.335 of December 16, 1981, a collegiate body formerly linked to the State Secretariat for Infrastructure, Water Resources and the Environment - SEIRHMA, is part of the State Environmental System.

Currently, through Law No. 12.615, of April 25, 2023, COPAM is directly linked to the State Secretariat for the Environment and Sustainability - SEMAS, acting to prevent and control pollution and environmental degradation, aiming to protect, conserve, recover and improve environmental resources, analyzing all licenses granted by the Superintendence of Environmental Administration - SUDEMA, suggesting the maintenance, revocation or alteration of such licenses, through compliance with applicable legislation.

Its attributions include issuing guidelines, norms and instructions through deliberations regarding the protection of environmental resources, with a view to preventing pollution and the rational use of environmental resources in the state of Paraíba.

## **3 REGULATORY FRAMEWORK**

The following are the national and international regulations that may affect the PROJECT and its sub-projects.

### **3.1 International agreements**

The main environmental agreements ratified by Brazil are presented below. Other agreements that complete the list are presented in the **Annex 8.1**.

#### **United Nations Framework Convention on Climate Change - UNFCCC**

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty resulting from the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992 (ECO-92).

This treaty aims to stabilize the concentration of greenhouse gases (GHG) in the atmosphere at levels that prevent dangerous interference with the climate system.

The treaty did not initially set mandatory limits for GHG emissions and contained no coercive provisions. Instead, the Treaty included provisions for updates (called "protocols"), which were supposed to create mandatory emission limits. The main one is the Kyoto Protocol.

Due to the fact that GHGs remain in the atmosphere for many decades after they are emitted, it is not possible to halt or reverse climate change and, for this reason, the measures to be taken are mitigating, in the sense of reducing the impact of such changes, and adapting, in the sense of creating mechanisms to adapt to the changes that will occur.

The member countries of the Convention meet periodically in meetings called the Conference of the Parties.

The first Conference of the Parties (COP 1) took place in Berlin in 1995 and saw the signing of the Berlin Mandate, in which the Annex I countries (industrialized countries) made greater commitments to stabilizing the concentration of GHGs, through policies and measures or quantitative emission reduction targets.

In 1997, the Kyoto Protocol was approved in Kyoto, which followed the guidelines of the Berlin mandate and placed greater emphasis on quantitative targets as a way of minimizing the costs of mitigation in each country. To this end, mechanisms such as the Clean Development Mechanism (CDM) were also established, which enables both the reduction of emissions in industrialized countries and the transfer of resources from industrialized countries to developing countries.

In mid-2001, discussions resumed at COP 6 in Bonn, which became known as COP 6 BIS. At this meeting, the Bonn Agreement was established, in which concessions were made in order to guarantee the permanence of countries such as Japan and the Russian Federation, which was necessary for the Protocol to enter into force. This agreement also allowed for different interpretations on issues such as LULUCF (*Land use, Land use change and Forestry*), by countries that started to review their positions when the USA left and the concessions made to other countries.

At the end of 2001, COP 7 was held in Marrakech and the Marrakech Accord was reached, which included the political aspects of the Bonn Agreement and the environmental aspects of the Kyoto Protocol. This agreement defines the operational rules for LULUCF, flexibility mechanisms, the definition of the national emissions inventory system, additional information derived from the Kyoto Protocol and the process for reviewing national communications. It was necessary for the countries of the European Union and the G77 and China to give way to the countries of the *Umbrella Group* (Japan, Australia, Canada and the Russian Federation). Even if the reductions provided for in the Kyoto Protocol are achieved, they will not be enough to significantly reduce man's interference in the climate system. COP 7 also saw the creation of the CDM Executive Committee and the drafting of a declaration emphasizing the relationship between sustainable development and climate change, defining poverty eradication and development as priorities for developing countries.

COP 17 was held in 2011 in Durban, South Africa. During this meeting, a legally binding agreement was reached, integrating all the participating countries, which will be prepared by 2015 and will enter into force in 2020.

COP 18 was held between November 26 and December 7, 2012, in Doha, Qatar. Its main objective was to reach an agreement on the emission targets of Annex I countries. At the same time, the Doha Amendment was approved, which extended the validity of the Kyoto Protocol until 2020. Canada, Japan and New Zealand chose not to sign the amendment, joining the United States as countries that have not ratified the Protocol.

COP 19 took place in 2013 in Warsaw, Poland, with the aim of defining several important aspects, but it was a tumultuous and controversial meeting, and progress was only made in the negotiations on payment for reduced emissions from deforestation and forest degradation (REDD+), reaching a commitment to raise 280 million dollars for funding. It was also established that countries should set voluntary emission targets by 2015.

COP 20 took place between December 1 and 14, 2014 in Lima, Peru, with the aim of defining the text of the agreement that would replace the Kyoto Protocol, to be sealed in Paris in 2015. A first draft, entitled the Lima Call to Action on Climate, was approved, but the resolutions were modest and most of the important decisions were postponed.

COP 21, held in Paris between November 30, 2015 and December 12, 2015, fulfilled its main objective of approving the Paris Agreement, which established that global warming should be contained below 2 °C, preferably 1.5 °C. However, although widely praised as an important step forward, the Agreement was also intensely criticized for being unambitious, leaving it up to the countries to decide what their emission targets would be, for not being very clear about the means of financing, for not redefining mitigation and adaptation mechanisms that have already proven to be inefficient, and for not penalizing non-compliance with the targets, which brings a risk in the event that the voluntary targets set are not met and warming is not contained at the desired level.

COP 22 was held in Marrakech in 2016 and managed to set some important measures, especially in terms of starting to define the rules for the practical implementation of the Paris Agreement. In addition, countries pledged to donate 80 million dollars to the Adaptation Fund; announced more than 23 million dollars for the *Climate Technology Center and Network*, aimed at supporting technology transfer to developing countries, and the Green Climate Fund announced the approval of the first proposals for formulating National Adaptation Plans. A series of other initiatives have been launched in parallel by individual countries or groups of countries to increase the efficiency and transparency of mitigation and adaptation plans, expand funding, promote sustainable development and focus on the special needs of vulnerable countries and indigenous communities.

COP 23 took place in Bonn, Germany, from November 6 to 18, 2017. The difficulties in implementing the Paris Agreement were discussed and preparations were made for the Talanoa Dialogue, which should facilitate the expansion of countries' voluntary emission targets. National and group projects offered specific improvements in various aspects of the fight against global warming.

COP 24 was held in Katowice, Poland, in December 2018. The main goal was to define the practical rules for implementing the Paris Agreement, which were approved, especially the mechanism for measuring national emissions and integrating them into an international system, but the results were hampered by the opposition of a group of countries, including Saudi Arabia, the United States, Russia and Kuwait, to the official recognition of the conclusions of the IPCC special report on warming of 1.5 °C. In the end, the rules set were limited to inviting countries to make use of the report, did not make much progress on the means of financing and did not oblige countries to increase their emission targets. On the other hand, the World Bank announced the allocation of 200 billion dollars to tackle the climate challenge.

COP 25 was due to take place in Brazil in November 2019, but the Brazilian government announced that it would not be hosting the event. The possibility of holding it in Chile was then mooted, but - due to various social demonstrations that were taking place during this period - an agreement was reached for COP 25 to be held in Madrid, Spain. One of the most important issues at the event was the regulation of the carbon credit market, which ended without an agreement.

COP 26 was supposed to take place in 2020 - however, due to the Covid 19 pandemic scenario, the event ended up taking place in November 2021 in Glasgow, Scotland. This Conference also included the 15th meeting of the parties to the Kyoto Protocol (CMP16) and the 2nd meeting of the parties to the Paris Agreement (CMA3). COP 26 ended with the signing of the Glasgow Pact, which aims to ensure that the increase in global temperatures does not exceed 1.5 °C. The Pact also recognizes that it will be necessary to reduce global carbon emissions by 45% by 2030 compared to the 2010 level and to



achieve net zero emissions (an emission equivalent to what is removed from the atmosphere, leading to a total of zero emissions) by the middle of the century, as well as significant reductions in other greenhouse gases. Countries were encouraged to act more transparently on their climate commitments and to accelerate the transition to low-carbon energies. What was considered one of the biggest victories of the negotiations to be included in the Glasgow Pact was the approval of the Paris Article 6 rules, which deal with the international carbon market.

COP 27 took place in 2022 in Egypt, when world leaders discussed the practical rules of the Climate Convention, a global agreement to combat climate change. The main outcome was the creation of a fund to help the poorest countries cope with natural disasters caused by global warming.

COP28 was held from November 30 to December 12 at Expo City in Dubai, United Arab Emirates. COP28 began with the announcement of a concrete result, with the opening session officially approving the Loss and Damage Fund, the creation of which dates back to last year's COP27 negotiations. Immediately after the announcement, the United Arab Emirates, Germany and Japan presented their first contributions to the fund, which will initially be administered by the World Bank and designed to address the challenges of countries highly vulnerable to climate effects. By the end of the COP, pledges had already amounted to US\$ 800 million. It was also decided that the venue for COP 29, to be held in 2024, will be Baku, the capital of Azerbaijan. A novelty emerging from the COP processes is the launch of a *troika*, which will be made up of the presidents of COP 28, COP 29 and COP 30. Thus, the United Arab Emirates, Azerbaijan and Brazil must lead the efforts to raise the parties' climate ambitions and safeguard the goal of limiting the global temperature increase to 1.5° C.

Another great expectation surrounding COP28 was the completion of the first global *stocktake* of the Paris Agreement, the *Global Stocktake*. This is a huge inventory that aims to determine how far we are from achieving the goals of the agreement and, based on the best available science, outline the next steps to prevent the window of opportunity for guaranteeing a safe climate future for people and the planet from closing. In this sense, the content of the global stocktaking should inform the process of updating the next round of Nationally Determined Contributions (NDCs) to be submitted by COP 30. The document pointed to the need to achieve net zero emissions globally by 2050 and to reduce global emissions by 43% by 2030 and 60% by 2035. It also highlighted the centrality of the means of implementation and of scaling up climate finance to ensure that global emissions are reduced at the pace required for a 1.5°C scenario. The document also highlights the growing importance of adaptation initiatives, which must be informed by local priorities and context.

### **Kyoto Protocol to the United Nations Framework Convention on Climate Change**

The Kyoto Protocol is a complementary treaty to the United Nations Framework Convention on Climate Change, setting emission reduction targets for developed countries and those that, at the time, had economies in transition to capitalism, considered to be historically responsible for the current climate change.

Created in 1997, the Protocol entered into force on February 16, 2005, shortly after meeting the conditions that required ratification by at least 55% of all member countries of the Convention and that were responsible for at least 55% of total emissions in 1990.

During the first commitment period, between 2008-2012, 37 industrialized countries and the European Community committed to reducing greenhouse gas (GHG) emissions by an average of 5% compared to 1990 levels. In the second commitment period, the Parties pledged to reduce GHG emissions by at least 18% below 1990 levels over the eight-year period 2013-2020. Each country negotiated its own emissions reduction target based on its view of its ability to achieve it in the period considered.

Brazil ratified the document on August 23, 2002, and it was approved by Legislative Decree No. 144 of 2002. Among the main emitters of greenhouse gases, only the United States has not ratified the Protocol. However, they continue to have responsibilities and obligations under the Convention.

### **Paris Agreement (2015)**

At the 21st Conference of the Parties (COP21) to the UNFCCC in Paris, a new agreement was adopted with the central aim of strengthening the global response to the threat of climate change and reinforcing the capacity of countries to deal with the impacts arising from these changes.

The Paris Agreement was approved by the 195 countries party to the UNFCCC to reduce greenhouse gas (GHG) emissions in the context of sustainable development. The commitment is to keep the global average temperature increase to well below 2°C above pre-industrial levels and to make efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

After approval by the National Congress, Brazil completed the ratification process of the Paris Agreement on September 12, 2016. On September 21, the instrument was delivered to the United Nations. With that, Brazil's goals ceased to be intended and became official commitments. Now, therefore, the acronym has lost the letter "i" (from the English, *intended*) and is now just called NDC.

Brazil's NDC committed it to reducing greenhouse gas emissions by 37% below 2005 levels by 2025, with a subsequent indicative contribution of reducing greenhouse gas emissions by 43% below 2005 levels by 2030. To this end, the country has committed to increasing the share of sustainable bioenergy in its energy matrix to approximately 18% by 2030, restoring and reforesting 12 million hectares of forests, as well as achieving an estimated 45% share of renewable energies in the composition of the energy matrix by 2030.

### **Escazu Agreement**

This is a Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean, signed by the UN in Escazu (Costa Rica) in 2018.

The Escazú Agreement is a regional treaty signed by 24 Latin American and Caribbean nations on the rights of access to environmental information, public participation in environmental decision-making, environmental justice and a healthy and sustainable environment for current and future generations.

The Escazú Agreement strengthens the links between human rights and environmental protection by imposing requirements on member states in relation to the rights of environmental defenders. In addition, it aims to provide full public access to environmental information, environmental decision-making and legal protection and remedies relating to environmental issues. It also recognizes the right of present and future generations to a healthy environment and sustainable development.

### **ILO Convention concerning Indigenous and Tribal Peoples in Independent Countries No. 169**

The Convention on Indigenous and Tribal Peoples, which recognizes, along with indigenous peoples, other groups whose social, economic and cultural conditions distinguish them from other sectors of the national community, establishing specific rights for them.

### **Stockholm Convention**

The Stockholm Convention on Persistent Organic Pollutants is an international treaty signed in 2001 in Stockholm, Sweden and was sponsored by the United Nations Environment Program. It was designed to globally eliminate the production and use of some man-made toxic substances.

The Stockholm Convention was signed by 152 countries and currently 34 countries have not ratified it. The ratification of 50 countries is required for the Convention to enter into force 90 days later and for policies to begin to be implemented to eliminate these compounds.

The list of participating signatory countries and their ratification status can be found on the Stockholm Convention's official website.

It had the express aim of becoming an international foundation for the protection of human health and the environment from the harmful effects of persistent organic pollutants (POPs). This convention was the result of long years of negotiation to obtain legally binding commitments from the various countries for the immediate elimination of all persistent organic compounds.

The Convention stipulates that action must be taken as a matter of priority on a dozen compounds, including internationally produced chemicals such as pesticides, biphenyl polychlorides (PCBs), dioxins and furans.

Persistent Organic Pollutants - POPs are chemical substances that have been used as agrochemicals, for industrial purposes or released unintentionally in anthropogenic activities, and which have characteristics of high persistence (they are not easily degraded), are capable of being transported over long distances by air, water and soil, and accumulate in fatty tissues of living organisms, making them toxicologically worrying for human health and the environment.

Aware that POPs pose major and growing threats to human health and the environment, in May 1995 the UNEP Council requested in its decision 18/32 that an international process be carried out to evaluate an initial list of 12 POPs, and that the Intergovernmental Forum on Chemical Safety (IFCS/FISQ) draw up recommendations for international action on these pollutants, for consideration by the UNEP Governing Council and the World Health Assembly by 1997.

From then on, an international negotiation process began to conclude the Stockholm Convention, which was adopted in 2001 and entered into force in 2004, after 50 countries ratified it.

Brazil approved the text of the Convention through Legislative Decree No. 204 of May 7, 2004, and promulgated the text of the Convention in 2005 through Decree No. 5,472 of June 20, 2005.

The Secretariat of Water Resources and Environmental Quality of the Ministry of the Environment acts as the Technical Focal Point of the Convention, together with the Environmental Policy and Sustainable Development Division of the Ministry of Foreign Affairs, which acts as the Official Focal Point.

### **Commitments made**

The Stockholm Convention stipulates that countries parties adopt control measures related to all stages of the life cycle - production, import, export, use and final disposal - of the POPs substances listed in its Annexes. Annex D of the Convention sets out the criteria for a substance to be classified as a POP.

The Convention aims to eliminate and/or restrict POPs, their stockpiles and residues, reduce the release of their unintentional emissions into the environment, and identify and manage areas contaminated by these substances.

In a preventive stance, the treaty requires governments to promote the best technologies and practices in their technological field and to prevent the development of new POPs. Going further, it sets as its ultimate goal the total elimination of POPs. The Convention presents innovative and objective options for action to properly manage these substances.

Initially, 12 POPs were listed in the Convention, a number that was expanded in 2009 following a decision by the 4th Conference of the Parties to include 9 more substances, and then in 2011 with the inclusion of Endosulfam. Hexabromocyclododecane was added at COP 6 in May 2013. At COP 7, in May 2015, Hexachlorobutadiene, Pentachlorophenol, its salts and esters and Polychlorinated Naphthalenes were included. In 2017, during COP 8, Decabromodiphenyl Ether and Short Chain Chlorinated Paraffins were listed as POPs.

POPs are listed in three annexes to the Convention, which differ in the specific treatment they receive:

- Annex A - SOPs to be eliminated;
- Annex B - SOPs with restricted uses (but with the prospect of being eliminated);
- Annex C - SOPs produced unintentionally.

### **List of POPs Substances:**

#### **Annex A:**

Pesticides: Aldrin, Dieldrin, Endrin, Chlordane, Chlordecone, Heptachlor, Hexachlorobenzene (HCB), Alpha hexachlorocyclohexane (alpha HCH), Beta hexachlorocyclohexane (beta HCH), Lindane, Mirex (dodecachlor), Pentachlorobenzene (PeCB), Endosulfam, Toxaphene, Pentachlorophenol and its salts and esters.

Chemicals for industrial use: Polychlorinated Biphenyls (PCBs), Hexabromobiphenyl (HBB), Hexabromodiphenyl Ether and Heptabromodiphenyl Ether (C OctaBDE), Hexachlorobenzene (HCB), Tetrabromodiphenyl Ether and Pentabromodiphenyl Ether (C PentaBDE), Hexabromocyclododecane (HBCD), Hexachlorobutadiene (HCB), Polychlorinated Naphthalenes, Decabromodiphenyl Ether (C DecaBDE) and Short Chain Chlorinated Paraffins (SCCP).

#### **Annex B:**

Pesticide: DDT.

Chemicals for industrial use: Perfluorooctane Sulphonic Acid (PFOS), its salts and Perfluorooctane Sulphonyl Fluoride (PFOSF).

#### **Annex C:**

Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans (PCDD/PCDF), Hexachlorobenzene (HCB), Polychlorinated Biphenyls (PCBs), Pentachlorobenzene (PeCB), Hexachlorobutadiene (HCB) and Polychlorinated Naphthalenes.

Article 7 of the Convention stipulates that countries must draw up National Implementation Plans for the Stockholm Convention (NIP), identifying priorities, deadlines and strategies for complying with the treaty's obligations.

It is therefore a binding instrument, which includes substances that are highly toxic and harmful to humans and the environment, and is of great interest and monitoring by industry and civil society.

#### **Ramsar Convention**

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat, also known as the Ramsar Convention because it was signed in the Iranian city of Ramsar on February 2, 1971, is an international treaty that came into force in 1975.

It is considered the first intergovernmental treaty to provide a structural basis for international cooperation and national action for the conservation and sustainable use of natural resources, specifically wetlands and their resources.

By ratifying the convention, the governments of the countries, Contracting Parties to the Convention, designate a site to be included in the List of Wetlands of International Importance and commit to working towards the sustainable use of their wetlands through territorial planning, policy development and publication of legislation, management actions and education of their populations. They also undertake to designate additional sites for the List of Wetlands of International Importance and to ensure their proper and effective management, and to cooperate internationally on transboundary wetlands, shared wetland systems, common species and development projects that may affect wetlands.

When a Ramsar site has lost, or is under threat of losing, its ecological characteristics, the respective Contracting Party can register it in the Montreux Record, a list of priority sites to be conserved and which can be the target of the application of a support and technical advice mechanism provided for in the convention.

Established in February 1971 in the Iranian city of Ramsar, the Convention on Wetlands of International Importance, better known as the Ramsar Convention, has been in force since December 21, 1975. It was fully incorporated into Brazil's legal framework in 1996, by the enactment of Decree No. 1.905/96.

The Convention is an intergovernmental treaty initially created to protect aquatic habitats important for the conservation of migratory birds, which is why it was called the "Convention on Wetlands of International Importance, especially as Waterfowl Habitat". However, over time, it has expanded its concern to other wetlands in order to promote their conservation and sustainable use, as well as the well-being of the human populations that depend on them.

Ramsar establishes frameworks for national actions and cooperation between countries with the aim of promoting the conservation and rational use of wetlands around the world. These actions are based on the recognition by the signatory countries of the Convention of the ecological importance and the social, economic, cultural, scientific and recreational value of such areas.

### **International Labor Organization**

The ILO's principles and rights are governed by eight fundamental conventions covering: freedom of association, effective recognition of the right to collective bargaining, elimination of all forms of forced or compulsory labor, effective elimination of child labor and elimination of discrimination in respect of employment and occupation. Among the conventions, those ratified by Brazil are listed below, seven in total.

- ILO Convention 29 (Forced Labor);
- ILO Convention 98 (Right to Organize and Collective Bargaining);
- ILO Convention 100 (Equivalent pay for male and female workers for equivalent work);
- ILO Convention 105 (Abolition of Forced Labor);
- ILO Convention 111 (Discrimination - Employment and Occupation);
- ILO Convention 138 (Minimum Age for Admission to Employment);
- ILO Convention 169 (Indigenous and Tribal Peoples);
- ILO Convention 182 (Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labor).

### **Montreal Protocol and Kigali Agreement**

The Montreal Protocol is an international treaty that aims to protect the ozone layer by eliminating the production and consumption of the substances responsible for its destruction (ODS – ozone depleting substances). The agreement is a consequence of the Vienna Convention for the Protection of the Ozone Layer; Brazil is one of the signatory countries.

The Vienna Convention and the Montreal Protocol were promulgated by Decree No. 99.280/90.

The adoption of the measures determined by the Protocol as public policy has made it possible to achieve positive results for the agenda in the country and in the world, with the combined efforts of the treaty's signatory nations.

### **Control actions**

As there is no production of ODS in Brazil, the control actions take place in the process of importing, trading and using the substance. Ibama is the federal institution responsible for this control; for ensuring that the country complies with its part of the treaty.

### **Reduction of hydrochlorofluorocarbons (HCFCs)**

Decision XIX/6 of the Montreal Protocol<sup>14</sup> established a timetable for reducing HCFC consumption in Brazil in 2007. This plan has three stages and, by the year 2021, has already succeeded in reducing HCFC consumption by 51.6% compared to the base year (2013). It is estimated that the reduction will reach 100% by 2040.

### **Control of hydrofluorocarbons (HFCs)**

Signed in 2016 during a meeting in the capital of Rwanda (hence its name), the Kigali Amendment includes hydrofluorocarbons (HFCs) in the Montreal Protocol. HFCs are powerful greenhouse gases that heat the planet up to 12,000 times more than CO<sub>2</sub>. The main aim of the Kigali Amendment is to reduce the production and consumption of HFCs, which are used in equipment such as air conditioners and refrigerators. In addition to the climate benefits, ratification of the Amendment will allow Brazilian industry to access 100 million dollars in non-refundable UN funds to upgrade production lines and increase efficiency and competitiveness.

Brazil took part in the 34th Meeting of the Parties as one of the 140 countries to ratify the Kigali Amendment. This amendment is an agreement that provides for a staggered reduction in the consumption of hydrofluorocarbons (HFCs) by 2045. By complying with this agreement, the expectation is that there will be a decrease of up to 0.4°C in global temperature.

Although HCFs do not have the potential to destroy the ozone layer, they do have a high global warming potential.

With the ratification of the Kigali Amendment, the country undertakes to freeze the baseline consumption of HFCs in 2024 and reduce consumption by 10% by 2029.

In addition to the climate benefits, the ratification of this amendment will give Brazilian industry access to international resources to update production lines and increase efficiency and national competitiveness.

Brazil's ratification of the Kigali Amendment took place on October 19, 2022, after approval by the Federal Senate and respective delivery of the documents to the United Nations.

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14 Available at: <https://www.gov.br/ibama/pt-br/assuntos/emissoes-e-residuos/emissoes/protocolo-de-montreal#reducao-HCFCs> Published: 29/11/2022 10h31

### 3.2 Federal legislation

**he Constitution of the Federative Republic of Brazil**, promulgated in 1988, broke new ground in dealing with environmental issues by dedicating Chapter VI - The Environment (Title VIII - Social Order) to the subject, which in Art. 225 states: "Everyone has the right to an ecologically balanced environment, a good for the common use of the people and essential to a healthy quality of life, imposing on the public authorities and the community the duty to defend and preserve it for present and future generations".

The main federal laws affecting the Project are presented below. In the Annex **Error! Reference source not found.** other complementary laws are presented.

#### Environment

- Law No. 6.938, of August 31, 1981, which establishes the National Environmental Policy, its purposes and mechanisms for formulation and application, constituting the National Environmental System (SISNAMA). It states that this policy: aims to preserve, improve and restore environmental quality that is conducive to life, with a view to ensuring conditions for socio-economic development in the country, the interests of national security and the protection of the dignity of human life.
- Law No. 7.347, of July 24, 1985 (amended by Laws No. 8.078, of 09/11/1990 and No. 8.884, of 06/11/1994, No. 9.494, of 09/10/1997 and No. 10.257, of 07/10/2001 and by Provisional Measure No. 2.180-35, of 08/27/2001), which regulates public civil action for liability for damage caused to the environment, to consumers, to goods and rights of artistic, aesthetic, historical, tourist and landscape value.
- Federal Law No. 7.735, of February 22, 1989, which provides for the extinction of agencies and autarchic entities, creates the Brazilian Institute of the Environment and Renewable Natural Resources and makes other provisions.
- Federal Law No. 7.797, of July 10, 1989, which creates the National Environmental Fund and makes other provisions.
- Federal Law No. 9.605, of February 12, 1998 (amended by Law No. 9.985, of July 18, 2000 and by Provisional Measure No. 2.163-41, of August 23, 2001), which provides for criminal and administrative sanctions arising from conduct and activities harmful to the environment (Environmental Crimes Law).
- Federal Decree No. 2.519, of March 16, 1998, promulgating the Convention on Biological Diversity, signed in Rio de Janeiro on June 5, 1992.
- Federal Law No. 9.795, of April 27, 1999, which provides for environmental education and establishes the National Environmental Education Policy.
- Federal Decree No. 3.179, of September 21, 1999, which provides for the specification of sanctions applicable to conduct and activities harmful to the environment (environmental administrative infraction).
- Federal Decree No. 4.339, of August 22, 2002, which establishes principles and guidelines for the implementation of the National Biodiversity Policy.
- Federal Law No. 10.650, of April 16, 2003, which provides for public access to data and information held by the agencies and entities that make up SISNAMA.



- Federal Decree No. 855, of January 30, 2004, which amends Decrees No. 5.741 and 5.742, dated December 19, 2002, which regulate, respectively, the Technical Register of Activities that Potentially Pollute or Use Environmental Resources and the Technical Register of Environmental Defense Activities.
- Federal Decree No. 5.877, of August 17, 2006, which gives new wording to Article 4 of Decree No. 3.524, of June 26, 2000, which regulates Law No. 7.797, of July 10, 1989, which creates the National Environment Fund.
- IBAMA Normative Instruction No. 154, of March 1, 2007, which establishes the Biodiversity Authorization and Information System (SISBIO) and provides for licenses, collection and capture of species of fauna and flora and access to genetic heritage.
- Federal Law No. 11.516, of August 28, 2007, which provides for the creation of the Chico Mendes Institute for Biodiversity Conservation - Instituto Chico Mendes.
- Federal Decree No. 6.514, of July 22, 2008, which provides for environmental infractions and administrative sanctions, and establishes the federal administrative process for investigating these infractions.
- Complementary Law No. 140, of December 8, 2011, which establishes rules, under the terms of items III, VI and VII of the caput and sole paragraph of art. 23 of the Federal Constitution, for cooperation between the Union, the States, the Federal District and the Municipalities in administrative actions arising from the exercise of common competence relating to the protection of notable natural landscapes, the protection of the environment, the fight against pollution in any of its forms and the preservation of forests, fauna and flora; and amends Law No. 6.938, of August 31, 1981.
- ICMBio Normative Instruction 06, of July 25, 2019 - provides for the prevention of introductions and the control or eradication of exotic or invasive species in federal Conservation Units and their buffer zones.

### **Basic Sanitation**

- Federal Law No. 11.445, of January 5, 2007, which establishes national guidelines for basic sanitation; amends Laws No. 6.766, of December 19, 1979, No. 8.036, of May 11, 1990, No. 8.666, of June 21, 1993, No. 8.987, of February 13, 1995; and repeals Law No. 6.528, of May 11, 1978.

### **Water Quality**

- Federal Decree No. 79.367, of March 9, 1977, which lays down rules and standards for the potability of water.
- Federal Law No. 9.966, of April 28, 2000, which provides for the prevention, control and monitoring of pollution caused by the discharge of oil and other harmful or dangerous substances into waters under national jurisdiction.
- CONAMA Resolution No. 274, of November 29, 2000, which revises the criteria for bathing in Brazilian waters.
- Federal Decree No. 4.136, of February 20, 2002, which specifies the sanctions applicable to violations of the rules for the prevention, control and monitoring of

pollution caused by the discharge of oil and other harmful or dangerous substances into waters under national jurisdiction.

- Federal Decree No. 4.871, of November 6, 2003, which provides for the establishment of Area Plans to combat oil pollution in waters under national jurisdiction.
- CONAMA Resolution No. 357, of March 17, 2005, which provides for the classification of bodies of water and environmental guidelines for their classification, as well as establishing the conditions and standards for discharging effluents.
- CONAMA Resolution No. 397, of April 3, 2008, which amends item II of § 4 and Table X of § 5, both of art. 34 of National Environmental Council Resolution - CONAMA No. 357, of 2005, which provides for the classification of bodies of water and environmental guidelines for their classification, as well as establishing the conditions and standards for discharging effluents.
- CONAMA Resolution No. 430, of May 13, 2011, which supplements and amends Resolution No. 357/2005. Provides for the conditions and standards for effluent discharge, complements and amends Resolution No. 357, of March 17, 2005, of the National Environmental Council (CONAMA).
- MS Ordinance No. 2.914 of December 12, 2011, of the Ministry of Health, which provides for procedures to control and monitor the quality of water for human consumption and its standard of potability.
- CONAMA Resolution No. 454 of November 1, 2012: establishes the general guidelines and reference procedures for the management of material to be dredged in waters under national jurisdiction.

### **Historical and Cultural Heritage**

- Federal Law No. 3.924, of July 26, 1961, which provides for archaeological and prehistoric monuments of any nature existing in national territory and all the elements found therein, in accordance with the provisions of Article 175 of the Federal Constitution.
- IPHAN Ordinance No. 07, of December 1, 1988, which regulates requests for permission and authorization and prior communication when carrying out field research and archaeological excavations in the country, in order to protect objects of scientific and cultural value present at the sites of such research, as provided for in Law No. 3,924, of July 26, 1961. It lists the information that must accompany requests for permission and authorization, as well as prior communication, to be sent to the Secretary of the National Historical and Artistic Heritage Institute - IPHAN. It also lists the information that must accompany the reports to be sent to IPHAN.
- Federal Decree No. 3.551, of August 4, 2000, which establishes the Register of Intangible Cultural Goods that constitute Brazilian cultural heritage and creates the National Intangible Heritage Program.
- IPHAN Ordinance No. 230, of December 17, 2002, which makes preventive archaeological studies compatible with the environmental licensing phases of projects potentially capable of affecting archaeological heritage, as well as defining

the procedures to be adopted in each of the environmental licensing phases. In the phase of obtaining the Preliminary License (EIA/RIMA): Exhaustive survey of secondary archaeological data and archaeological field survey. The assessment of impacts will be based on the diagnosis made, the analysis of thematic environmental maps (geology, geomorphology, hydrography, slope and vegetation) and the technical particularities of the work. The Prospecting and Rescue programs will be drawn up based on the diagnosis and assessment of impacts. At the stage of obtaining the Installation License (LI): Prospecting Program: intensive prospecting in the environmental compartments with the greatest archaeological potential, in the area of direct influence of the project and in the places that will suffer indirect impacts potentially damaging to the archaeological heritage. In the phase of obtaining the Operating License (LO): Execution of the Archaeological Rescue Program proposed in the EIA and detailed in the Prospecting Program (LI). A report should be prepared detailing the activities carried out in the field and in the laboratory, as well as the results obtained from the efforts made in terms of producing knowledge about the archaeology of the study area, so that the physical loss of archaeological sites can be effectively offset by the incorporation of the knowledge produced into the National Memory.

- IPHAN Ordinance No. 28 of January 31, 2003, which stipulates that the reservoirs of hydroelectric projects of any size or dimension within the national territory must henceforth, when applying for the renewal of the environmental operating license, provide for the execution of archaeological survey, prospection, rescue and salvage projects in the depletion strip.

### **Occupational Safety and Medicine**

- Law No. 6.514, of December 21, 1977, which amends Chapter V of Title II of the Consolidation of Labor Laws, relating to occupational safety and medicine, and makes other provisions.
- MTB Ordinance No. 3.214, June 8, 1978, which approves the Regulatory Norms - NR - of Chapter V, Title II, of the Consolidation of Labor Laws, relating to Occupational Safety and Medicine.
- Federal Law No. 8.080, of September 19, 1990, which provides for the conditions for the promotion, protection and recovery of health, the organization and operation of the corresponding services and makes other provisions.

### **Rural Environmental Regularization**

The Forest Code (Federal Law No. 12.651/2012) creates the Rural Environmental Registry - CAR and its system (SICAR). The CAR is a compulsory electronic register for all rural properties, which assists in the control, monitoring and environmental planning of these properties, under the terms of Article 29 of the aforementioned Code. The CAR was regulated by Decree No. 7.830/2012, which created the Rural Environmental Registration System (SICAR), and by the Normative Instruction of the Ministry of the Environment - MMA No. 02/2014.

Registration is the responsibility of the owner or the state land authority or INCRA in the case of land regularization of public land owned by the state or the federal government, respectively. Once they have registered with the CAR, owners and/or possessors of rural

properties with environmental liabilities relating to the irregular suppression of remnants of native vegetation, which occurred up until July 22, 2008, in Permanent Preservation Areas (APP), Legal Reserves (RL) and Restricted Use Areas (AUR), may apply to join the Environmental Regularization Programs (PRA) of the states and the Federal District, in order to proceed with the environmental regularization of their rural properties.

APPs are protected areas, whether or not they are covered by native vegetation, with the environmental function of preserving water resources, the landscape, geological stability and biodiversity, facilitating the gene flow of fauna and flora, protecting the soil and ensuring the well-being of human populations.

For rural properties with an area greater than four Fiscal Modules - MF, which have an area with environmental liabilities in APP along natural watercourses, it is mandatory to restore the marginal strips: i) 20 meters, counted from the edge of the channel of the regular bed, for properties with an area between 4 and 10 MF, in watercourses up to 10 meters wide; and ii) in other cases, an extension corresponding to half the width of the watercourse, observing a minimum of 30 and a maximum of 100 meters, counted from the edge of the channel of the regular bed, regardless of the width of the river.

### **Natural Disasters and Climate Change**

Law No. 12.187 of December 29, 2009 institutes the National Policy on Climate Change - PNMC and establishes its principles, objectives, guidelines and instruments. The PNMC aims, among other things: to make economic and social development compatible with the protection of the climate system; the reduction of anthropogenic GHG emissions, the implementation of measures to promote adaptation to climate change and the conservation and recovery of environmental resources, including the expansion of protected areas and incentives for reforestation and the restoration of vegetation in degraded areas.

The law establishes guidelines in line with Brazil's commitments to the United Nations Convention on Climate Change and other agreements and documents on the subject to which the country is a signatory, and establishes as instruments the National Plan on Climate Change, the National Fund on Climate Change and the Action Plans for the prevention and control of deforestation in the biomes (regulated by Decree No. 10.142/2019).

Presidential Decree No. 7.513/2011 created CEMADEN - the National Center for Monitoring and Alerts of Natural Disasters - a research unit of the Ministry of Science, Technology and Innovation - to consolidate the National Plan for Risk Management and Response to Natural Disasters (PNGRRD) and implement a system of early warnings of the probability of occurrence of natural disasters associated with natural phenomena.

Within the scope of the National Plan for Risk Management and Disaster Response, CEMADEN monitors 959 municipalities in all Brazilian regions. The Center issues periodic reports analyzing the various risks, at least monthly for drought risks and impacts on agriculture.

### **Pesticides**

Law No. 7.802, of July 11, 1989, governs research, experimentation, production, packaging and labeling, transport, storage, marketing, commercial advertising, use, import, export, the final destination of waste and packaging, registration, classification,

control, inspection and inspection of pesticides, their components and the like, and makes other provisions.

### **New Brazilian Forest Code**

It is worth highlighting Law No. 12.651 of May 2012, referring to the new Forest Code, which provides for the protection of native vegetation; amends Laws No. 6.938, of August 31, 1981, No. 9.393, of December 19, 1996, and No. 11.424, of December 22, 2006; repeals Laws No. 4.771, of September 15, 1965, and No. 7.754, of April 14, 1989, and Provisional Measure No. 2.166.428, of December 22, 2006; repeals Laws Nos. 4.771, of September 15, 1965, and 7.754, of April 14, 1989, and Provisional Measure No. 2.166-67, of August 24, 2001; and makes other provisions.

The new Forest Code was approved on May 25, 2012 and brought changes in relation to the 1965 code on important points such as Permanent Preservation Areas (APP) and legal reserves.

### **Ecological and Economic Zoning**

Federal Decree No. 4.297, of July 10, 2002, defines the EEZ as an environmental instrument whose main objective is to guide planning and decision-making on programs, projects and activities that use natural resources and promote sustainable development (harmonizing production, preservation and conservation), including the prevention of impacts and the implementation of actions to mitigate or correct any damage to the environment.

### **3.3 State Legislation**

Legislation in the state of Paraíba offers a series of guidelines that can set restrictions, permissions or guidelines for human activities and environmental preservation. Among the laws, 4.335/1981 stands out, which provides for the preservation and control of pollution, as well as establishing disciplinary standards. In turn, State Law 6.002/1994 establishes the state's Forest Code, which was regulated by State Decree 23.835/2002.

On more specific issues of the state's legal requirements, there are instruments aimed at measures to preserve and restore biomes, with special attention to the Caatinga. These pieces of legislation - established, for example, in State Law No. 8.387/2007; State Law No. 9.569/2011; State Law No. 9.645/2011; State Law No. 9.857/2012; State Decree No. 24.419/2006 - offer requirements for restricting the cutting of certain species, licensing characteristics and even the creation of state committees, but also qualify and exempt types of activities such as SAFs or traditional practices from the requirements, or simplify them.

You must also observe the guidelines set out in State Law 11.140/2018, which deals with the rights and welfare of animals, including guidelines on comfort, food and zoonosis.

SUDEMA also establishes its Administrative Norms in order to offer more specific parameters on environmental licensing, in particular NAs 101, 115 and 118.

Below is a list of the most relevant state laws.

- State Law No. 4.335, of December 16, 1981 - Provides for the preservation and control of environmental pollution and establishes disciplinary norms;

- State Law No. 6.002, of December 29, 1994 - Establishes the Forest Code of the state of Paraíba;
- State Law No. 6.960, of February 6, 2001 - Provides for mandatory forest replacement and other measures;
- State Law No. 8.387, of November 14, 2007 - Provides for the Conservation and Management Policy of the Caatinga biome;
- State Law No. 9.569, of December 6, 2011 - Considers the Caatinga Biome to be a Heritage of the State of Paraíba;
- State Law No. 9.645, of December 29, 2011 - Creates the State Committee of the Caatinga Biosphere Reserve in the State of Paraíba - CERBCAAT-PB;
- State Law No. 9.857, of July 6, 2012 - Provides for the use and protection of vegetation in the Caatinga Biome and makes other provisions;
- State Law No. 10.146, of November 14, 2013 - Establishment of the Paraíba week to raise awareness of the Caatinga biome (week of April 28);
- State Law No. 11.140, of June 8, 2018 - Institution of the animal law and welfare code of the State of Paraíba;
- State Law No. 11.153, of July 2, 2018 - Amends the wording of the Sole Paragraph of Article 7 of Law No. 9.857/2012, which provides for the use and protection of vegetation in the Caatinga Biome, allowing the cutting of algaroba without the need for authorization;
- State Law No. 11.764, of August 26, 2020 - Provides for the establishment of Agrovilas in the State of Paraíba;
- State Decree No. 21.120, of June 20, 2000 - Regulates Law No. 4.335, of December 16, 1981, amended by Law No. 6.757, of July 8, 1999, which provides for the prevention and control of environmental pollution, establishes rules governing the species and makes other provisions;
- State Decree No. 23.835, of December 27, 2002 - Regulates the Forest Code in the State of Paraíba and makes other provisions;
- State Decree No. 24.414, of September 27, 2003 - Provides for forest exploitation in the state of Paraíba and makes other provisions;
- State Decree No. 24.415, of September 27, 2003 - Provides for the compulsory registration of individuals and legal entities that consume forest products and by-products with the Superintendence of Environmental Administration - SUDEMA and makes other provisions;
- State Decree No. 24.416, of September 27, 2003 - Provides for mandatory forest replenishment in the state of Paraíba and other measures;
- State Decree No. 24.417/2003, of September 27, 2003 - Provides for Alternative Land Use and other measures;
- State Decree No. 24.419, of August 23, 2006 - Gives new wording to articles 1 and 5 of Decree 24.419, of September 27, 2003, on the use of controlled fire in the state of Paraíba;

- SUDEMA Administrative Standard NA 101 - Procedures and Specifics for Environmental Licensing based on the Legal System and Specific Regulations analogous to the matter;
- SUDEMA Administrative Standard NA 115 - Adopts guidelines for environmental licensing of agrarian reform settlement projects;
- SUDEMA Administrative Standard NA 118 - Procedures for licensing dryland activities;

### 3.4 IDB Environmental and Social Policy Framework

The following are the Environmental and Social Performance Standards (ESPS) that make up the IDB's Environmental and Social Policy Framework.

#### **ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts**

The Environmental and Social Performance Standard (ESPS) 1 highlights the importance of managing environmental and social performance throughout the life of a project. An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by the Borrower, and involves commitment between the Borrower, its workers, and project-affected people and, where appropriate, other stakeholders. Based on the elements of the established management process of "plan, do, check and act", the ESMS involves a methodological approach to managing environmental and social risks and impacts in a systematic and structured manner on an ongoing basis. A good ESMS appropriate to the nature and scale of the project promotes sound and sustainable environmental and social performance and can lead to better financial, social and environmental results.

Objectives:

- Identify and assess the project's environmental and social risks and impacts.
- Adopt a mitigation hierarchy and a precautionary approach to anticipate
- and avoid adverse impacts on workers, communities and the environment, or where avoidance is not possible, minimize and, where residual impacts remain, compensate for risks and impacts as appropriate.
- Promote better environmental and social performance of Borrowers through the effective use of management systems.
- Ensure that complaints from people affected by the project and external communications from other interested parties are answered and managed appropriately.
- Promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and ensure that relevant environmental and social information is disclosed and disseminated.

## ESPS 2: Labor and Working Conditions

The Environmental and Social Performance Standard (ESPRS) 2 recognizes that the pursuit of economic growth through job creation and income generation must go hand in hand with the protection of workers' fundamental rights. The workforce is a valuable asset, and a good worker-employer relationship is a key ingredient in the sustainability of any enterprise. Failure to establish and foster a solid employee-management relationship can undermine employee engagement and retention and can put a project at risk. On the other hand, through a constructive worker-management relationship and by treating workers fairly and providing safe and healthy working conditions, Borrowers can create tangible benefits, such as improving the efficiency and productivity of their operations.

The requirements set out in this ESPS were partly guided by various international conventions and instruments, including those of the International Labor Organization (ILO) and the United Nations (UN)

Objectives:

- Respect and protect workers' fundamental rights and principles.
- Promoting fair treatment, non-discrimination and equal opportunities for workers.
- Establishing, maintaining and improving the employee-employer relationship.
- Ensuring compliance with national employment and labor laws.
- Protecting workers, including vulnerable categories such as women, people of different gender identity or sexual orientation, people with disabilities, children (of working age, according to this ESPS) and migrant workers, third-party contract workers and primary supply workers.
- Promoting safe and healthy working conditions and workers' health.
- Preventing the use of child labor and forced labor (as defined by the ILO).
- Support the principles of freedom of association and collective bargaining for project workers.
- Ensure that workers have accessible and effective means of raising and addressing work-related concerns.

## ESPS 3: Resource Efficiency and Pollution Prevention

This ESPS describes a project-level approach to resource management and pollution prevention and control, and GHG emission prevention and minimization. It will build on the mitigation hierarchy and the "polluter pays" principle. It recognizes the disproportionate impact of pollution on women, children, the elderly, the poor and the vulnerable. This ESPS also recognizes the emerging concept and practice of the circular economy and/or resource recovery, where usable and valuable products can be created or derived from what was previously seen as waste. The project has reported risks and impacts associated with the use of resources, and the generation and emission of waste must be assessed from the local context and environmental conditions of the project. Appropriate mitigation measures, technologies and practices should be adopted for the efficient and effective use of resources, the prevention and control of pollution, and the



prevention and minimization of GHG emissions, in accordance with internationally disseminated technologies and practices.

Objectives:

- Avoid or minimize adverse impacts on human health and the environment by avoiding or reducing pollution resulting from project activities.
- Promoting a more sustainable use of resources, including energy and water.
- Reduce or avoid GHG emissions related to the project.
- Avoid or minimize the generation of waste.
- Minimize and manage the risks and impacts associated with pesticide use.

#### **ESPS 4: Community Health and Safety**

Environmental and Social Performance Standard (ESPP) 4 recognizes that project activities, equipment and infrastructure may increase community exposure to risks and impacts including those caused by disasters and climate change. In addition, communities that are already subject to adverse impacts from natural hazards and climate change may also experience an acceleration and/or intensification of these adverse impacts due to project activities. Natural hazards and climate change impacts can affect the project itself, which can cause additional adverse impacts on the health and safety of people affected by the project. This ESPS addresses the Borrower's responsibility to avoid or minimize risks and impacts to community health, safety and security that may arise from project-related activities, with special attention to vulnerable groups. It also addresses the Borrower's responsibility to avoid or minimize the risks and impacts of the project itself that may result from disasters or climate change.

Objectives:

- Anticipate and avoid adverse impacts on the health and safety of people affected by the project during the project life cycle, in routine and non-routine circumstances.
- Ensure that the safeguarding of personnel and property is carried out in accordance with the relevant human rights principles and in such a way as to avoid or minimize the risks to those affected by the project.
- Anticipate and avoid adverse impacts on the project itself due to disasters and climate change during the project life cycle.

#### **ESPS 5: Land Acquisition and Involuntary Resettlement**

Environmental and Social Performance Standard (ESPP) 5 addresses the impacts of project-related land acquisition, including restrictions on land use and access to its assets and resources, which can cause physical displacement (relocation, loss of residential land or loss of shelter) and/or economic displacement (loss of land, assets or access to assets, including those leading to loss of income sources or other means of livelihood). The term "involuntary resettlement" refers to these two impacts and the processes of mitigating and compensating for these impacts. Resettlement is considered involuntary when project-affected people do not have the right to refuse land acquisition or land use restrictions that result in physical or economic displacement. This occurs in cases of (i) legal expropriation or temporary or permanent restrictions on land use and

(ii) negotiated agreements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller fail.

Unless properly managed, involuntary resettlement can result in long-term hardship and impoverishment for the people affected by the project, as well as environmental damage and adverse socio-economic impacts in the areas to which they have been displaced. For these reasons, involuntary resettlement should be avoided. However, where involuntary resettlement is unavoidable, it should be minimized and appropriate measures to mitigate adverse impacts on displaced people and host communities should be carefully planned and implemented. The government plays a central role in the land acquisition and resettlement process, including the determination of compensation. Close collaboration and coordination between government agencies and project-affected people can result in more cost-effective, efficient and timely implementation of these activities, as well as the introduction of innovative approaches to improving the livelihoods of those affected by resettlement.

Objectives:

- Avoid, and when it can't be avoided, minimize displacement by exploring alternative projects.
- Avoid forced evictions.
- Anticipate and avoid, or where not possible, minimize the adverse social and economic impacts of land acquisition or use restrictions by (i) compensating for the loss of assets at replacement cost and transition difficulties, (ii) minimizing the disruption of their social networks and other intangible assets, and (iii) ensuring that resettlement activities are implemented with adequate disclosure of information, consultation and informed participation of affected people.
- Improving or restoring the livelihoods and living standards of those relocated.
- Improve the living conditions of physically displaced people by providing adequate housing with security of tenure, and security at resettlement sites.

## **ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources**

Environmental and Social Performance Standard (ESPRS) 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this ESPS have been guided by the Convention on Biological Diversity, which defines biodiversity as "the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems." Ecosystem services are the benefits that people, including companies, obtain from ecosystems.

Ecosystem services are organized into four types: (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulating services, which are the benefits that people obtain from regulating ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems; and (iv) support services, which are the natural processes that maintain the other services.

The ecosystem services valued by humans are generally sustained by biodiversity. Impacts on biodiversity can therefore adversely affect the provision of ecosystem services. This ESDP addresses how Borrowers can sustainably manage and mitigate impacts on biodiversity and ecosystem services throughout the project life cycle.

Objectives:

- Protect and conserve terrestrial, aquatic, coastal and marine biodiversity.
- Maintaining the functioning of the ecosystem to guarantee the benefits of ecosystem services.
- Promote the management and sustainable use of natural resources by adopting practices that integrate conservation needs and development priorities.

### ESPS 7: Indigenous Populations

The Environmental and Social Performance Standard (ESPRS) 7 recognizes that Indigenous Peoples<sup>15</sup>, as distinct social and cultural peoples, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social and legal status limits their ability to defend their rights and interests in lands and natural and cultural resources and can restrict their ability to participate in and benefit from development that is in line with their worldview. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, invaded or significantly degraded. Their languages, cultures, religions, spiritual beliefs and institutions may also be threatened. As a consequence, indigenous peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous peoples. This vulnerability may include loss of identity, culture and natural resource-based livelihoods, as well as exposure to impoverishment and disease.

Projects can create opportunities for Indigenous Peoples to participate in and benefit from project-related activities that can help them fulfill their aspirations for the economic and social development of their identity. In addition, Indigenous Peoples can play a role in sustainable development by promoting, owning and managing activities and companies as partners in development. The government often plays a central role in managing Indigenous Peoples' issues. It is therefore important that there is collaboration and coordination between responsible and relevant authorities in managing the risks and impacts associated with the project.

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15 There is no universally accepted definition of "Indigenous Peoples". Indigenous peoples may be referred to in different countries by terms such as "original peoples" (*pueblos originarios*), "autochthonous peoples" (*pueblos autóctonos*), residents of indigenous municipalities (comarcas) or reservations (resguardos) or any other formally recognized indigenous peoples in Latin America and the Caribbean. In ESPS 7, the term "Indigenous Peoples" is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees: (i) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others. (ii) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources of those habitats and territories. (iii) Customary cultural, economic, social or political institutions separate from those of the dominant society or culture. (iv) A distinct language or dialect, usually different from the official language or languages of the country or region in which they reside. For the purposes of this ESPS, traditional peoples, as recognized by national laws, should be treated as indigenous peoples.

The requirements presented in this ESPS have been guided in part by international conventions and instruments, including those of the International Labor Organization (ILO) and the United Nations (UN).

Objectives:

- Ensure that the development process promotes full respect for the human rights, collective rights, dignity, aspirations, culture and natural resource-based livelihoods of Indigenous Peoples.
- Anticipate and avoid adverse impacts of projects on Indigenous Peoples' communities, or when it is not possible to avoid, minimize and/or compensate for such impacts.
- Promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.

### **ESPS 8: Cultural Heritage**

Environmental and Social Performance Standard (ESPR) 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this ESPS aims to ensure that Borrowers protect cultural heritage in the course of their project activities. In addition, the requirements of this ESPS on the use of a project's cultural heritage are based in part on the standards set by the Convention on Biological Diversity.

Objectives:

- Protect cultural heritage from the adverse impacts of project activities and support its preservation.
- Promote the equitable sharing of the benefits arising from the use of cultural heritage.

### **ESPS 9: Gender Equality**

This ESDP aims to identify possible gender-based risks and impacts and introduce effective measures to avoid, prevent or mitigate these risks and impacts, thus eliminating the possibility of reinforcing pre-existing inequalities or creating inequalities that did not exist. For the purposes of this ESPS, affirmative action specifically aimed at reducing existing gender gaps, addressing specific gender-based needs or ensuring the participation of people of all genders in consultations shall not constitute discrimination or exclusion.

This ESPS pays special attention to how gender inequalities interact with other inequalities, such as socioeconomic, ethnic, racial, disability and other factors, and how this intersectionality can exacerbate barriers to accessing project benefits, limit the ability to cope with negative project impacts and create other vulnerabilities.

This ESPS recognizes that diverse sexual orientations and gender identities can make people excluded and/or make segments of the population more vulnerable to negative impacts from the project, often preventing them from taking advantage of opportunities available to other members of the community.

This ESPS also recognizes that sexual and gender-based violence (SGBV) is a prevalent global problem. Manifestations of SGBV likely exist in all settings. Gender-related

impacts, including all forms of SGBV, including sexual exploitation and abuse, disproportionately affect women and people of diverse sexual orientations and gender identities. Projects that involve a large influx of workers in a community can exacerbate existing risks of SGBV or create risks, ranging from sexual harassment to sexual abuse and exploitation of women and children.

Likewise, this ESPS recognizes that globally and in LAC countries, the majority of unpaid care work falls to women. Unpaid care work is one of the main barriers preventing women from entering, continuing or progressing in the workforce. This presents a major barrier to gender equality and women's economic empowerment, including women's meaningful participation in opportunities available to other members of the community.

Objectives:

- Anticipate and prevent risks and adverse impacts based on gender, sexual orientation and gender identity and, where this cannot be avoided, mitigate and compensate for these impacts.
- Establish preventive actions to prevent or mitigate risks and impacts arising from gender in projects, throughout the project cycle.
- Achieving the inclusion of benefits derived from projects by people of all genders, sexual orientations and gender identities.
- Avoid exacerbating SGBV, including sexual harassment, exploitation and abuse, and when incidents of SGBV occur, respond immediately.
- Promote safe and equitable participation in stakeholder consultation and engagement processes, regardless of gender, sexual orientation and/or gender identity.
- Meet the requirements of applicable national legislation and international commitments related to gender equality, including actions to mitigate and prevent gender-related impacts.

### **ESPS 10: Stakeholder engagement and information disclosure**

This Environmental and Social Performance Standard (ESDP) recognizes the importance of open and transparent engagement between the Borrower and stakeholders, in particular project-affected people, as a key element that can improve the environmental and social sustainability of projects, enhance project acceptance and contribute significantly to the successful development of a project and its implementation. This ESPS is consistent with the objectives of implementing the right to access to information, public participation in the decision-making process and access to justice in environmental matters.

Stakeholder engagement is an inclusive process, conducted throughout the life cycle of a project. When properly designed and implemented, it supports the development of strong, constructive and responsive relationships, which are important for the successful management of a project's environmental and social risks and impacts. Stakeholder engagement is most effective when initiated at an early stage in the project development process. It is an integral part of the project's initial decisions on the assessment, management and monitoring of the project's environmental and social risks and impacts

Objectives:

- Establish a systematic approach to stakeholder engagement that will help the Borrower to identify stakeholders, especially people affected by the project, and to build and maintain a constructive relationship with them.
- Assess the level of stakeholder interest and support in the project and allow stakeholder views to be considered in the design and environmental and social performance of the project.
- Promote and provide means for effective and inclusive engagement with project-affected people throughout the project lifecycle on issues that could potentially affect or benefit them.
- Ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
- Provide stakeholders with accessible and inclusive means to raise issues, proposals, concerns and complaints and enable Borrowers to respond and manage appropriately.

### Exclusion List

The IDB's exclusion list contains a series of activities that are not allowed in the Bank's financing, mainly because they are incompatible with its commitments to address the challenges of climate change and promote environmental and social sustainability. The list of activities not permitted under the IDB's criteria is presented below.

- Activities that are illegal according to laws, regulations or ratified international conventions and agreements, or subject to international interruptions or prohibitions, such as:
  - polychlorinated biphenyls (PCBs);
  - pharmaceutical products, pesticides/herbicides and other dangerous substances subject to international interruptions or bans;
  - Persistent Organic Pollutants (POPs);
  - ozone-depleting substances subject to international elimination;
  - wildlife or wildlife products regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora;
  - cross-border trade in waste or waste products, except for non-hazardous waste destined for recycling;
  - lead-based paint or coatings in the construction of structures and roads.
- Activities that are illegal under laws, regulations or ratified international conventions and agreements relating to the protection of biodiversity resources or cultural heritage.
- Activities which, although consistent with the legal and/or regulatory framework of a country, may generate particularly significant adverse impacts on people and/or the environment, such as:
  - weapons, ammunition and other military goods/technology;

- tobacco;
- gambling, casinos and similar enterprises;
- radioactive materials;
- unbound asbestos fibers or products containing asbestos;
- drift nets in the marine environment, using nets more than 2.5 km long.
- Activities incompatible with the IDB's commitments to address the challenges of climate change and promote environmental and social sustainability, such as:
  - thermal coal mining and coal-fired power plants and associated facilities;
  - upstream oil exploration and development projects;
  - upstream gas exploration and development projects. In exceptional circumstances and on a case-by-case basis, financing of upstream gas structures will be considered where there is a clear benefit in terms of access to energy for the poor and reduction of greenhouse gas (GHG) emissions, projects consistent with national climate change objectives, and where the risks of retained assets are adequately analyzed.

### 3.5 IFAD's Environmental, Social and Climate Standards

IFAD has established Social, Environmental and Climate Assessment Procedures (SECAP) which require the project to take into account social, environmental and climate change issues.

The IFAD Standards establish fundamental requirements for the environmental and social sustainability of projects. Project teams (and co-financiers, if applicable) must apply them during design and implementation, but they are also aimed at borrowers/beneficiaries/associates, who are ultimately responsible for implementation.

These standards are based on the good practices of the United Nations, financial institutions, international organizations and multilateral development banks.

All projects must undergo an ex-ante environmental, social and climate assessment. The assessment determines how the risks and effects (both those affecting the project and those caused by it). The level of risk is determined on a case-by-case basis, with appropriate mitigation measures depending on the nature and scale of the project, and its level of environmental, social and climate risk. The assessment also considers the capacity and degree of commitment of the borrower/beneficiary/partner to implement the project in accordance with environmental and social standards. If environmental and social risks or effects arise during implementation, the project team, in collaboration with the national authorities, must adjust the project plan or introduce appropriate mitigation measures.

#### Standard 1: Biodiversity Conservation

According to the Convention on Biological Diversity (CBD), this standard recognizes that biological diversity includes more than plants, animals and microorganisms and their ecosystems; it also refers to people and their needs for food security, medicines, clean air and drinking water, housing and a clean and healthy environment in which to live.

Biological diversity is essential for maintaining ecosystem services (such as water and food supply) and other resources that are important both for the ecosystems themselves and for human life. The diversity of agroecological systems promotes the resilience of rural families and their production systems. The aim of conserving biological diversity is to maintain the resources and related services to meet humanity's current needs, while guaranteeing their availability for future generations, a fundamental criterion of sustainable development.

Objectives:

- maintaining and conserving biodiversity;
- ensure that the benefits of using genetic resources are distributed fairly and equitably;
- respect, preserve, maintain and strengthen the knowledge, innovations and practices of indigenous peoples and local communities relevant to the conservation and sustainable use of biodiversity and their customary use of biological resources, and
- apply the precautionary principle in the conservation and management of natural resources to ensure that there are opportunities for environmentally sustainable development.



## Standard 2: Resource Efficiency and Pollution Prevention

This standard recognizes that economic activity and development often pollute the air, water and land, and can lead to the consumption of finite resources, which in turn can pose a threat to humans, ecosystem services and society.

IFAD calls for the application of the precautionary principle to address significant environmental and social risks and effects through the mitigation hierarchy, the "polluter pays" principle (which proposes that the cost of mitigation be borne by the polluter, where applicable) and adaptive management techniques (where lessons are drawn from previous management actions and then used proactively to improve management in the future).

This standard establishes a project-level approach to mitigating, minimizing and managing potential risks and adverse effects that may be related to resource use and pollution.

Objectives:

- Avoid, minimize and manage the risks and effects associated with hazardous substances and materials, including pesticides;
- avoid or minimize short- and long-term climate-related pollutant emissions caused by the project<sup>36</sup>;
- promote a more sustainable use of resources, including energy, land and water, and identify opportunities to contribute to the efficient use of resources.

## Standard 3: Cultural Heritage

This standard recognizes that cultural heritage is a fundamental element of identity and memory, both individual and collective, and facilitates continuity between the past, the present and the future.

Likewise, it reflects and expresses people's values, beliefs, knowledge, traditions and practices, all of which are constantly evolving. In addition, it plays an essential role in the process of sustainable development, as it improves social cohesion, diversity, well-being and quality of life; strengthens cultural rights, protecting the heritage of minorities and indigenous peoples; encourages socio-economic regeneration; improves the attractiveness and creativity of cities and regions; boosts the long-term benefits of tourism and encourages sustainable practices. Cultural heritage resources are often unique and irreplaceable, and can be especially fragile due to neglect, exploitation or even destruction.

This standard aims to preserve, protect and promote cultural heritage in projects supported by IFAD in a manner consistent with the United Nations Educational, Scientific and Cultural Organization (UNESCO) conventions on the subject, as well as other applicable national and international legal instruments.

For the purposes of this standard, cultural heritage is considered to include both tangible heritage (sometimes referred to as "physical cultural resources") and intangible heritage.

Objectives:

- preserving and safeguarding cultural heritage;

- ensure that active efforts are made to prevent IFAD-supported projects from altering, damaging or eliminating any tangible or intangible cultural heritage;
- promote the equitable distribution of the benefits derived from the use of cultural heritage, and
- promote meaningful consultations on issues related to this heritage.

#### **Standard 4: Indigenous Peoples**

IFAD's comparative advantage in working with indigenous peoples lies in its core mission of empowering the rural poor, its targeting method and its people-centered approach, which takes into account the diverse contexts in which the rural poor live.

The Fund's actions in relation to indigenous peoples are based on the nine fundamental principles set out in its Policy for Action in relation to Indigenous Peoples:

- (i) recognize that cultural heritage and identity are assets;
- (ii) request free, prior and informed consent;
- (iii) contribute to community-driven development;
- (iv) promote equitable access to lands, territories and resources;
- (v) valuing the knowledge of indigenous peoples;
- (vi) strengthening the resilience of indigenous peoples' ecosystems (environmental and climate change issues);
- (vii) promote access to markets;
- (viii) promote empowerment, and
- (ix) promote gender equality.

Objectives:

- Support indigenous peoples in determining priorities and strategies for exercising their right to development;
- ensure that each project is designed in partnership with indigenous peoples and in full, effective and meaningful consultation with them, to obtain their free, prior and informed consent;
- ensure that indigenous peoples derive fair and equitable benefits and opportunities from project-supported activities in an inclusive and culturally appropriate manner, and
- recognize and respect the rights of indigenous peoples to their lands, territories, waters and other resources that they traditionally own, use or depend on.

#### **Standard 5: Work and Working Conditions**

IFAD seeks to promote inclusive, diversified and productive rural economies that generate decent work opportunities and higher incomes. By investing in rural populations to improve their productive capacities and increase the benefits they derive from their participation in the market, IFAD promotes the development of value chains, inclusive financial services and rural businesses.

The Fund's commitment to promoting inclusive and sustainable economic growth, full and productive employment and decent work for all includes protecting the rights of project workers to ensure that they receive fair treatment and work in safe, secure and healthy conditions. The following requirements reflect this commitment, which is guided by a series of international agreements, conventions and instruments, including those of the International Labor Organization (ILO) and the United Nations.

Objectives:

Promote direct actions to promote decent rural employment;

- promoting, respecting and implementing fundamental principles and rights through:
  - preventing discrimination and promoting equal opportunities for workers;
  - promoting freedom of association and the right to collective bargaining, and preventing the use of forced labor and child labor;
- protect and promote the safety and health of workers;
- ensure that projects comply with national labor and employment laws and international commitments, and
- leaving no one behind, protecting and supporting workers in disadvantaged and vulnerable situations, with special attention to women (e.g. maternity protection), young people, migrants and health workers, the informal economy and people with disabilities.

#### **Standard 6: Community Health and Safety**

Given IFAD's mandate and the sectors in which its interventions take place, the health and safety of communities are essential elements. In many countries, the agricultural sector has undergone enormous changes in the last 30 years thanks to a better understanding of the health and safety risks and effects associated with farming, as well as the use of better technologies and personal protective equipment. However, in many parts of the world (especially in low- and middle-income countries) there is still a lack of knowledge about how farmers are affected by their exposure to the numerous risks and health effects they face every day. Even in the most developed countries, improvements in workplace health and safety and the implementation of ILO policies have yet to reach the agricultural sector.

This standard emphasizes the prevention (and when this is not possible, the minimization and mitigation) of health and safety risks and impacts that may arise from IFAD-supported projects, with special attention to the marginalized and disadvantaged.

Objectives:

- Ensuring quality and safety in the design and construction of infrastructure linked to the programs, avoiding and minimizing possible safety risks and accidents;
- avoid or minimize the exposure of the community to the risk of disasters, diseases and hazardous materials associated with project activities;
- ensure that personnel and property protection measures minimize risks to communities and comply with international human rights standards and principles, and

- have effective measures in place to respond to emergency situations, whether they are due to natural hazards or caused by human beings.

### **Standard 7: Physical and economic resettlement**

Based on IFAD policies, international guidelines and best practices regarding safeguards in cases of involuntary resettlement, this standard considers resettlement not only as the physical relocation of people, but also as an economic, social and cultural factor that restricts people's access to places important to their livelihoods and culture.

Physical resettlement involves relocation due to the loss of residential land or housing, and economic displacement involves the loss or destruction of land or assets, and includes restrictions on access to goods, sources of income and livelihoods, as well as assistance to vulnerable groups.

Objectives:

- Avoid involuntary resettlement or, when this is not possible, minimize it by studying alternatives for the design and location of developments;
- avoid forced evictions;
- ensure that resettlement activities are planned and carried out in a collaborative manner, with the meaningful participation of the people affected;
- improve and restore the livelihoods of all displaced persons, and
- provide explicit guidance to borrowers/beneficiaries/partners on the conditions that must be met in relation to involuntary resettlement.

### **Standard 8: Financial Intermediaries**

This standard recognizes that investments in financial intermediaries (FIs) (indirect investments) and private sector companies (direct investments) are key to promoting the sustainability of financial markets and providing financial products and services to agricultural companies and rural micro, small and medium-sized enterprises.

Financial intermediation implies that responsibility for environmental and social assessment, risk management and monitoring, and overall portfolio management is delegated to intermediaries. The effectiveness of the financial intermediary's management of environmental and social risks should be assessed and monitored continuously throughout the project's life cycle, paying attention to its core business of generating returns for investors and ensuring sustainability.

Objectives:

- Promoting good environmental, social and climate practices, as well as good human resource management among financial intermediaries and beneficiaries of direct investments;
- ensure that the said intermediaries and beneficiaries assess and manage the environmental and social risks and effects of the subprojects, and
- promote the use of good environmental and social practices by beneficiaries of direct investments and sub-projects financed by financial intermediaries.

## Standard 9: Climate Change

The effects of climate change represent a fundamental threat to sustainable development and the fight against poverty. They can reverse human development by affecting essential development sectors such as agriculture and food production, ecosystems, water and other natural resources, disaster risk management and health. Climate change has become one of the main causes of hydro-meteorological disasters, and has the potential to produce gradual environmental changes that can intensify extreme weather events, increasing the risk of high-impact disasters, whether sudden or slow-onset. Climate variability also contributes to increasing the frequency and impact of localized small-scale disasters, which have long-term and far-reaching effects.

Investment decisions must take into account the changing nature of climate risks and impacts. In project design, this can be achieved through climate risk analysis, planning to improve the resilience of vulnerable livelihoods (adaptation) and minimizing greenhouse gas emissions and enhancing carbon sinks (mitigation). All borrowers/beneficiaries/partners of IFAD-supported projects must consider the effects that climate change may have on the projects, as well as the effects of other projects.

Objectives:

- Ensure that IFAD-supported projects are aligned with the targets set in the countries' nationally determined contributions and with the targets of the Paris Agreement and other international frameworks;
- ensure that the proposed activities are monitored and evaluated in relation to the risks and effects of climate change and disasters, including the effects on and generated by the projects;
- apply the mitigation hierarchy in project design;
- strengthening the resilience of communities to face the risks of the effects of climate change and related disasters, and
- increase the capacity of communities to adapt to the negative effects of climate change and promote climate resilience and low greenhouse gas emission projects that do not pose a threat to food production.

### 3.6 Gap analysis

The following is a *Gap Analysis* of compliance with IDB/IDA standards.

**Table 16 - Summary table of the gap analysis for compliance with the IDB/IDA Standards**

Executive Agency procedures and gaps identified	Recommendations
<b>Assessment and Management of Social and Environmental Risks and Impacts</b>	
<ul style="list-style-type: none"> <li>• Although some stages of projects and works do not require environmental licensing or have simple licensing, the PMU must have a stage that includes instruments for environmental and social assessment and planning of projects. This instrument is the screening or preliminary analysis, which involves analyzing the legal requirements and environmental constraints present, generating an Official Letter with the results of this screening and the necessary recommendations for the application of socio-environmental measures and commitments in the context of each project.</li> <li>• This screening process must incorporate environmental and social requirements aimed at complying with Brazilian legislation, project feasibility and meeting some of the requirements set out in the IDB/IDA Standards.</li> <li>• During the implementation phase of the projects, there is no formalized supervision or inspection process, but this is a process that needs to be developed.</li> <li>• The PMU should incorporate a Social and Environmental Development sector into its structure to manage the social and environmental requirements set out in the IDB/IDA Standards.</li> <li>• No system for assessing socio-environmental impacts and risks was identified for Procace II</li> </ul>	<ul style="list-style-type: none"> <li>• Implement a preliminary socio-environmental assessment process with a view to screening and scoping the necessary socio-environmental studies and planning mitigation programs, as well as determining the eligibility of projects before the IDB's ESPF and IFAD's SECAP.</li> <li>• Implement a socio-environmental management and supervision sector with a dedicated team</li> <li>• Train workers in the environmental and social requirements of the IDB/IDA Standards</li> <li>• Incorporate an impact and risk assessment stage for projects and the development of an Environmental and Social Management Plan. The process of identifying the environmental and social risks and impacts of each project must be clear.</li> <li>• Increasing the Environmental and Social Management System (ESMS) with guidelines for classifying the socio-environmental impact of potential projects.</li> <li>• Incorporate into the ESMS definitions for the environmental and social studies that will need to be carried out based on the level of impact of the projects, complying with the requirements of the IDB/IDA Standards.</li> <li>• Draw up a Social, Environmental and Health and Safety Management Procedures Manual</li> <li>• Promote the interoperability of the systems under development to include georeferenced information and interoperability with databases from official sources, with a view to increasing the capacity for environmental and social assessment, identification of impacts and risks.</li> <li>• As part of the PMU's Environmental and Social Management System (ESMS), project ESMPs must include Emergency Preparedness and Response Plans in accordance with IDB/IDA Standards.</li> </ul>
<b>Labor and Working Conditions</b>	
<ul style="list-style-type: none"> <li>• Brazilian legislation includes several topics in line with the requirements of the IDB/IDA Standards, such as compliance with occupational health and safety requirements, working conditions and labor relations management, protection of the workforce, among others.</li> <li>• In general, PROCASE's processes are largely compliant with the requirements of the Standard, but some gaps have been identified, such as the need to publicize the complaints mechanism to</li> </ul>	<ul style="list-style-type: none"> <li>• Disseminate workers' complaints and grievances mechanism extended to workers of outsourced companies.</li> <li>• Carry out environmental and social responsibility training with workers and contractors.</li> <li>• Implement a code of conduct for project workers</li> </ul>

Executive Agency procedures and gaps identified	Recommendations
<p>workers and contractors and the need for a dedicated and specialized team to monitor OHS compliance.</p> <ul style="list-style-type: none"> <li>The PROCASE II management team is considered to be in a position to carry out adequate management to ensure that the workers of the contracted companies have their rights guaranteed</li> </ul>	<ul style="list-style-type: none"> <li>Consolidate the OHS supervision and compliance, training and inspection process, preferably including a specialized and dedicated technician.</li> </ul>
Resource Efficiency and Pollution Prevention and Management	
<ul style="list-style-type: none"> <li>There is no specific requirement for the PMU to implement resource efficiency and contamination prevention principles and techniques consistent with International Good Industry Practice.</li> <li>federal law 12.187 of 2009 is quite objective in its responsibility and obligation to reduce gas emissions, but it does not include a regulation that explicitly defines the requirement to avoid or minimize GHG emissions related to projects during their design, implementation or operation. On the other hand, CONAMA resolutions set limits for pollutant emissions in line with the GIIP.</li> <li>The National Waste Policy, established by Law No. 12.305 of 2010, sets out the principles, objectives and instruments, as well as the guidelines for integrated management and solid waste management. It also set important targets that will contribute to the elimination of landfill sites and established planning instruments at the national, state, micro-regional, inter-municipal and metropolitan and municipal levels; as well as requiring private entrepreneurs to draw up their Solid Waste Management Plans.</li> <li>With regard to EHS<sup>16</sup>, the references to gas emissions, volatile organic compounds and particulate matter are not only listed in CONAMA resolutions, but the commitment to reduction and control is ratified in international agreements.</li> </ul>	<ul style="list-style-type: none"> <li>Some of the permissible emission limits laid down are generally more restrictive in the case of the GIIP guides<sup>17</sup> than what is recommended in national legislation, so it is important to adopt what is referenced in these regulations.</li> <li>some types of subproject do not require an environmental licensing process and subsequent environmental studies, so issues involving the emission of pollutants and the generation of waste should be included in the PMU's internal assessments to be incorporated into the processes (impact assessment, management plans, etc.)</li> <li>The PMU could incorporate available tools for analyzing energy efficiency and reducing emissions into the project development phase, such as the Edge Building system provided by the IFC, but even if these tools are not used, it is recommended to incorporate efficient and lower impact systems in the case of civil works.</li> <li>A construction supervision/inspection checklist should include important items to be checked on this subject, such as emission limits, noise, area recovery, preservation areas, etc.</li> </ul>
Climate Change and GHG Emissions	
<ul style="list-style-type: none"> <li>In general, the projects have a strong appeal to the issue of climate change and GHG reduction;</li> <li>However, it is necessary to look at issues related to the use of wood-burning stoves, which are the most viable option in remote rural communities that have no other better-performing alternative for producing heat in their production processes.</li> <li>It should be noted that the ovens are used in family kitchens and are not related to or industrial in size.</li> </ul>	<ul style="list-style-type: none"> <li>Apply fuel input management measures such as checking the plant species used in burning and its origin/procedure, as well as monitoring the proper execution of the acquisition and use of firewood.</li> <li>More efficient furnaces are also important to prioritize in order to reduce emissions.</li> <li>In the case of ovens in traditional kitchens, these can be aligned with the Standards as long as it is possible to estimate the increase in energy efficiency resulting from replacing the current models with closed equipment and the challenges of replacing them with systems based on other technologies, such as the additional cost for families to keep the system running.</li> </ul>

16 Environmental, Health, and Safety Guidelines.

17 The Health, Environment and Safety Guidelines adopted by the IDB are technical reference documents based on Good International Industry Standards (GIIP).

Executive Agency procedures and gaps identified	Recommendations
	<ul style="list-style-type: none"> <li>In particular, the construction of wood-based flour mills would not be permitted due to the lack of sufficient information to analyze the emissions to be avoided when new equipment is installed. However, studies could be proposed on the feasibility of adopting more efficient low-carbon energy sources or even pilot projects.</li> </ul>
Community Health and Safety	
<ul style="list-style-type: none"> <li>Brazilian legislation does not explicitly establish the management of risks and impacts on the health and safety of the community for projects, it only establishes a requirement to evaluate the impacts related to projects that have housing actions covered by financing with the Federal Government.</li> <li>There is no mechanism for identifying and managing disaster risks, which is important for establishing standards and emergency actions that must be followed in the event of an emergency or contingency. The measures adopted are those commonly provided for by law for OHS</li> <li>Despite not having a risk management mechanism in place, the project screening phase must observe requirements related to safety, especially flooded areas, drought and susceptibility to erosive processes, percolation levels and geotechnical safety.</li> </ul>	<ul style="list-style-type: none"> <li>It is recommended that a risk identification and management system be developed for projects;</li> <li>It is also recommended to develop appropriate measures to reduce vulnerability and foster adaptation to natural hazards and climate change, the scope of which should include structural and non-structural measures to be implemented in the design, construction and operation stages of the projects. These measures should be part of the Disaster and Climate Change Management Plan, forming part of Procace II's ESMP and the PGAS of the sub-projects.</li> </ul>
Land Acquisition and Involuntary Resettlement	
<ul style="list-style-type: none"> <li>This Standard is not triggered by Procace II.</li> </ul>	<ul style="list-style-type: none"> <li>There is no provision for land acquisition in the project, but if necessary, methods for calculating financial compensation (indemnities) should be applied to make them compatible with the requirements of ESPS 5 (IDB) and Standard 7 (IFAD), taking into account compensation for replacement cost, and based on NBR 14.653.</li> <li>In this same case, a post-indemnification or resettlement assessment should be carried out to identify the risk of impoverishment related to the project, when the action involves a vulnerable population.</li> <li>These requirements also apply in the case of economic activities to be expropriated.</li> </ul>
Biodiversity Conservation and Sustainable Management of Living Natural Resources	
<ul style="list-style-type: none"> <li>PROCASE II plans to implement actions related to the preservation of water sources, green areas and rural technical assistance with a view to best sustainable rural practices, in order to avoid impacts and promote sustainability in its projects.</li> <li>In Brazil, the law explicitly establishes the requirement for modified habitat areas that include significant biodiversity value.</li> <li>In addition to legislation, several international agreements to which Brazil is a signatory contain criteria to meet the requirements of the IDB/IDA Standards.</li> <li>Among the habitat categories highlighted in the Brazilian standard, only established conservation units, both sustainable use and full protection, must have their Management Plan drawn up</li> </ul>	<ul style="list-style-type: none"> <li>Include in the assessments the existence and degree of risk of impact on natural habitats and critical habitats, and guide precautionary measures, detailed studies and plans for biodiversity or even the exclusion of areas and eligibility criteria for locating projects that do not yet have a locational definition.</li> <li>Mitigation or the development of Biodiversity Action Plans, Biodiversity Compensation Management Plans and Biodiversity Monitoring and Evaluation Plans are recommended for identified habitats, according to the impact levels of each project.</li> </ul>



Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>• Brazilian laws do not require an assessment of critical habitats and generally do not require studies to identify and assess ecosystem services</li> <li>• Federal Law No. 12.651, of May 25, 2012 (the New Brazilian Forest Code), as amended, establishes general rules on the protection of vegetation, especially Permanent Preservation Areas (APP) and Legal Reserve areas, with regard to forest exploitation, the supply of forest raw materials, control of the origin of forest products and the control and prevention of forest fires, and provides for economic and financial instruments to achieve its objectives. Article 8 establishes that intervention or suppression of native vegetation in a Permanent Preservation Area will only take place in cases of public utility, social interest or low environmental impact.</li> <li>• It can be said that Brazilian legislation partially complies with the established requirement, given that only projects with high levels of negative impacts would be subject to more complex environmental studies</li> <li>• PROCASE II's proposal is to avoid actions that require the suppression of forest, and to focus on actions that increase vegetation cover through sustainable cultivation processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Include issues related to the protection of biodiversity and ecosystem services in the training and capacity building of environmental and social teams.</li> <li>• It is necessary to incorporate into the requirements for the preliminary assessment of projects that they do not affect areas with steep slopes, in order to guarantee safety and combat risk situations and disasters.</li> <li>• Habitat restoration and management measures, especially in permanent preservation areas, must include requirements for the proper management of exotic species in a strategic manner and with a view to their replacement, as well as requirements to combat the use of chemical pesticides and prohibited products (Stockholm Convention).</li> </ul>
Indigenous and Traditional Populations	
<ul style="list-style-type: none"> <li>• The presence of traditional populations is common in PROCASE II projects, where the rights and integrity of these communities are respected in the processes;</li> <li>• FUNAI, the body responsible for protecting indigenous peoples in Brazil, has defined guidelines for assessing the impact on these communities, including prerogatives that follow the same guidelines required by the IDB/IDA Standards and ILO Convention 169.</li> <li>• Despite this, the PMU does not have an institutionalized and formalized process for dealing specifically with traditional communities</li> </ul>	<ul style="list-style-type: none"> <li>• It is important to map and build a baseline of the traditional beneficiary communities (TBCs) of the projects, including a process of Informed Participatory Consultation and subsequent Free Prior and Informed Consent when necessary;</li> <li>• It is recommended that the same guidelines and regulations be followed for indigenous communities for impact assessment and informed consultation with any existing traditional communities (formally recognized or not), whether quilombolas, fishermen, shellfish gatherers, gypsies, among others;</li> <li>• It is important to include respect for the cultural integrity of the populations directly or indirectly affected by the projects in worker training.</li> <li>• Need for alignment/authorization from FUNAI as a preliminary step to working with Indigenous Communities</li> </ul>
Cultural Heritage	
<ul style="list-style-type: none"> <li>• This Standard is not expected to be triggered, given that the projects/sub-projects envisaged in PROCASE II do not pose significant risks or impacts on cultural heritage or on areas that may have a high potential for the presence of sites. Despite this, the following analysis is made of compliance with the safeguard.</li> <li>• The PMU does not have procedures for evaluating possible interference in cultural heritage at the project design stage, but it does meet the premises defined in the rites for evaluating the impact on archaeological heritage set out in IPHAN's IN 001/2015.</li> <li>• Some types of sub-projects do not require a heritage impact assessment for IPHAN's approval.</li> </ul>	<ul style="list-style-type: none"> <li>• It must be confirmed that there are no potential risks in cultural heritage areas in the locations defined for the implementation of each sub-project, in accordance with the respective definition of actions and structures to be implemented. This must be confirmed through a specific environmental and social assessment.</li> <li>• Procedures for the chance discovery of cultural sites must be defined.</li> </ul>

Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>• It should be noted that under Brazilian law there are no instruments that distinguish between replicable and non-replicable cultural heritage, nor specific provisions for assessing and managing risks and impacts on non-replicable cultural heritage.</li> <li>• With regard to the promotion of equitable participation in the benefits derived from the use of cultural heritage, the legislation complies with this requirement only for tangible cultural goods and there is no mention of equitable participation for intangible cultural goods in any provision</li> <li>• For situations of chance discovery, no specific actions are provided for by law or in the PMU's procedures, despite Brazilian legislation being very clear about responsibility for any impact on cultural heritage, even when these are unknown.</li> <li>• The legislation also stipulates that the authorities must be called in, the area must be cordoned off and an authorized archaeologist must carry out the appropriate assessments and measures to protect and rescue the heritage when possible.</li> <li>• Brazilian law also stipulates the need for heritage education and the dissemination of knowledge to the community.</li> <li>• Actions related to stakeholder consultation with regard to cultural heritage are also not explicitly required by law or by PMU procedures</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended that stakeholder consultations be adopted at the stage of research and assessment of impacts on cultural heritage when these are identified.</li> <li>• State and municipal cultural heritage protection bodies should always be consulted, and the full spectrum of heritage typologies (material, intangible, cultural, landscape, architectural, etc.) should also always be covered in assessments, as required by IPHAN's IN 001/2015.</li> </ul>
Gender equality	
<ul style="list-style-type: none"> <li>• The PROCASE II team has adopted an internal philosophy and policies for hiring workers without restrictions on gender, sexual orientation and/or gender identity;</li> <li>• Brazilian legislation points to the criminalization of acts of prejudice, harassment and violence against gender diversity;</li> <li>• The PROCASE II team usually carries out baseline diagnoses considering information on the gender and vulnerability profiles of beneficiary families in the areas where its projects operate;</li> <li>• Its portfolio of social actions also includes initiatives for the development of women;</li> <li>• In community meeting processes there is always room for stakeholder participation, regardless of gender;</li> <li>• Despite this, there is a prevalence of male activity in many of the communities in the project's area of operation.</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended to include the topic of gender and diversity in training courses for workers and contractors, with information on punitive laws, good practices and conduct, and reporting channels;</li> <li>• We recommend raising awareness about the importance and role of women, as well as gender equality and combating gender-based violence in the beneficiary communities.</li> </ul>
Stakeholder Engagement and Information Disclosure	
<ul style="list-style-type: none"> <li>• The PROCASE II team carries out a series of actions related to stakeholder engagement, including participatory planning processes.</li> <li>• The PROCASE II team carries out a very intense communication process before, during and after the project to disseminate information, engage and capture contributions from the beneficiary communities.</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended to prepare a more effective and analytical organization of the question-and-answer records for the relevant consultations held by the PMU (consultation report containing an account of the request, questions / manifestations and answers made during the meeting).</li> <li>• Implement a Complaints and Redress System, to be monitored by the borrower</li> </ul>

## 4 BASE LINE

The baseline presented below shows the basic characteristics of the environment where PROCASE II is located, considering aspects of the physical and biotic environments and the socio-economic and cultural panorama of the state of Paraíba and the main municipalities where the project is located.

### 4.1 Physical Environment

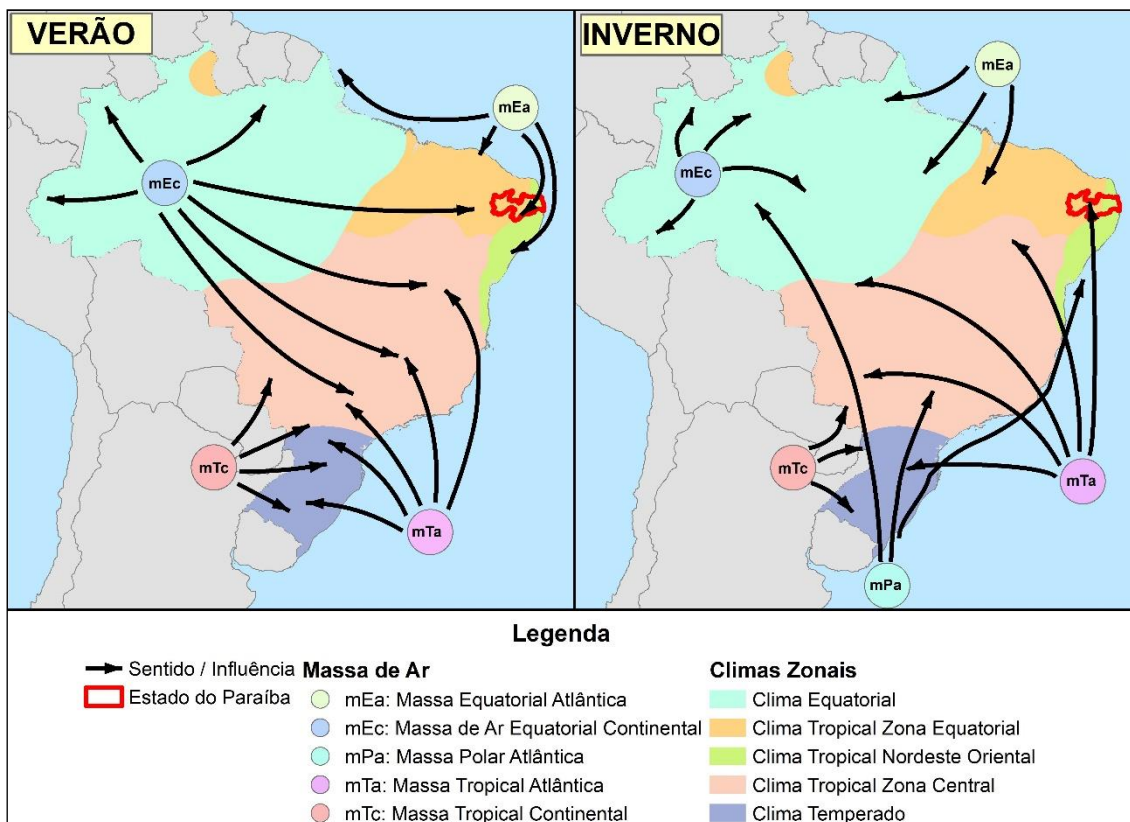
The following is diagnostic information on the physical environment of the Proc case II area in the state of Paraíba. The data catalogued comes from studies, mapping and statistical bases from available official sources.

#### 4.1.1 Weather

The climate and weather conditions in the study area are strongly conditioned by the geographical location (latitude) and relief, which, in conjunction with the major atmospheric systems (air masses), control rainfall distribution, evapotranspiration, temperature, air humidity and wind regime. In this respect, it is important to highlight the presence of the Amazon rainforest as a major factor in regulating the local and regional climate.

According to Nimer (1989), the main air masses that influence Brazil are shown in the figure below. It can be seen that the state of Paraíba is directly influenced by mEa / mEc during the summer and by mTa / mPa during the winter.

#### 26 - Main Air Masses in Brazil on Zonal Climates



Source: adapted from IBGE, 2017 and Nimer, 1989.

During the summer, the continental equatorial air mass exerts an influence over much of Brazil. In the case of Paraíba, during the summer the cEm acts together with the aEm, increasing the rainfall during this period, but keeping the temperature high.

However, during the winter, the mEc is quite restricted, basically not influencing the study region. The mTa continues to act, but quickly loses moisture in the coastal areas - leaving the interior drier. During this period, the Atlantic Polar Mass (APM) also comes into play, dropping temperatures along the coast.

Paraíba is under the southeast trade winds, which guarantee stable weather that is interrupted by the arrival of disturbed currents: from the south, the cold fronts; from the north, the Intertropical Convergence Zone; from the east, the disturbances originating from the East Waves; and from the west, the lines of Intertropical and Tropical Instabilities (Nimer, 1989).

Climatologically, the main systems causing rainfall over the state of Paraíba are the Intertropical Convergence Zone and the Upper Air Cyclonic Vortices, which induce representative rainfall over the region and are responsible for approximately 80% of the total rainfall. In a second rainy period, there is the action of Eastern Wave Disturbances that favor the occurrence of more representative rainfall over the entire eastern sector of the state, especially in the coastal strip. This system contributes around 70% of the total rainfall over the region and covers most of the period (AESA, 2009).

The state of Paraíba has large meteorological variations in the parameters measured, both in their temporal and spatial distribution. Thus, orographic features may play a greater role in differentiating the climate, and it is common to see humid mountain ranges in the middle of the semi-arid region, with variations of more than 100% between one situation and another. In terms of timing, there are years that are totally out of line with the historical pattern. These values are so anomalous that they can even exceed 100% of the normal (AESA, 2009).

### **Climate classification**

Climate classification expresses the average conditions of the Earth's atmosphere. These conditions, despite experiencing daily, monthly and seasonal variations, are represented by climatic bands that remain reasonably uniform, within an average pattern of oscillation.

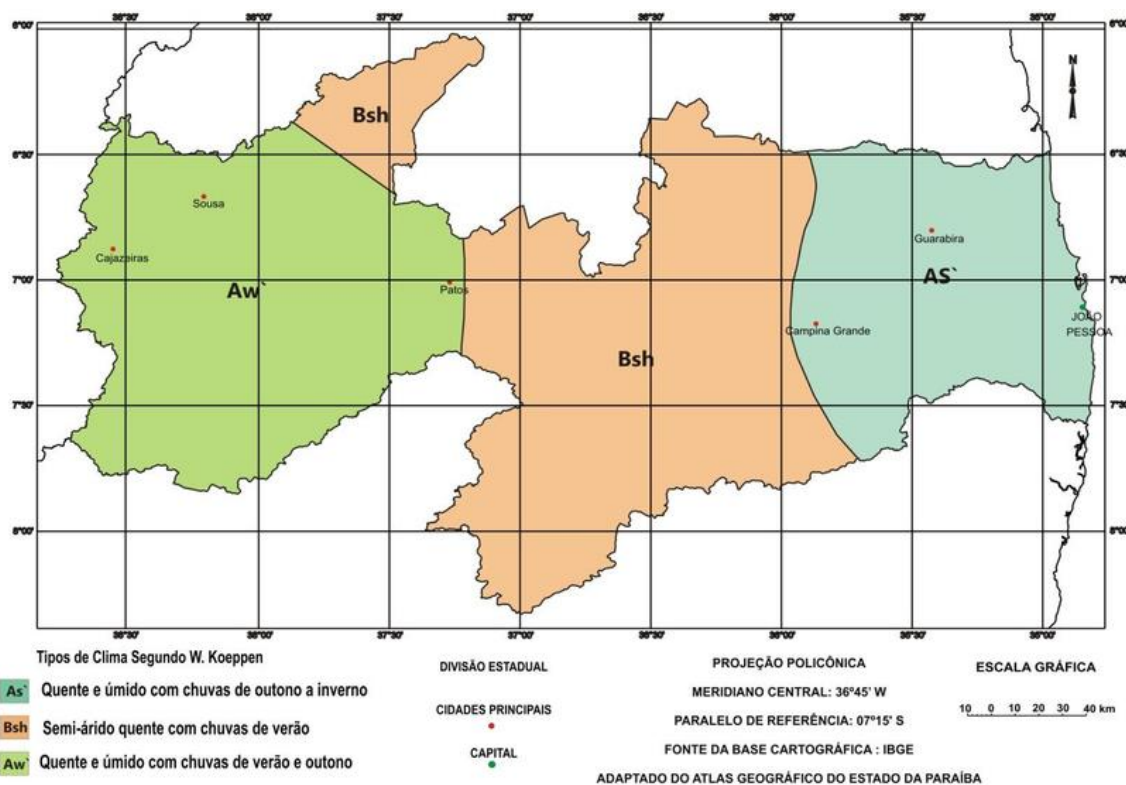
According to the Köppen climate classification, the state of Paraíba only has type A (tropical climate) and type B (dry climate) climates. Within these two groups there are subgroups, of which Paraíba has three:

- Hot and humid tropical climate, with a dry season in winter (As'), present in the eastern sector of the state of Paraíba; it is characterized by the absence of summer rains and their occurrence in the "winter" (which corresponds to the rainy season and not the winter itself), with rainfall rates of around 1,600 mm per year.
- Hot semi-arid climate with summer rains (Bsh), present on the Borborema Plateau; it is characterized by a scarcity of rainfall and great irregularity in its distribution; low cloudiness; strong sunshine; high evaporation rates, and high average temperatures (around 27°C). The relative humidity is usually low, and the little rainfall - from 250 mm to 750 mm per year - is concentrated in a short space of time, causing torrential floods. Even during the rainy season (November to April), its distribution is irregular,

ceasing to occur during some years and causing droughts. The characteristic vegetation of this type of climate is xerophytic (Caatinga).

- Tropical climate, hot and semi-humid with summer and fall rains (Aw'), found in the Sertaneja Depression, with a dry winter. It has a rainy season in summer, from November to April, and a clear dry season in winter, from May to October (July is the driest month). The average temperature of the coldest month is over 18°C. Rainfall is over 750 mm per year, reaching 1800 mm.

## 27 - Climate Classification of the State of Paraíba - Köppen

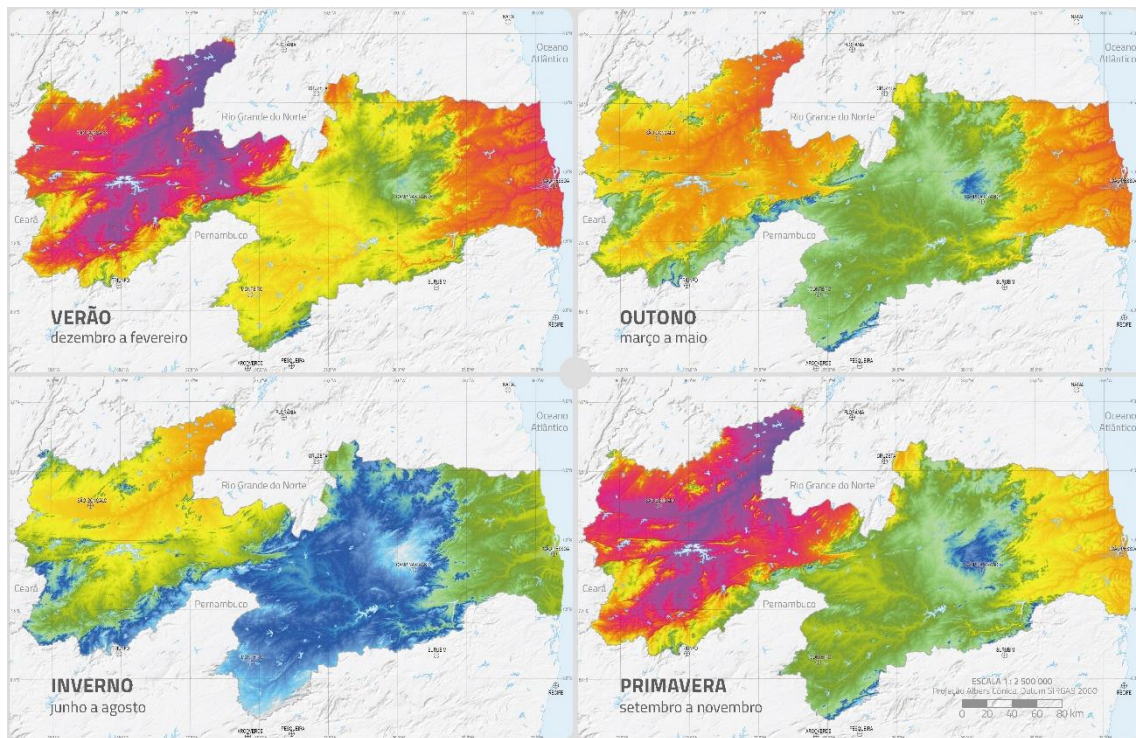
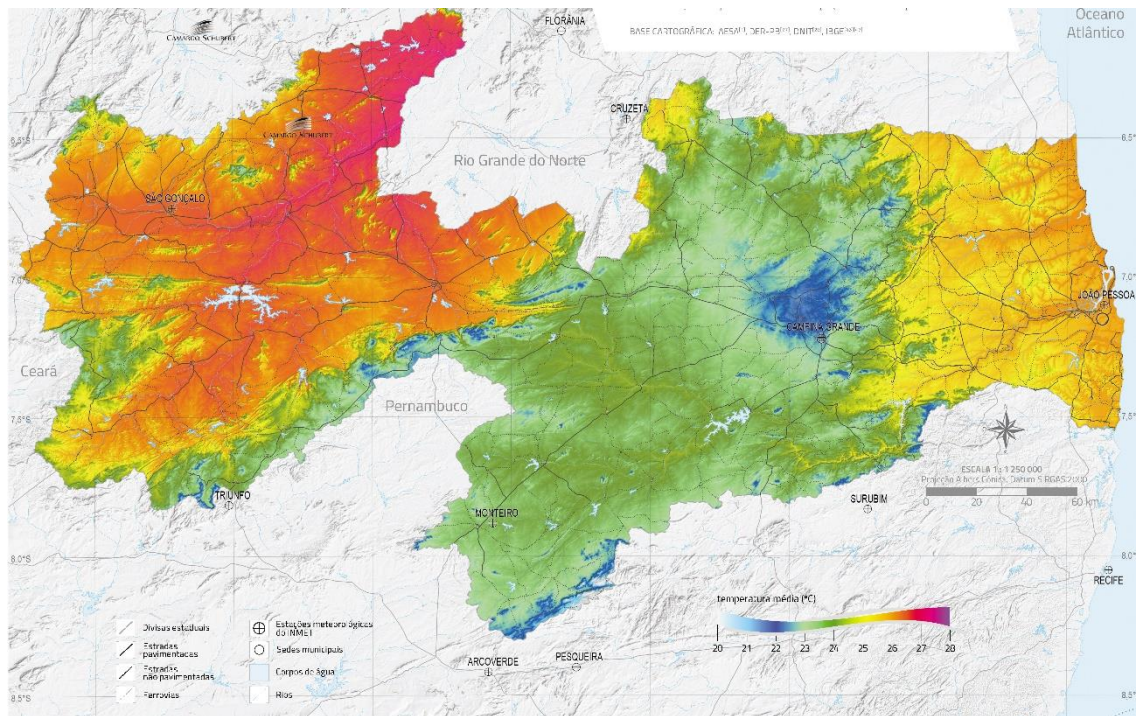


Source: Francisco, 2010 adapted from IBGE, 1985.

## Temperature

Seasonality has very little effect on the annual temperature range in the state of Paraíba, varying from 20 °C in the central region during the winter to 27 °C in the coastal region during the summer. The region from the Borborema lowlands to the coast has an annual average of 24 to 26°C, with seasonal variability of 4°C, while the region at the top of the plateau has variability of just 2°C. The west of the state has a greater amplitude, influenced by the irregularity of the masses coming from the Amazon, ranging from 23°C in winter to 28°C in summer, see figure below.

## 28 - Average Annual and Seasonal Temperature in the State of Paraíba



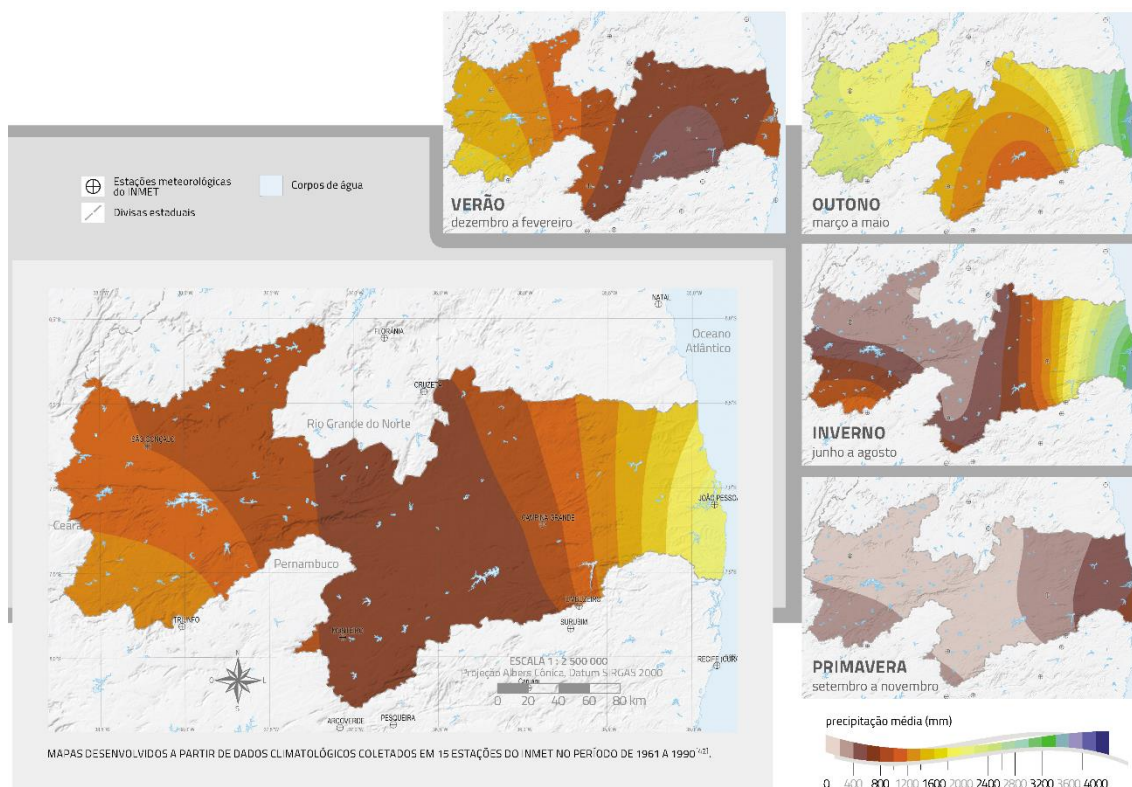
Source: Wind Atlas of the State of Paraíba, 2017. (Climatological data from 1961 to 1990, INMET)

### Precipitation

The seasonal rainfall regime shows significant spatial variability, as can be seen in the figure below, due to the geography and location of the state. On the coast, the climate is well-defined tropical, with abundant rainfall during the fall and winter and drought in the summer, resulting in an annual average of over 1800 mm. The central region of the state,

close to the Borborema plateau, has a semi-arid climate, with the lowest annual rainfall in the state, around 700 mm. In the far west, in the area that encompasses the Sertanejo Pediplano, the climate reverts to tropical due to the higher rainfall, resulting from hot and humid masses coming from the Amazon, which bring summer rains, contributing to an annual average of over 1000 mm, but with very irregular rainfall distribution.

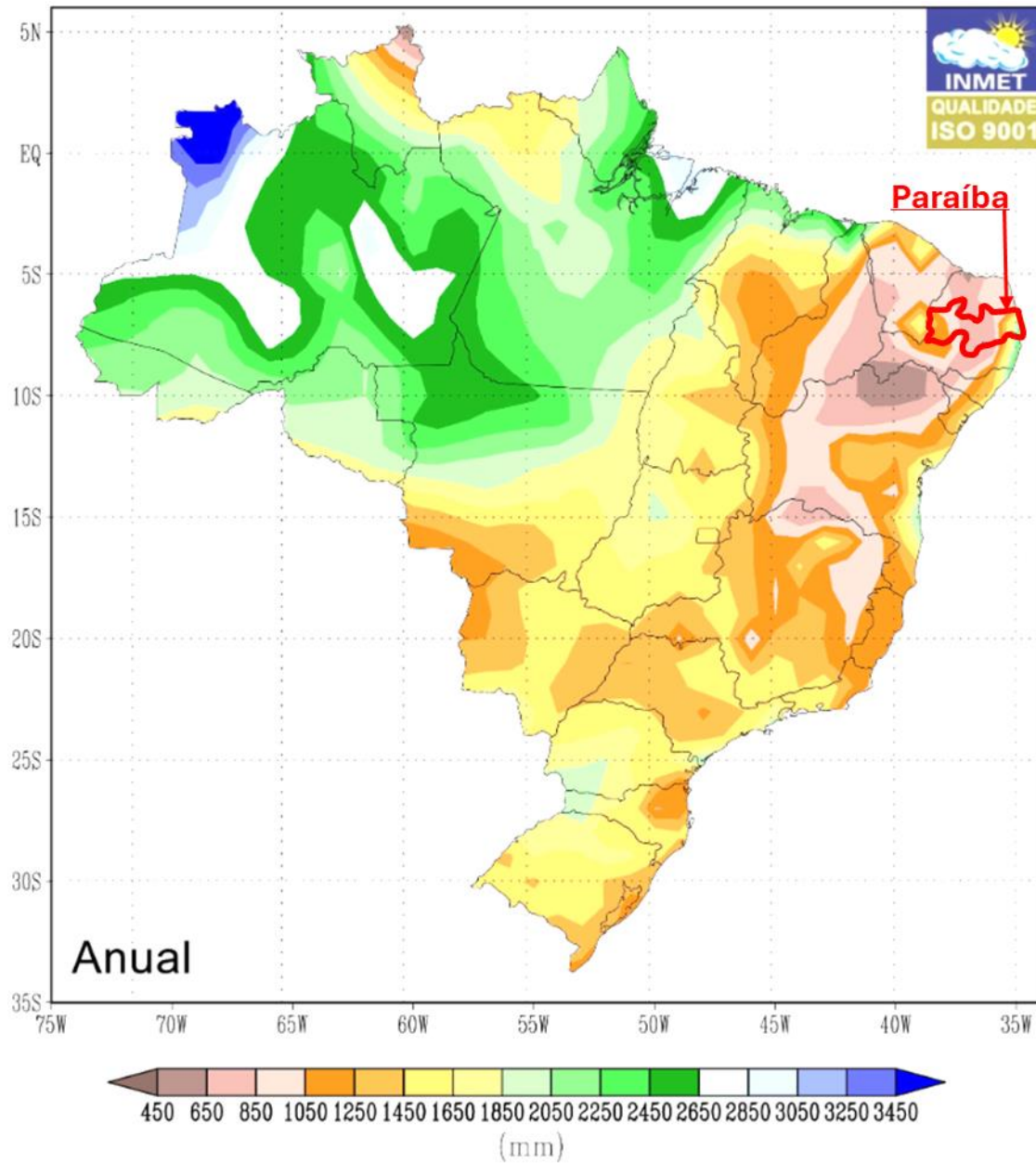
### 29 - Average Annual and Seasonal Precipitation in the State of Paraíba



Source: Wind Atlas of the State of Paraíba, 2017 . (Climatological data from 1961 to 1990, INMET)

According to the figure below, the climatological normal for Brazil (1961 to 1990) drawn up by the Meteorological Institute - INMET indicates that in the area of the state of Paraíba, the accumulated annual rainfall varied between 2050 mm (in the coastal strip - Atlantic Forest Biome) and 650 mm (in the more inland strips, already in the Caatinga Biome).

### 30 - Brazilian Climatological Normal 1961-1990 - Annual Accumulated Precipitation

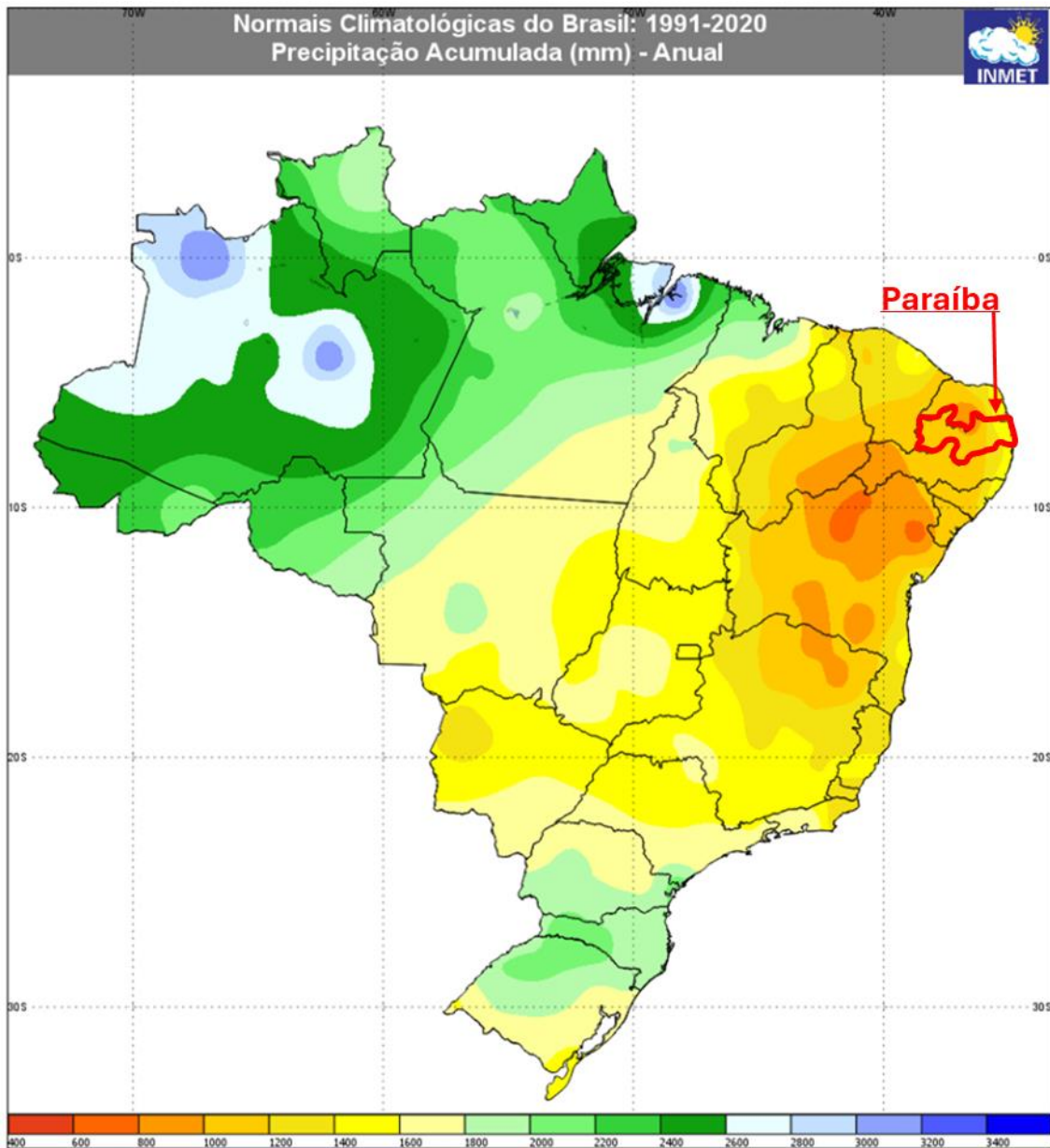


Source: INMET, 2024 (consultation)

On the other hand, the climatological normal from 1991 to 2020 for the state of Paraíba shows accumulated annual rainfall between 1,600 mm (Atlantic Forest - coastal region) and 800 mm (Caatinga Biome - central region of the state), indicating important differences between these normals.



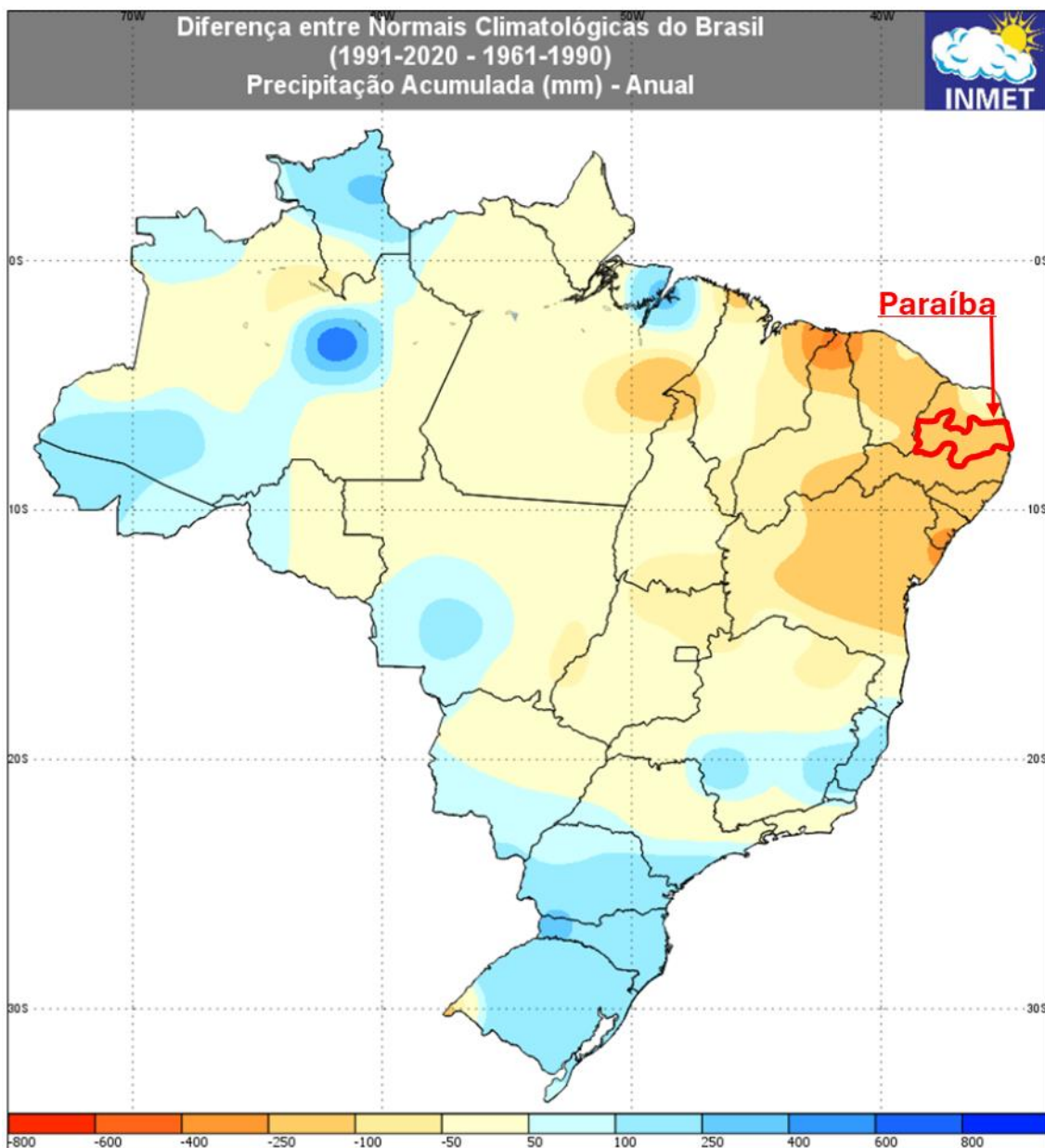
### 31 - Brazilian Climatological Normal 1991-2020 - Accumulated Annual Precipitation



Source: INMET, 2024 (consultation)

INMET has therefore mapped the difference between the climatological normals, indicating a reduction in accumulated rainfall of around 250mm in the normal periods (the climatological normal from 1991 to 2020 shows lower accumulated indices than the normal from 1961 to 1990) in the area covered by the state of Paraíba. The difference is constant throughout the state, even in the most inland part of the state (Caatinga), considering that the coastal region (Atlantic Rainforest) generally has higher rainfall figures.

**32 - Difference between Brazilian Climatological Normals (1991 to 2020 - 1961 to 1990 - Accumulated Annual Precipitation)**



Source: INMET, 2024 (consultation)

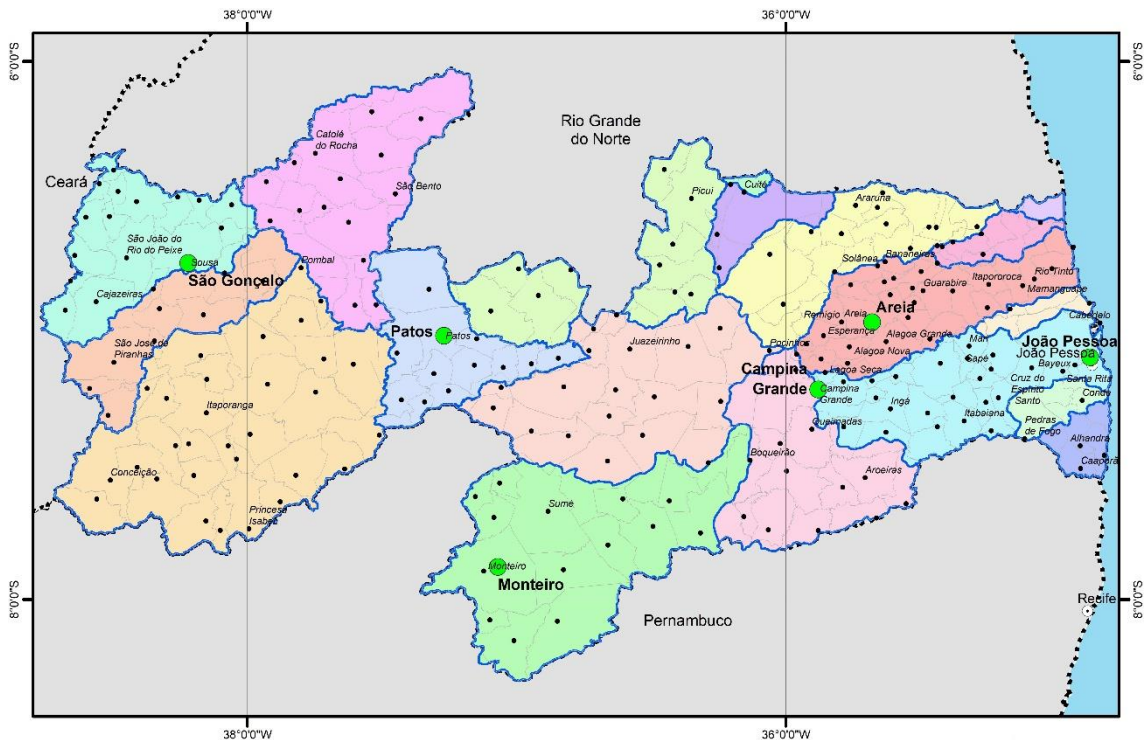
According to data from AESA (2022), for the graphical representation of precipitation suitable for the state of Paraíba, based on the Climatological Normals (INMET, 2018), 6 climatological normal stations were selected (see table below) distributed over the territory of the 20 sub-basins (or 12 basins) of the state of Paraíba (see figure below). The importance of these stations is their strategic distribution in the main regions of the state (Litoral, Agreste, Brejo, Cariri and Sertão) and a series of long-term data. They are distributed as follows: one in the Mamanguape River Basin, three in the Paraíba River Basin and two in the Piranhas River Basin.

**Table 17 - Meteorological stations considered in the state of Paraíba.**

State	Basin	Station	Code	Latitude	Longitude	Altitude (m)	Start-up
PB	Mamanguape	Sand	82696	-6,97	-35,68	574,62	01/01/1929
	Paraíba	Campina Grande	82795	-7,22	-35,88	547,56	01/01/1911
	Paraíba	João Pessoa	82798	-7,10	-34,87	7,43	01/01/1912
	Paraíba	Monteiro	82792	-7,88	-37,07	603,66	14/01/1940
	Piranhas	Ducks	82791	-7,02	-37,27	249,09	17/10/1975
	Piranhas	São Gonçalo	82689	-6,75	-38,22	233,06	08/10/1938

Source: INMET, 2018 apud AESA, 2022

### 33 - Location of the Meteorological Stations considered in the State of Paraíba.



#### Legenda

- Capital
- Sedes Municipais
- Estações Meteorológicas
- Limites Municipais
- Limites Estaduais
- Oceano Atlântico

#### Bacias Hidrográficas - AESA

- |                            |            |                             |                            |
|----------------------------|------------|-----------------------------|----------------------------|
| Abiaí                      | Camaratuba | Mamanguape                  | Piancó                     |
| Alto Curso do Rio Paraíba  | Curimataú  | Miriri                      | Seridó Ocidental Paraibano |
| Alto Curso do Rio Piranhas | Espinharas | Médio Curso do Rio Paraíba  | Taperoá                    |
| Baixo Curso do Rio Paraíba | Gramame    | Médio Curso do Rio Piranhas | Trairi                     |
|                            | Guaju      | Peixe                       |                            |
|                            | Jacu       |                             |                            |

Source: INMET, 2018 apud AESA, 2022

Rainfall in the state of Paraíba ranges from 1.3 mm in September at the Patos station to 355.2 mm in June at the João Pessoa station (see Table below). On an annual scale, rainfall in the state of Paraíba is around 1,086.1 mm, with the Monteiro station recording the lowest annual rainfall and the João Pessoa station the highest. The temporal variation in rainfall at each climatological station can be seen in the following figure.

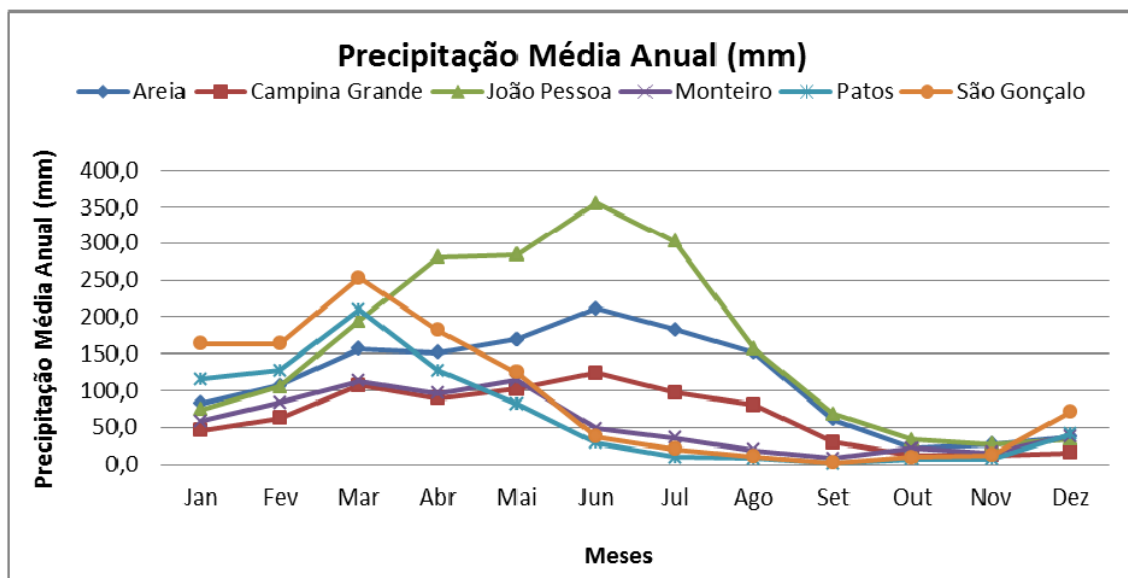
**Table 18 - Rainfall at the Meteorological Stations considered in the State of Paraíba (mm).**

Station	Jan	Feb	Sea	Apr	May	Jun	Jul	Aug	Set	Out	Nov	Dec	Year
Sand	83,0	107,4	156,3	151,7	169,2	210,7	182,2	151,2	60,9	21,8	27,5	37,8	1.359,7
Campina Grande	45,6	62,8	107,1	89,3	101,7	123,6	96,7	80,1	30,0	12,5	12,3	15,3	777,0

João Pessoa	73,9	105,4	193,9	280,4	284,0	355,2	302,4	156,4	68,6	33,1	27,0	33,7	1.914,0
Monteiro	58,7	83,5	113,3	96,0	113,8	48,2	36,0	18,8	7,8	21,6	15,6	38,2	651,5
Ducks	115,7	127,5	209,5	127,4	81,6	28,7	9,8	7,8	1,3	7,2	7,1	40,8	764,4
São Gonçalo	163,2	163,5	252,9	181,4	124,4	37,8	21,0	10,7	2,0	9,9	12,2	71,2	1.050,2

Source: INMET, 2018 apud AESA, 2022

### 34 - Rainfall recorded at the Meteorological Stations considered in the State of Paraíba (mm).



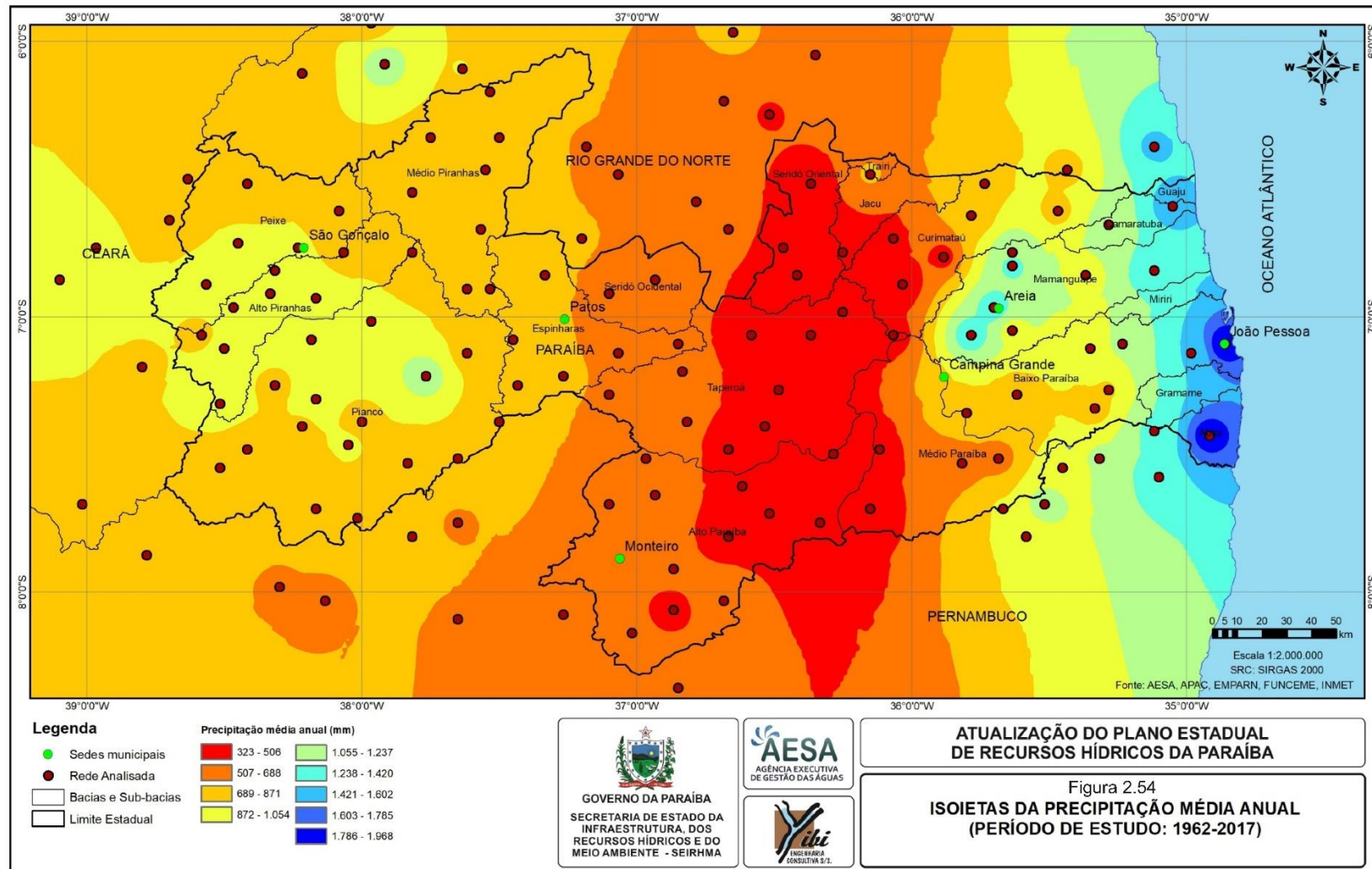
Source: INMET, 2018 apud AESA, 2022

For a detailed spatial representation of precipitation in the state of Paraíba in accordance with the Paraíba State Water Resources Plan - PERH-PB (AESA, 2022), a database was organized with daily precipitation data monitored in the four states (PB, CE, PE and RN). Although 354 rainfall monitoring stations had been inventoried, after analyzing the quality of the data and the common periods, which are important requirements for rainfall analysis and subsequent use in the rainfall-runoff model, a total of 137 rainfall monitoring stations were arrived at for use in the PERH-PB.

In order to plot the average annual rainfall isohyets, the corrected and homogenized rainfall data from the 137 previously selected rain gauge stations was used, for a total period of 56 years (1962-2017). Based on the accumulation of daily rainfall from each station for each year, the average annual rainfall was determined and, using the inverse distance squared method, the annual rainfall data was interpolated as shown in the figure below.

Francisco and Santos (2017), in terms of rainfall, identify two rainfall regimes that characterize the state of Paraíba: the first, occurring in the months of February to May, in the regions of Alto Sertão, Sertão and Cariri/Curimataú; and the second, occurring from April to July, in the regions of Agreste, Brejo and Litoral. The systems responsible for the rainfall patterns are the Intertropical Convergence Zone (ITCZ), cold fronts, easterly disturbances or easterly waves and high-level cyclonic vortices (HLCV). Rainfall increases in a west-east direction throughout the year. The central portion has the lowest rainfall, ranging from 300mm to 700mm. The coast, on the other hand, has the highest rainfall in the state, reaching 1950mm.

### 35 - Map of Average Annual Precipitation (1962-2017)



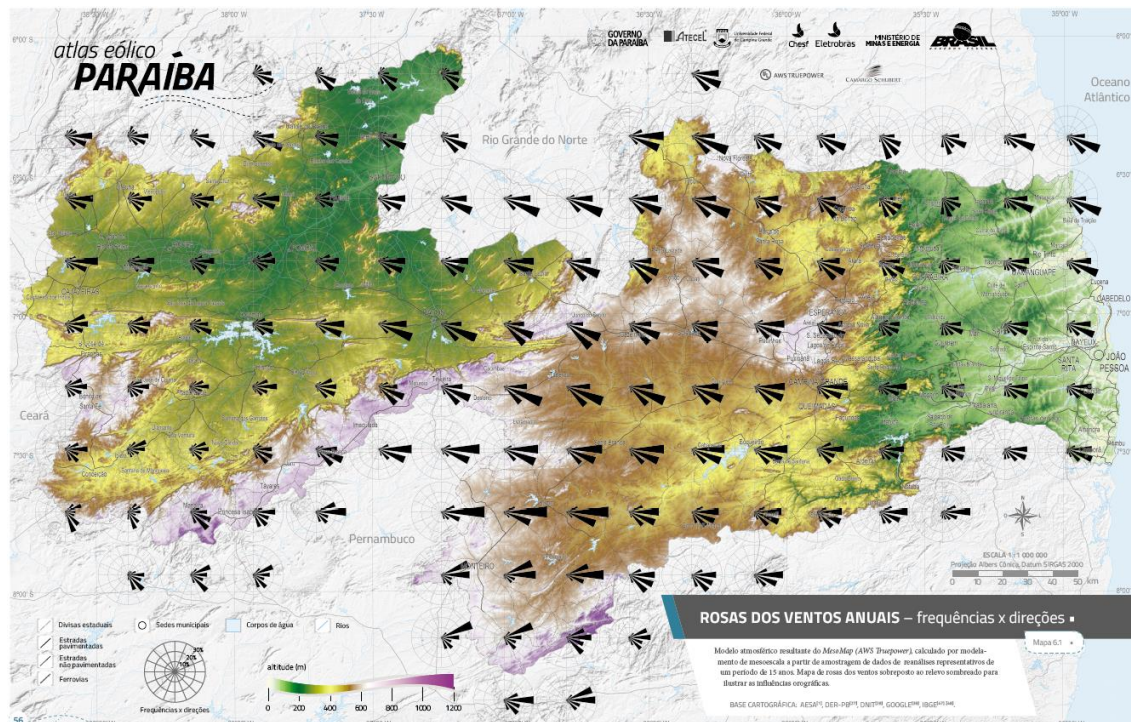


Source: EFSA, 2022 (<http://www.aesa.pb.gov.br/aesa-website/wp-content/uploads/2022/10/RF-02-A-DIAGN%C3%93STICOS-vol-1.pdf>)

## Winds

In the state of Paraíba, as shown in the figure below, the frequency of winds prevails from east to west. As for seasonality, the state of Paraíba has a well-defined seasonality, with maximum winds in spring and summer, predominantly in the central areas of the state and along the coast (Atlas Eólico do Estado da Paraíba, 2017).

### 36 - Wind Frequency and Direction



Source: Wind Atlas of the State of Paraíba, 2017.

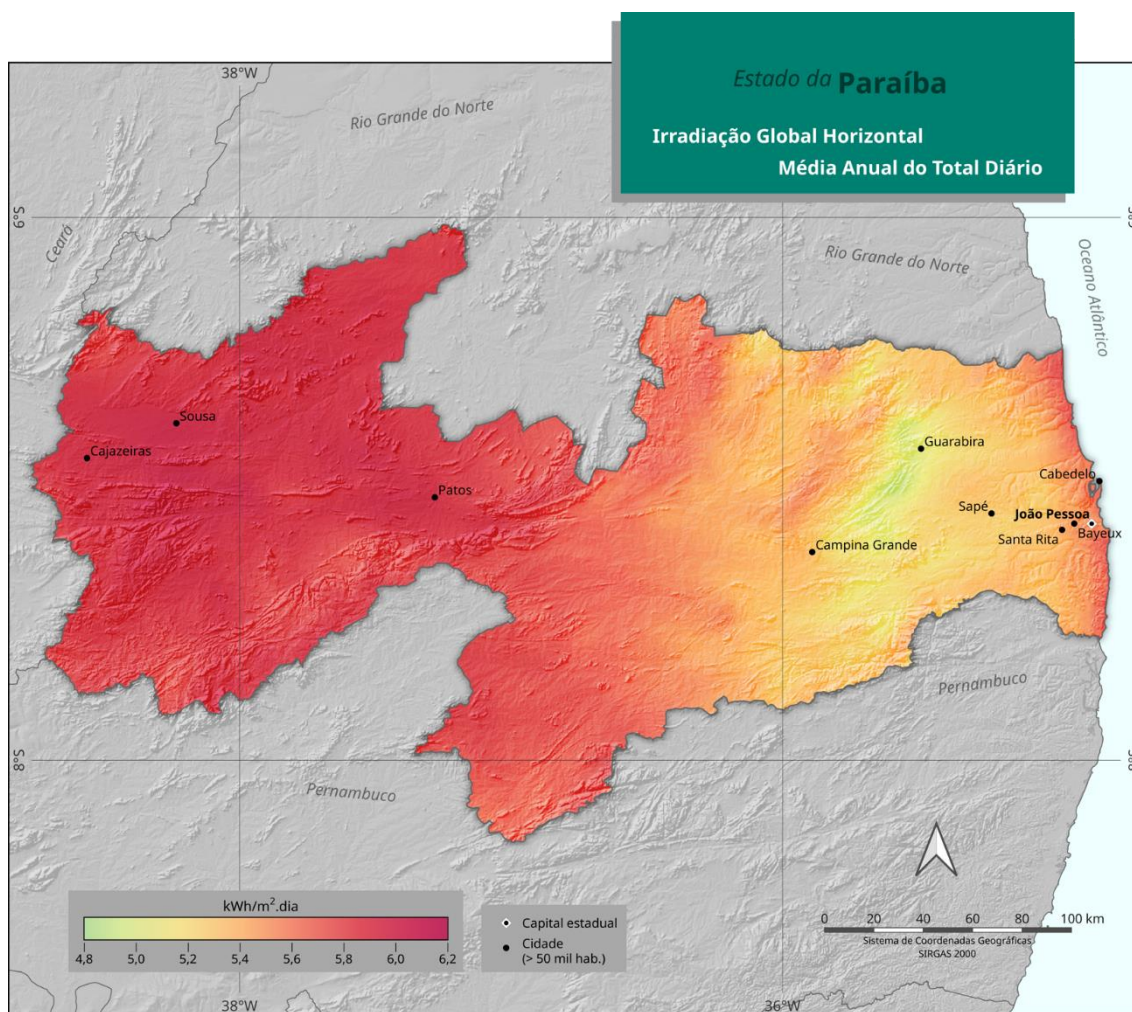
## Sunshine

The figure below shows the map of global irradiation in the horizontal plane (GHI), with the highest incidence of solar energy in the west of the state of Paraíba, with average values for GHI of up to 6.2 kWh/m<sup>2</sup> per day. Brejo Paraibano, located between the Immediate Regions of Campina Grande and Guarabira, showed the lowest incidence of solar energy on the surface (with GHI values of approximately 5 kWh/m<sup>2</sup> day), but still higher than the average determined in previous studies (Pereira *et al.*, 2017) for GHI solar irradiation in the Brazilian territory (around 4.8 kWh/m<sup>2</sup> day) (Atlas Solarimétrico da Paraíba, 2023).

The seasonal variability of the incidence of solar energy in Paraíba increases from July onwards, reaching maximum values in November, when the GHI component on the surface reaches values of up to 7 kWh/m<sup>2</sup> day. The minimum incidence of solar energy in Paraíba is in June, when the highest GHI values observed in the west of the state are around 5.5 kWh/m<sup>2</sup>. This behavior follows the state's seasonal precipitation cycle - where the rainy season occurs mainly between the months of February and June, depending on the region of the state (Atlas Solarimétrico da Paraíba, 2023).



### 37 - Global horizontal irradiance (GHI)



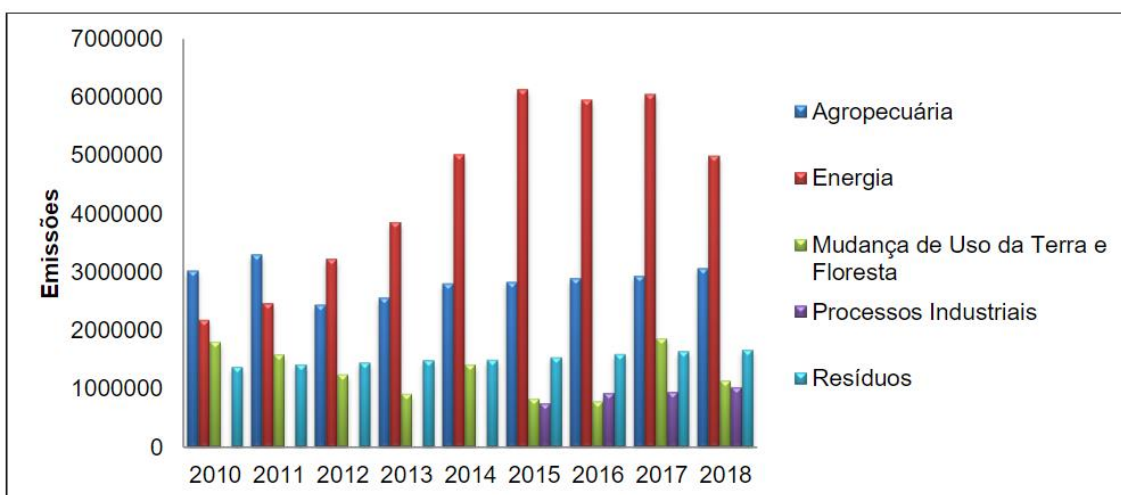
Source: Paraíba Solarimetric Atlas, 2023

### Greenhouse Gases - GHG in Paraíba

The surveys for the production of the Inventory of Emissions and Removals of Effect Gases (GHG) based on the IPCC for the state of Paraíba have not yet been carried out, however, universities, companies, organizations and the João Pessoa city government have been seeking to meet the demands of the climate agenda both in terms of quantifying and reducing GHG in the state.

According to Santos *et al.* (2023), the distribution by sector reveals that agriculture and livestock, between 2010 and 2011 in the figure below, was the sector responsible for the highest level of greenhouse gas emissions in the state of Paraíba, followed by the energy and land use change and forestry sectors. However, from 2012 to 2018, the last year of the data series, the energy sector was the one that emitted the most polluting gases, with significant growth over the years, while agriculture and livestock occupied second place in the volume of emissions, with a practically constant evolution over this period.

### 38 - GHG emissions by sector in CO<sub>2</sub> and (t) in the state of Paraíba, 2010 - 2018.



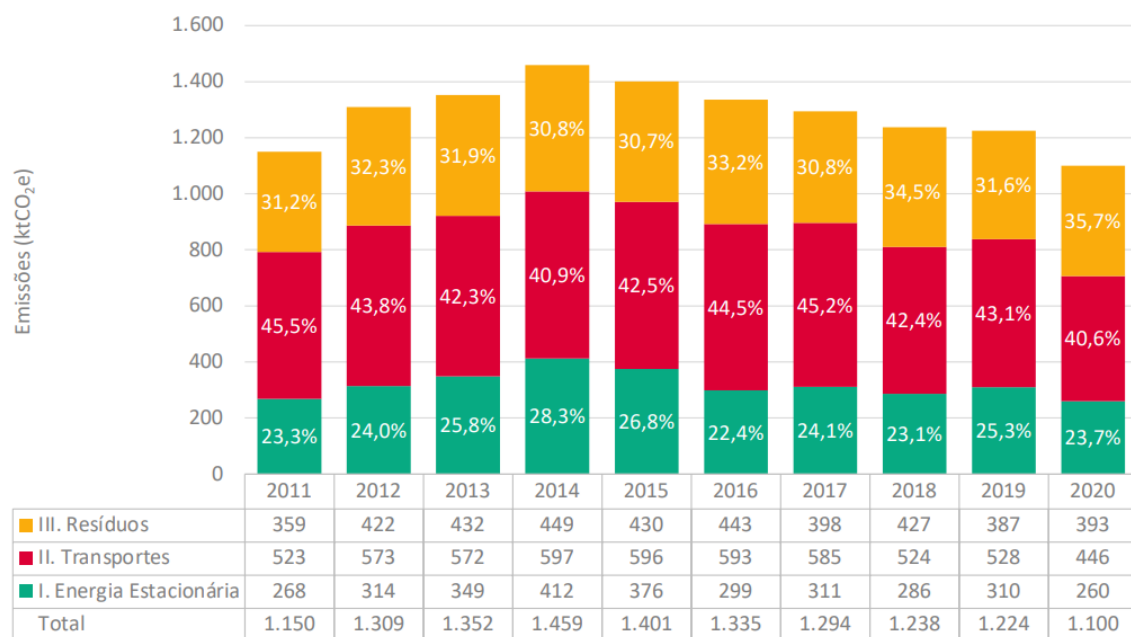
Source: Prepared by Santos et al., (2023) SEEG data (2021)

According to data from the Paraíba Alcohol Manufacturing Industry Union (Sindalcool-PB), which represents sugar, ethanol and bioelectricity plants in the state, ethanol consumption in Paraíba (anhydrous and hydrated) avoided around 387,000 tons of greenhouse gases in 2021. Hydrous ethanol, which is sold at gas stations, was responsible for avoiding 159,509 thousand tons of carbon dioxide (CO<sub>2</sub>) in the atmosphere, which is equivalent to the consumption of 136,332,901 million liters. On the other hand, anhydrous, which is added to regular gasoline at a percentage of 27%, avoided a total of 227,421 thousand tons of CO<sub>2</sub> in the atmosphere, which corresponds to the consumption of 177,673,000 million liters (Sindalcool-PB, 2022).

On the other hand, gasoline and diesel, fuels derived from petroleum, have worsened pollutant emissions in the state. The survey carried out by Sindalcool-PB found that, in 2021, ordinary gasoline, with 660,191,214 million liters consumed, emitted around 1,337,382 tons of CO<sub>2</sub> into the atmosphere. Diesel, on the other hand, emitted around 1,131,320 tons of CO<sub>2</sub>, with a consumption of 435,123,116 million liters in Paraíba (using the emission standard of 2.6kg/l of diesel consumed) (Sindalcool-PB, 2022).

The methodology proposed by the GPC (*Global Protocol for Community-Scale Greenhouse Gas Emission Inventories*) was used to draw up the *GHG Emissions Inventory for the municipality of João Pessoa*, based on the National Inventory Guide published in 2006 by the IPCC. João Pessoa's total greenhouse gas emissions were calculated for the years 2011 to 2020 using the *CLIMAS software*. The results are shown in the figure below, separated by the Stationary Energy, Transport and Waste sectors (João Pessoa Climate Action Plan, 2023).

### 39 - Total emissions in João Pessoa, by year and by sector



Source: WayCarbon based on data from Climas software

Emissions fell by around 4% in 2020 compared to 2011. There have been fluctuations in emissions throughout the historical series, with an increase until 2014, followed by a reduction in all subsequent years. Part of the increase up to 2014 was influenced by the growth in emissions from electricity generation nationally, which peaked this year due to the country's water shortage. When comparing 2020 emissions to 2019, there is a reduction of around 10%, which can be explained by the restrictions caused by the COVID-19 pandemic (João Pessoa Climate Action Plan, 2023).

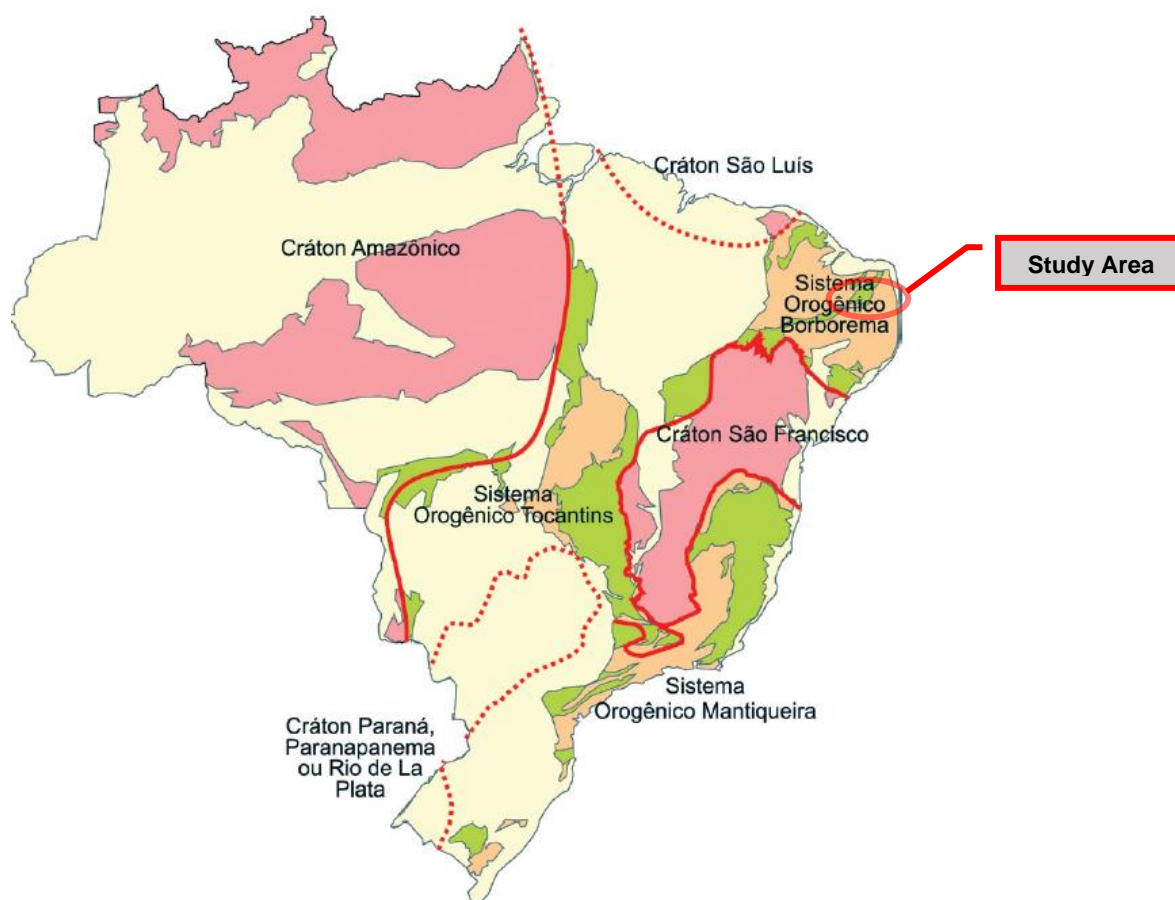
Looking at 2020 alone, the result was 1.1 million tons of CO<sub>2</sub> e (*By default, emissions are reported in terms of CO equivalence<sub>2</sub> = CO<sub>2</sub> e*), with the Transport sector responsible for 40.6% of emissions, followed by the Waste sector (35.7%) and Stationary Energy (23.7%). The main sources of emissions in the Transport sector are related to the consumption of diesel (31%) and gasoline (65%), mostly in land transportation. In the Waste sector, 66% of emissions come from solid waste, most of which is disposed of in landfills, while 33% of emissions in this sector come from wastewater treatment. Finally, most of the emissions from the Stationary Energy sector come from Liquefied Petroleum Gas (LPG), or cooking gas, with 43%, and from the use of electricity, with 32% (João Pessoa Climate Action Plan, 2023).

The Paraíba Water and Sewage Company (Cagepa) is converting a third of all its energy use to renewable sources by the end of 2023. In addition to the initial savings of R\$10 million per year, the company will be taking an important step towards strengthening its environmental policy, i.e. in the first move to the free energy market, Cagepa will be able to remove approximately 25,000 tons of carbon dioxide from the environment per year. With the process completed, by the end of 2024, 37,000 tons of greenhouse gases will have been removed from the atmosphere (Governo da Paraíba, 2023).

### 4.1.2 Geology

According to Hasui (2012), the state of Paraíba is located in the northeasternmost part of the Borborema Orogenic System. This system lies between the Amazon craton to the west and the São Francisco craton to the south and is cut by a narrow strip of the Tocantins Province that extends into areas of Central Brazil. It is presented as a set of three orogenic belts, arranged in the form of a scissors centered on Goiás, with one end in the north advancing to Tocantins and eastern Pará; another to the southwest, extending to Mato Grosso and Mato Grosso do Sul, and the third to the southeast, reaching the south of Minas Gerais.

#### 40 - Existing provinces in the Amazon Craton



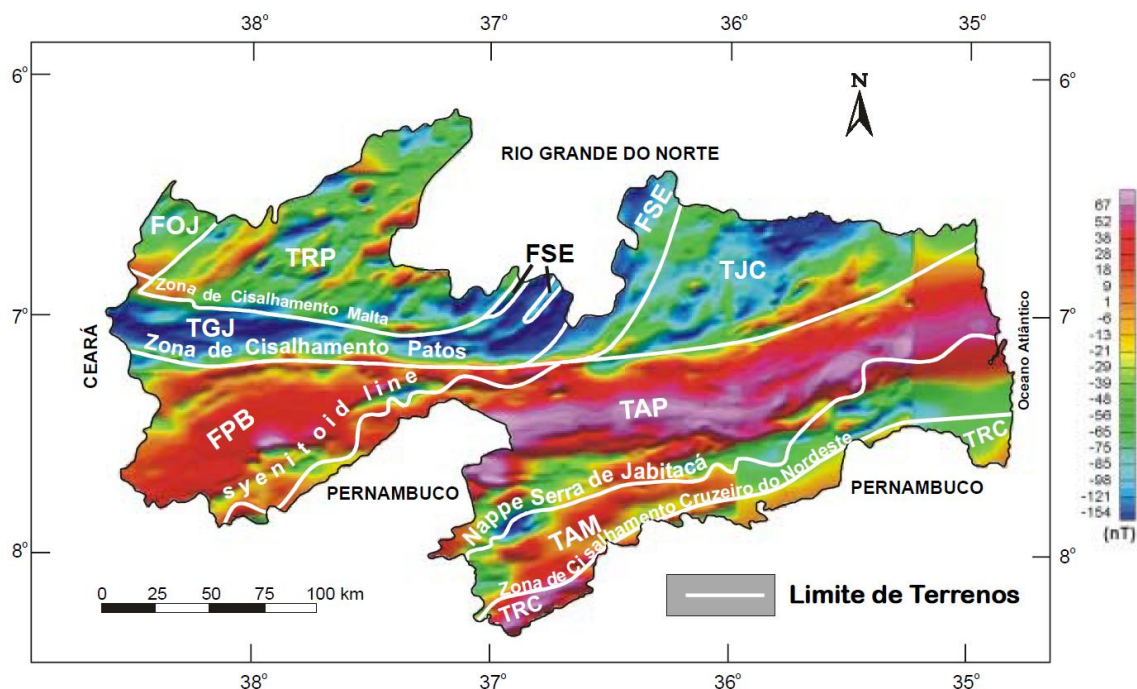
Source: Hasui, 2012.

As shown in the figure below, the state of Paraíba has several segments of the Cearense, Rio Grande do Norte and Transversal domains (subprovinces, superterrains). Paraíba's aeromagnetic patterns support this crustal compartmentalization and highlight the importance of the Patos Lineament, which practically divides the state into two superterrains: one to the north, involving a small portion of the Cearense domain and the Rio Grande do Norte domain, and another to the south, involving the lands of the Transversal domain (CPRM, 2002).

Various geophysical studies show that the crust of the northern superterrane is dense and magnetic, suggesting the existence of a broad lower crustal floor/embayment. On the other hand, to the south, a light, less dense and magnetic crust predominates,

suggesting a predominance of supracrustal rocks and granites, with restricted exposures of the basement (CPRM, 2002).

#### 41 - Aeromagnetic patterns of the Paraíba subsoil and tectono-stratigraphic compartmentalization of Paraíba



Source: CPRM, 2002

The preserved portion of the Ceará domain corresponds to the Orós-Jaguaribe Belt (FOJ), which preserves features generated during rifting, passing into a passive margin, generated at the end of the Paleoproterozoic. The boundary of this belt with the Rio Grande do Norte Domain is the Portalegre Shear Zone (CPRM, 2016).

The Rio Grande do Norte Terrain comprises a Neoproterozoic turbidite platform belt, known as the Seridó Belt (FSE), as well as the basement represented by the Rio Piranhas (TRP), Granjeiro (TGJ) and São José do Campestre (TJC) terrains, dating from the Archean/Paleoproterozoic. The boundary of the Rio Grande do Norte Domain with the Transversal Domain is the Patos Lineament, formed by a bundle of ductile shear zones, where the rocks are plastically deformed, extending for more than 900 km, which continues into the African continent (Castaing *et al.*, 1994).

The Transversal Domain runs from west to east:

- (1) the Piancó-Alto Brígida Belt (FPB) (Cachoeirinha-Salgueiro);
- (2) Alto Pajeú land (TAP);
- (3) Alto Moxotó land (TAM);
- (4) Capibaribe River Land (TRC).

These items are organized into a large structure with portions arranged similarly to dominoes in a row (giving it the name "Domino Megastructure"), whose boundaries represent shear zones that began in the Brasiliano (see table below) or formed through the reworking of shear zones generated in the Cariris Velhos Event (currently the trend

is to position the Cariris Velhos Event as belonging to the Tonian/Neoproterozoic I) (CPRM, 2016).

**Table 19 - Description of geotectonic events in the Borborema Province.**

EVENT	AGE	DESCRIPTION
Brasilian Cycle	Neoproterozoic to Eopaleozoic (640 - 450 Ma)	Event that generated plutonic bodies in the Borborema Province and affected much of the pre-existing lithology.
Old Cariris	Mesoproterozoic (1100 - 950 Ma)*	Some authors consider it to be just a rifting event, while others consider it to be an orogenesis (generator of magmatic bodies).
Trans-Amazon	Paleoproterozoic (~ 2.1-2.0 Ga)	The main event that created the continental crust of the Borborema Province, generating a large part of the basement.

Ma - 10<sup>6</sup> years Ga - 10<sup>9</sup> years

\*Currently, the Cariris Velhos Event tends to belong to the Tonian (Neoproterozoic I) (Santos et al, 2010).

Source: CPRM, 2016

Tectonic compartmentalization models have been developed by various authors (Brito Neves, 1975; 1983; Santos & Brito Neves, 1984; Jardim de Sá, 1994), recognizing a stratigraphic and geochronological complexity, which has led most to conceive of a long Precambrian history.

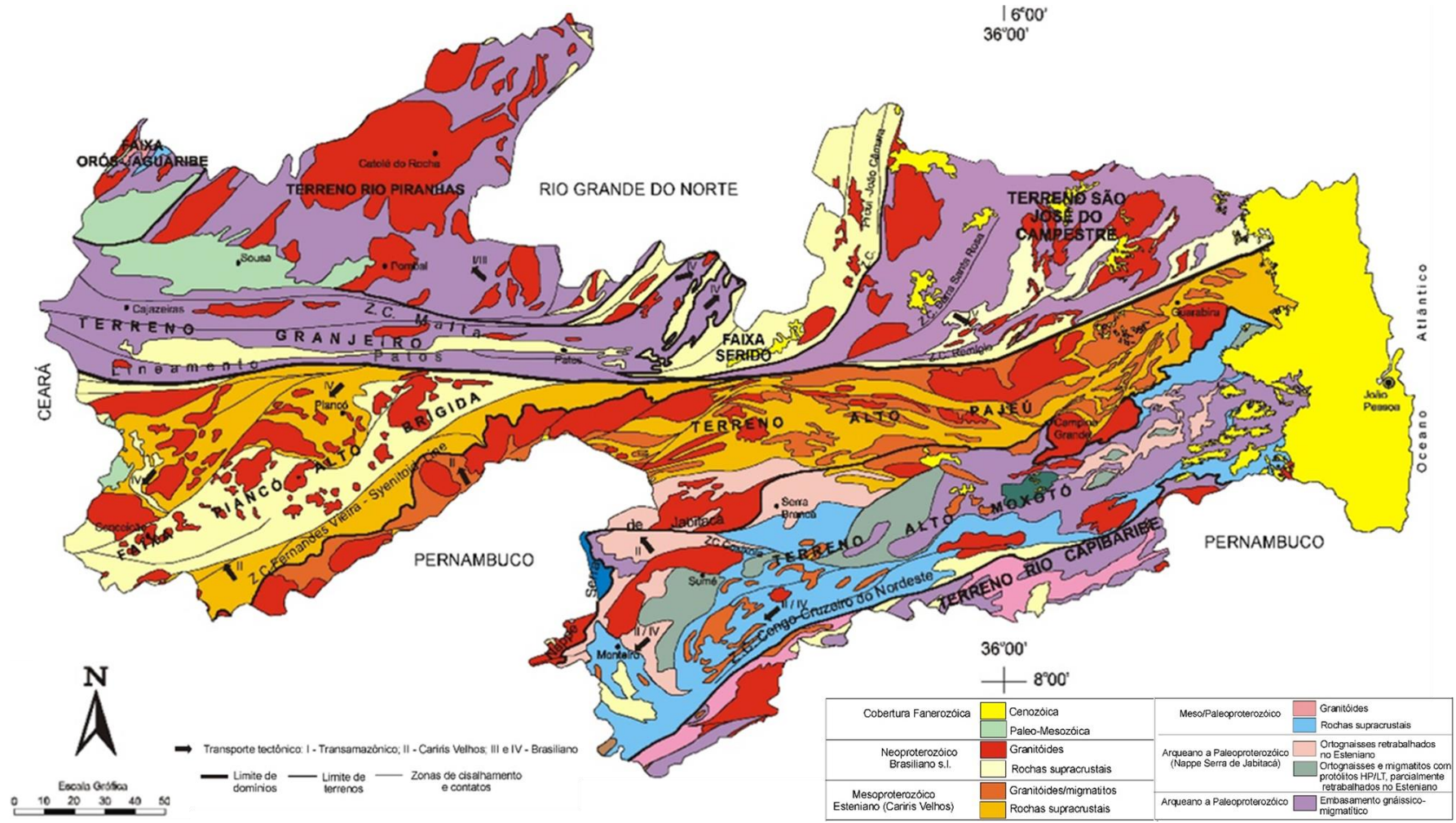
According to CPRM (2002), the geological substratum of Paraíba is dominantly made up of Precambrian rocks, which occupy more than 80% of its territory, complemented by sedimentary basins, Cretaceous volcanic rocks, Paleogene/Neogene platform covers and Quaternary surface formations. The Precambrian area encompasses tracts of the Borborema Province (Almeida *et al.*, 1977), a Meso/Neoproterozoic orogenic belt that stretches across a large part of the Northeast, from Sergipe to the eastern part of Piauí.

The geological map of the state of Paraíba drawn up by CPRM (2002) for the work Geology and Mineral Resources of the State of Paraíba, shows the superficial distribution of the rocks, which are distinguished in the legend according to their geological age, as shown in the figure and table below.

The oldest rocks are from the Precambrian Eon, comprising Archean and Proterozoic rocks; their age varies between 4.5-2.5 billion years, these rocks predominate in the regions north of the Patos Lineament; the rocks of the Paleoproterozoic (2.5 to 1.6 billion years old), Mesoproterozoic (1.6 to 1.0 billion years old), Neoproterozoic (1.0 billion years old to 542 million years old) respectively predominate in regions to the south of the Patos Lineament.

The rocks of the Phanerozoic Eon range in age from 542 million years ago to the present day. In Paraíba, they are distributed in a strip in the far west of the state (around the city of João Pessoa).

Map 1 - Geological Map of the State of Paraíba



Source: CPRM, 2002

**Table 20 - Geological Units of the State of Paraíba.**

IDADE	UNIDADE	LITOLOGIA
NEÓGENO	Qa	Aluviões e Sedimentos de Praia.
	Ql	Coberturas Lateríticas
	Qe	Cobertura Elúvio-Colúviais
PALEÓGENO / NEÓGENO	ENb	Grupo Barreiras
	ENcn	Formação Campos Novos
	ENB	Basalto Boa Vista
PALEÓGENO	Esm	Formação Serra do Martins
CRETÁCEO	Ki	Rocha vulcânica félsica Itaporanga (Ki?)
	Kr	Formação Rio Piranhas
	Ks	Formação Souza
	Ka	Formação Antenor Navarro
	Kg	Formação Gramame
	Kbi	Formação Beberibe/Itamaracá
SILURO-DEVONIANO	SDm	Formação Mauriti
NEOPROTEROZOICO		Enxames / sets de diques
	Ny <sub>5</sub>	Suíte granítica subalcalina e/ou alcalina
	Nu	Rochas ultramáficas tardi à pós-tectônicas (?)
	Ny <sub>2c</sub>	Suíte granítica transicional shoshonítica-alcalina
	Ny <sub>2b</sub>	Suíte granítica shoshonítica-ultrapotássica
	Ny <sub>2a</sub>	Suíte granítica calcialcalina com alto potássio
	Ny <sub>1d</sub>	Suíte leucogranítica peraluminosa
	Ny <sub>1c</sub>	Suíte granítica de afinidade trondjemítica
	Ny <sub>1b</sub>	Suíte granítica calcialcalina
	Ny <sub>1a</sub>	Suíte granítica calcialcalina de médio a alto potássio
	Nyi	Granitóide de quimismo indiscriminado
	Nô	Suíte máfica precoce
	Ns / Nsi	Formação Seridó e Grupo Seridó Indiscriminado
	Nj	Formação Jucurutu
	Nsq	Formação Serra dos Quintos
	Ne	Formação Equador
	Nsg	Formação Santana dos Garrotes
Noa	Formação Serra do Olho d'Água	
Ncs	Formação Cardealina-Surubim	
MESO-NEOPROTEROZOICO	MNp	Complexo Piancó
MESOPROTEROZOICO	My <sub>2c</sub>	Suíte granítica Camalaú
	My <sub>2b</sub>	Metagranitóides tipo Riacho do Forno
	My <sub>2a</sub>	Metagranitóide tipo Recanto
	Mrg	Complexo Riacho Gravatá
	Mct	Complexo São Caetano
Mve	Complexo Vertentes	
PALEO/MESOPROTEROZOICO	PMsj	Grupo Serra de São José
	PMsd	Suíte granítica Serra do Deserto
	PMb	Metanortosito Boqueirão
	PMγ	Ortognaisse e Migmatitos Serra de Jabitacá
PMs	Complexo Sumé	
PALEOPROTEROZOICO	Ppc	Suíte Magmática poço da Cruz
	Pst	Complexo Sertânia
	Pgrv/Py	Complexo Gnáissico-Migmatítico
	Pca	Complexo Caicó
	Pj	Complexo Jaguaretama
	Psc	Complexo Santa Cruz
Psp	Complexo Serrinha-Pedro Velho	
ARQUEANO / PALEOPROTEROZOICO	APγ	Ortognaisse granodiorítico-granítico
ARQUEANO	Aγ	Ortognaisse TTG

Source: CPRM, 2016

The state of Paraíba primarily involves four territories called the Cearense, Rio Grande do Norte and Transversal domains and Paleogene/Neogene coverings and Quaternary surface formations in the eastern part of the state. Geophysical studies support this compartmentalization and highlight the importance of the Patos Lineament, which



divides the state into two super-terrains to the north, a portion of the Cearense domain and the Rio Grande do Norte domain, and to the south, the Transversal domain.

For this work, information from different sources was consulted and compiled, and this main information is compiled, due to the scale of the project, in the information contained in the geological map of the state of Paraíba (**Error! Reference source not found.**) and in the expanded legend (Table 20), which were sourced from the Geological Map of Paraíba (CPRM, 2002) and the book Geodiversity of the State of Paraíba (CPRM, 2016).

It should therefore be noted that in the study region, considering the geological macro-conditions of the terrain, it is possible to simplify the study region into three main areas: the more coastal regions, where there are areas of more recent geology, where the Detrital Coverings predominate (which may be Tertiary or Quaternary) and the regions of geology with the presence of much older rocks, identified as the areas where rocks from the Proterozoic predominate to the south of the Patos Lineaments and from the Archean period to the north (in this case they are identified and dated, using specific methods with rocks from around 3.85 billion years ago).

According to Nascimento (1998), the Patos Lineament is one of the main examples of the Brazilian trans-currents that segment the Borborema Province in an E-W direction (41). It comprises a band of high-temperature millonites, with an approximately E-W foliation and sub-vertical dips either to the south or to the north, containing a sub-horizontal mineral lineation (amphibole, sillimanite and cordierite). The kinematic criteria (e.g. S-C foliation, asymmetry of the feldspar phenocrysts, elongated shape of the granite bodies and xenoliths contained therein) indicate dextral movement (Corsini *et al.*, 1991).

For the younger terrains, in flatter areas, mainly in the coastal region, there are, in sequence from the youngest sedimentary deposit to the oldest, marsh and mangrove deposits, which contain materials such as clay and silt rich in organic matter and peat may also occur; recent undifferentiated coastal deposits, where areas of sand with marine shells are predominant; clays and silt always rich in organic matter; fluvial and aeolian deposits, where clayey sand and silt rich in organic matter occur; dunes of well-sorted quartz sand (from aeolian actions) and, finally, ancient undifferentiated coastal deposits: well-sorted sand with fossil tubes.

It is worth remembering that in the region furthest from the coast there is the Barreiras Formation covering the Precambrian crystalline bedrock and the sedimentary rocks of the Paraíba Group of the Pernambuco-Paraíba Sedimentary Basin, with poorly consolidated sandy-clay sediments that basically come from the products resulting from the action of weathering on the crystalline bedrock, located further inland from the continent. In the state of Paraíba, this bedrock is made up of the crystalline rocks of the Borborema Plateau. Sedimentological analyses carried out on the Barreiras Formation, in the state of Paraíba, found that the sources of the sediments were granites, gneisses and schists, which are predominant lithologies on the Borborema Plateau (Furrier *et al.*, 2006).

According to Alheiros *et al.* (1988) *apud* Furrier *et al.*, (2006), the sediments of the Barreiras Formation were deposited through interlaced fluvial systems developed over alluvial fans. The interlaced fluvial systems facies presents deposits of varied granulometry with gravels and coarse to fine sands, yellowish cream in color, with intercalations of microclasts of silty clay, indicative of calm sedimentation environments such as alluvial plains. The fan facies is made up of reddish-cream polymitic

conglomerates, with subangular quartz pebbles and granules and blocks of reworked clay, in tabular and lenticular bodies up to one meter thick, interspersed with a less thick silty-clay layer.

Technically, the areas where these deposits occur have more or less resistant soils and are highly susceptible to phenomena resulting from precipitation processes, such as accentuated erosion and/or flooding, since sometimes their location and morphology do not allow for adequate drainage. It also has variable agricultural aptitudes, but the predominance is of low aptitude.

The rocks to the north of the Patos Lineament in the state of Paraíba are predominantly from the Archean (Ay), made up of originally granitic rocks that underwent metamorphism (orthogneisses), gray in color, of the TTG type (tonalitic trondhjemitic-granodioritic). They often have dark bands (called mafic) rich in hornblende and/or biotite. In some places, these orthogneisses encompass portions of other mafic and ultramafic rocks (these portions are called xenoliths), all metamorphosed and belonging to the Granjeiro Complex (CPRM, 2016).

The two superterrains to the north of the Patos Lineament, a portion of the Cearense Domain and the Rio Grande do Norte Domain, and to the south, the Transversal Domain, occupy areas belonging to the Borborema Province, which is made up of terrains or fold belts associated with Meso and Neoproterozoic orogenesis and related granitogenesis, including ancient fragments of the Archean/Paleoproterozoic, Mesozoic tectonic sedimentary basins and finally recent surface coverings.

Located in NE Brazil, the Borborema Province is bounded by the Phanerozoic sediments of the Paraíba Basin to the W, the coastal basins to the N-NE, and the São Francisco and São Luiz Brazilian cratons to the south and extreme NW, respectively. It has a stratigraphic and geochronological complexity that defines a series of tectonic compartments that are defined by different geological and geophysical aspects. Tectonic compartmentalization models have been proposed by various authors (Nascimento, 1998; Rodrigues, 2008).

The Borborema Province comprises supracrustal belts (metasediments and metavolcanics) of Proterozoic age, which can present a simple geological evolution, linked to a single orogenic event (monocyclic belts) or, alternatively, a complex sequence of metamorphic events and granitoid intrusion, due to the action of more than one orogenic event (polycyclic belts). Its bedrock is represented by Paleoproterozoic to Archean gneissic-migmatitic rocks, found adjacent to or within the supracrustal belts. Extensive transcurrent Brazilian shear zones section the Borborema Province in the E-W and NE directions, and these zones generally controlled the accommodation of various granitoid bodies. In a paleogeographic context, the Borborema Province shows continuity with the orogenic belts to the east of the West African craton (Nascimento, 1998).

In Paraíba, granitoid suites represent a significant part of the region's geology. These suites consist of different types of granites and associated rocks that were formed through different magmatic processes. The granites found in Paraíba include: Porphyritic Granites (feldspar crystals surrounded by a fine matrix of minerals such as quartz and mica), Alkaline Granites (high chemical composition of potassium and sodium), Biotite and Hornblende Granites (contain significant amounts of biotite and/or hornblende minerals), S-Type Granites (are of sedimentary origin, composition rich in aluminum).

The first tectonic compartmentalization of the Borborema Province is due to Brito Neves (1975), followed by other authors who generally included bands, fold systems or metamorphic belts, separated by median massifs and geoanticlinal zones of a gneissic-migmatitic-granitic nature, which contain supracrustal bands in their interiors (CPRM, 2001). The supracrustal rocks in Paraíba are mainly made up of formations of metamorphic and sedimentary rocks that formed above the earth's crust. They are an integral part of the region's geology and play an important role in understanding the geological history and evolution of the state.

The Campina Grande region is a key area for understanding the Borborema Province. The region is home to four of the most important terrains that make up the framework of the Borborema Province: from north to south, the Rio Grande do Norte Terrain (RGN), made up mainly of Paleoproterozoic rocks that have preserved the Archean cores: the Alto Pajeú Terrain (TAP), made up of orthogneisses (Cariris Velhos) and supracrustals (Complexo S. Caetó) of Eo-Neoproterozoic age. Caetano Complex) of Eo-neoproterozoic age; Alto Moxotó Terrain (TAM), structured by very varied orthognaths, migmatites, mafic-ultramafic rocks: Rio Capibaribe Terrain (TRC) composed mainly of schistose supracrustals, quartzites with calcium-silicate and carbonate intercalations. The first of these terrains is representative of the northern Borborema domain and the last three are part of the Transverse Zone Domain. All of these terrains contain granitic intrusions associated with the Brasiliano Event (granite complexes of Esperança, Campina Grande, Queimadas, Timbaúba, etc.) (Rodrigues, 2008).

In the western part of the state of Paraíba, the structural geological framework of this region shows a relief well shaped by the Malta fault to the south, which runs east-west, and several other smaller elements, which run preferentially NE-SW. It is worth mentioning that the Malta fault is the northern controller of the E-W lineaments in the state of Paraíba, which are mainly controlled further south by the Patos fault, both of which have regional dimensions.

Still areas of the Borborema Province in the Rio Grande do Norte Domain, the Rio Piranhas subdomain separates the Orós-Jaguaribe belt from the Seridó belt; it is made up of Paleoproterozoic rocks belonging to the Caicó Complex, formed by intrusive orthogneisses of the Poço da Cruz Suite and rare metasedimentary supracrustals. Metamorphism in this region varies from the green schist facies to high amphibolite, and may have reached the granulite facies. The Poço da Cruz Suite has recently been dated with ages of between 2.0 and 1.7 Ga. This area is part of the Rio do Peixe basins (Hackspacher *et al.*, 1990; Ribeiro, 2020).

In the southwestern part of the state of Paraíba, in the areas of the Transversal Domain, there is the Piancó-Alto Brígida Belt formed by meta-volcano-sedimentary and metasedimentary sequences and Neoproterozoic plutonic rocks. Unlike the previously described terrains, there are no exposures of Archean or Paleoproterozoic rocks. The boundary with the Alto Pajeú Terrain is made up of the Fernandes Vieira Shear Zone and the *syenitoid line*, the latter being represented by the alignment of shoshonitic and ultrapotassic syenitic and granitic batholiths. The northern boundary with the Granjeiro Terrain is marked by the Patos Shear Zone. Bittar (1998) separated this belt into tectono-stratigraphic terrains, developed under different metamorphic and deformational regimes and juxtaposed during the Brasiliana orogeny (CPRM, 2002).

### 4.1.3 Hydrogeology

According to the Hydrogeological Map of the State of Paraíba at a scale of 1:500,000 drawn up by the Geological Survey of Brazil - CPRM (2019), there are three main hydrogeological domains in the state: Granular, Karstic and Fractured, where only the form of accumulation and conduction of groundwater is considered; *Aquifer Systems* (union of two or more aquifers to create a new set of aquifer units); *Aquifers* (corresponding to geological units capable of storing water and allowing it to circulate).

The mapping also considered geological units that do not store water or store but do not transmit water - Non-Aquifers - these units are shown in brown on the Hydrogeological Map.

The map presented below has been organized on the basis of Hydrostratigraphic Units, which aggregate geological formations or parts of them that store and transmit groundwater in a similar way and with yields of the same order of magnitude. These Hydrostratigraphic Units constitute the basic indivisible elements of the mapping and have been described according to the explanatory text on the map itself.

The legend also accompanies a water productivity table organized as Very High (1), High (2), Moderate (3), Generally Low (4), Generally Very Low (5), Not Very Productive or Not Aquiferous (6).

After the map, the hydrogeological units are described.



## Map 2 - Hydrogeological map

## Granular Aquifer Domains

### **Alluvial deposit - Qa**

*Location* - It occurs in a discontinuous manner, on flat terrain, throughout the state of Paraíba in an area of 3,147 km<sup>2</sup>, but it stands out in the coastal region where it has a more marked hydrogeological expression. Highlights include the Tracunhaém/Goiana, Abiaí, Garaú, Guriji and Gramame river basins, to the south of the João Pessoa Metropolitan Region, and the Paraíba, Miriri, Mamanguape, Sinimbu, Camaratuba and Guajú river basins, located in the northern part of the coastal zone.

*Lithological characteristics* - These are sandy, unconsolidated sediments, fine to medium in grain size, but also coarse, with a contribution of silt and clay in the ebb areas. Gravel beds, rich in quartz pebbles and clasts, are common both at the base and interspersed in the alluvial package. Its thickness varies, with an average of 5 meters.

*Hydrogeological characteristics* - This is a free-flowing, discontinuous aquifer with a small extent and thickness. They generally produce flows of between 1 and 5 m<sup>3</sup>/h, although in the deposits that occur in the rivers that drain the coastal zone they can produce flows of up to 10 m<sup>3</sup>/h depending on their thickness. They are generally used through shallow wells (tubular and cacimbões) to meet small demands.

*Productivity* - In most of Paraíba, an area of 2,337 km<sup>2</sup>, productivity is *generally Very Low, but locally Low (Class 5)*, with the exception of the coastal areas, 810 km<sup>2</sup>, where productivity is *generally Low, but locally Moderate (Class 4)*.

*Hydrostratigraphic Unit acronym* - (4) Qa and (5) Qa

*Quality* - Its waters have variable physical and chemical characteristics with extreme values of Electrical Conductivity (EC). As an example, we can cite the alluvial fans that occur near the coast, in the data collected, the Electrical Conductivity (EC) can reach a minimum value of 104 µS/cm to a maximum value of 4,400 µS/cm, with an average of 860 µS/cm and Total Dissolved Solids (STD), an average of 573 mg/L. They are highly vulnerable to contamination.

### **Coastal deposit -Depósito Litorâneo - Ql**

*Location* - They occur all along the coast, on flat terrain, from the municipalities of Caaporé and Pitimbu, on the border with the state of Pernambuco, to the municipality of Mataraca, on the border with the state of Rio Grande do Norte, covering a total of 165 km<sup>2</sup>.

*Lithological characteristics* - These correspond to recent, polygenic, unconsolidated sediments, made up of colluvium, river terraces, marine terraces, beach sands and old dunes, with intensely varied granulometry, from the clay fraction to the coarse sand fraction with gravel levels, especially on the river terraces.

*Hydrogeological characteristics* - This is a free-flowing aquifer, with an average thickness of 15 meters, a static level between 1 and 5 m deep, and flows varying between 1 and 10 m<sup>3</sup>/h.<sup>3</sup>

*Productivity* - In general, this hydrostratigraphic unit has *very low* productivity, *but it is locally low (Class 5)*.

*Hydrostratigraphic Unit acronym* - (5) Ql

*Quality* - There is not much information on the physical chemistry of the water in this hydrogeological unit. The results obtained show an average Electrical Conductivity (EC) of 556  $\mu\text{S}/\text{cm}$  and an average Total Dissolved Solids (TDS) of 371 mg/L. Locally, there are maximum values for these parameters above the drinking water limits. In general, the waters of this aquifer are used by the population for secondary purposes, since they are highly vulnerable to contamination.

### **Campos Novos - Ec**

*Location* - Occurs in isolation, on gently undulating terrain, in an area of 105 km<sup>2</sup>, encompassing part of the municipalities of Sossego, Barra de Santa Rosa, Olivedos, Boa Vista, Caturité and Boqueirão, in the central and north-central regions of the state.

*Lithological characteristics* - made up predominantly of poorly consolidated sediments with very low permeability, such as bentonite and montmorillonite clays, with levels of fossiliferous "chert".

*Hydrogeological characteristics* - Unit of small regional expression, discontinuous, zero to very low hydraulic conductivity, behaving as a non-aquifer.

*Productivity* - Low Productivity or Non-Aquiferous (Class 6).

*Hydrostratigraphic Unit acronym* - (6) Ec

### **Barreiras - ENb**

*Location* - It takes the form of extensive tablelands along the coastline, with an average width of around 30 km and an outcrop area of 3,078 km<sup>2</sup>.

*Lithological characteristics* - It is made up of unconsolidated to semi-consolidated sediments, from sandy-clay to silty-clay, locally with conglomeratic fractions of varying colors. Of continental origin, it has an average thickness of around 60 meters.

*Hydrogeological characteristics* - This is a free-flowing aquifer, a regional extension, generally continuous, with local conditions of semi-confinement and facies variations that lead to significant changes in storage and permeability conditions. Its flow rates vary from 1.0 to 50 m<sup>3</sup>/h and specific flow rates from 0.04 to 2.0 m<sup>3</sup>/h/m for 25 meters of lowering and 12 hours of pumping.

*Productivity* - In general, there is an increase in productivity from west to east and from south to north of the area of occurrence, with the highest productivity occurring in the Paraíba Basin domains. In the domains of the Paraíba Basin, in the northern portion, this hydrogeological unit has *Moderate* productivity (Class 3) which, towards the south, varies to *Generally low, but locally moderate* (Class 4), with the exception of an area to the southwest and south where productivity changes to *Generally very low, but locally low* (Class 5). Preponderately, the lowest yields are observed to the west in areas where the Barreiras Formation is overlying the rocks of the crystalline basement, where they are small and thick. Therefore, productivity is *generally very low, but locally low* (Class 5). In these areas, the closer to the edge, the more unproductive the Barreiras is. In this situation, wells are drilled through the small thickness of the Barreiras to fetch water from the crystalline bedrock.

*Hydrostratigraphic Unit acronym* - (3) ENb, (4) ENb and (5) ENb

Quality - The water is of good quality, suitable for human consumption, with an average Electrical Conductivity (EC) of 375  $\mu\text{S}/\text{cm}$  and Total Dissolved Solids (TDS) averaging 243 mg/L. In the areas overlying the basement rocks, the Electrical Conductivity (EC) is higher, with an average of 639  $\mu\text{S}/\text{cm}$  and Total Dissolved Solids (STD), with an average of 415 mg/L. It shows low to medium vulnerability to contamination.

### **Serra do Martins - ENsm**

*Location* - The deposits of the Serra do Martins Formation occur discontinuously on gently undulating to mountainous terrain in the north-east of the state, covering a total area of 294 km<sup>2</sup>. They are a residual sedimentary layer, resting discordantly on rocks of the Precambrian crystalline basement.

*Lithological characteristics* - It essentially comprises a sequence of fine to very coarse clayey sandstones, sometimes conglomeratic, of variegated colors, with clay intercalations and a laterite crust with quartz pebbles.

*Hydrogeological characteristics* - Free, discontinuous aquifer, small in extent and between 30 and 50 meters thick. It has an average flow rate of 2 m<sup>3</sup>/h and a specific flow rate of 0.33 m<sup>3</sup>/h/m.<sup>3</sup>

*Productivity* - According to the classification adopted, productivity is *Generally Very Low, but Locally Low (Class 5)*.

*Hydrostratigraphic Unit acronym* - (5) ENsm

*Quality* - There is not much information on the physical and chemical quality of the water in this aquifer, however, analyzing existing wells in SIAGAS shows a Hydraulic Conductivity (EC) ranging from 550 to 4800  $\mu\text{S}/\text{cm}$ , with an average of 1989  $\mu\text{S}/\text{cm}$ . It shows low vulnerability to contamination.

### **Piranhas River - Klrp**

*Location* - It occurs in the northwest of the state, on gently undulating terrain, precisely in the Rio do Peixe Sedimentary Basin, with an area of 51 km<sup>2</sup>.

*Lithological features* - The unit is made up of polymictic conglomerates and coarse sandstones, with interspersed fine and micaceous sandstones, siltstones and claystones.

*Hydrogeological characteristics* - Free, discontinuous aquifer, small lateral extension, mostly limited to the municipality of Sousa, average flow of 4.0 m<sup>3</sup>/h, Specific Flow of 0.2 m<sup>3</sup>/h/m for 12 hours of pumping and thickness that can reach 300 meters. The lithotypes are generally cemented and show a low degree of fracturing and very low permeability. Productivity - *Generally very low productivity, but locally low (Class 5)*.

*Hydrostratigraphic Unit acronym* - (5) Klrp

*Quality* - It has an average Electrical Conductivity (EC) of 1360  $\mu\text{S}/\text{cm}$  and Total Dissolved Solids (STD) of 884 mg/L. Vulnerability to contamination is predominantly high.



### **Souza - Klsz**

*Location* - It occurs in the northwestern region of the state, on gently undulating terrain, precisely in the Rio do Peixe Sedimentary Basin, with an area of 448 km<sup>2</sup>.

*Lithological features* - In the upper section, a sandy sequence with subordinate pelites predominates, while in the lower section there is a predominance of siltstones and shales.

*Hydrogeological characteristics* - Regional in extent, thickness of up to 800 meters, lateral extension limited to the Rio do Peixe Basin. The lower section predominates in most of this basin, where flow rates are generally less than 1 m<sup>3</sup>/h. The upper section is free, either outcropping or covered by the Rio Piranhas formation with an average flow of 2.64 m<sup>3</sup>/h and an average specific flow of 0.35 m<sup>3</sup>/h/m for 12 hours of pumping and very low hydrogeological potential.

*Productivity* - According to the methodology used, it is Low Productivity or Non-Aquiferous (Class 6), although it can occur with Generally Very Low productivity, but Locally Low in (Class 5) when underlying the Rio Piranhas Formation or in areas associated with the upper portion of this unit (not individualized in this scale of work).

*Hydrostratigraphic Unit acronym* - (6) Kl sz

*Quality* - It has an average Electrical Conductivity (EC) of 1250 µS/cm and Total Dissolved Solids (STD) of 812 mg/L. Vulnerability to contamination is medium.

### **Antenor Navarro - Klan**

*Location* - It occurs in the northwestern region of the state, on gently undulating terrain, precisely in the Rio do Peixe Sedimentary Basin, with an area of 549 km<sup>2</sup>.

*Lithological characteristics* - The base is made up of conglomerates and coarse sandstones, which gradually change to fine sandstones and micaceous sandstones interspersed with claystones towards the top of the sequence.

*Hydrogeological characteristics* - It occurs as a free aquifer in the northwest of the Triunfo Sub-Basin, the entire northwest, north and northeast edges of the Sousa Sub-Basin and the entire Pombal Sub-Basin. In the rest of the Rio do Peixe Sedimentary Basin, it is confined by the lower section of the Sousa Formation. It is a continuous aquifer, with a regional extension, an average thickness of 100 meters, primary porosity, permeability and very low hydrogeological potential. Flow varies between 1 and 10 m<sup>3</sup>/h and specific flow between 0.04 and 0.4 m<sup>3</sup>/h/m, for 12-hour pumping. Productivity - According to the classification adopted, it has Generally Very Low productivity, but Locally Low (Class 5).

*Hydrostratigraphic Unit acronym* - (5) Klan

*Quality* - Electrical Conductivity (EC) averages 962 µS/cm and Total Dissolved Solids (TDS) 625 mg/L. Vulnerability to contamination is predominantly high, although it can vary to medium in some places.

### **Beberibe - K2be**

*Location* - It occurs along the state's coastal strip, in the Paraíba sedimentary basin, generally underlain by Cenozoic sediments of the Barreiras Formation and karst units.

The outcropping area is located to the south-southwest, on flat to gently undulating terrain and is restricted to 118 km<sup>2</sup>.

*Lithological features* - It essentially comprises a sequence of continental quartz sandstones in the lower section, graduating to calcareous sandstones, marls and detrital limestones in the upper section.

*Hydrogeological characteristics* - Continuous, porous aquifer, regional in extent, with confined and free conditions. When free, it has a thickness of up to 100 meters, flows between 10 and 25 m<sup>3</sup> /h and specific flows between 0.4 and 1 m<sup>3</sup> /h/m for 12 hours of pumping. When in confinement, its thickness can reach 300 meters, flow rates greater than 100 m<sup>3</sup> /h and specific flow rates greater than 4 m<sup>3</sup> /h/m. This greater productivity occurs in the coastal zone, when confined by the carbonates of the Gramame Formation, from the border with Pernambuco to the border with Rio Grande do Norte, in a subsurface area of approximately 1,420 km<sup>2</sup>. It is important to note that this unit, when confined, can vary locally from very high to high depending on the thickness and facies variations.

*Productivity* - It has *very high productivity (Class 1)* in the coastal strip, where it is confined by karst hydrostratigraphic units, and when outcropping it has *generally low productivity, but locally moderate (Class 4)*.

*Hydrostratigraphic Unit acronym* - (1) K2be and (4) K2be

*Quality* - In the lower section the water is good for human consumption, with an average Electrical Conductivity (EC) of 300 µS/cm and Total Dissolved Solids (TDS) averaging 195 mg/L. The upper section has water with a higher conductivity, an average of 818 µS/cm and total dissolved solids of 532 mg/L. It shows low to medium vulnerability to contamination.

### **Mauriti - Sm**

*Location* - It occurs in the west of the state in an area of 11.9 km<sup>2</sup> in the municipalities of Monte Horebe and Bonito de Santa Fé, on undulating and mountainous terrain, respectively. Although its area is restricted to Paraíba, this unit continues into Ceará and is an integral part of the stratigraphic sequence of the Araripe Sedimentary Basin.

*Lithological characteristics* - It consists lithologically of fine to coarse sandstones, sometimes conglomeratic, consolidated, generally with a high degree of cementation, compaction and fracturing.

*Hydrogeological characteristics* - Due to its restricted presence in the state of Paraíba and the lack of studies and well data, the description will be similar to its continuity in Ceará. Aquifer of limited extent, continuous, free, with an average thickness of 70 meters, an average flow of 17 m<sup>3</sup> /h and an average specific flow of 0.67 m<sup>3</sup> /h/m. Groundwater storage is partly conditioned by the degree of fracturing. In Ceará, it is also confined by the Brejo Santo Formation, in which case its productivity is moderate.

*Productivity* - According to the classification adopted, productivity is *Generally Low, but locally Moderate (Class 4)*.

*Hydrostratigraphic Unit acronym* - (4) Sm

*Quality* - The water is normally of good chemical quality, in the order of 308 µS/cm and 200 mg/L for Electrical Conductivity (EC) and Total Dissolved Solids (STD), respectively. Low vulnerability to contamination.

## Karst Domain

### **Gramame - K2g**

*Location* - It occurs on gently undulating terrain over an area of 25 km<sup>2</sup> in the municipalities of Pitimbu and Alhandra, although it is present in the subsurface throughout the Paraíba Basin.

*Lithological characteristics* - With an average thickness of 40 meters, this unit is composed, in the lower section, of calcareous sandstones that gradually pass into sandy limestones, culminating in the upper section in very fossiliferous dolomitic and marly limestones.

*Hydrogeological Characteristics* - Continuous, with limited regional extension, low karstification and very low or zero productivity. It gains importance due to the underlying presence of the Beberibe hydrostratigraphic unit (K2be), with *very high* productivity (Class 1). When subsurface, this unit generally underlies the non-aquiferous karst unit Maria Farinha (Elmf), which is not outcropping and is not represented on this map.

*Productivity* - Low Productivity or Non-Aquiferous (Class 6).

*Hydrostratigraphic Unit acronym* - (6) K2g

### **Jucurutu - NP3sjuc**

*Location* - It rises on gently undulating terrain over an area of 6 km<sup>2</sup> in the municipality of Várzea, in the north-central part of the state.

*Lithological characteristics* - This unit is mainly composed of marble, although gneiss, quartzite and calcissilicate rocks do occur.

*Hydrogeological characteristics* - A discontinuous hydrostratigraphic unit with limited regional extension and a low degree of karstification. Its productive characteristics are associated with fractures and dissolution cavities, where productivity is very low or nil.

*Productivity* - Low Productivity or Non-Aquiferous (Class 6).

*Hydrostratigraphic Unit acronym* - (6) NP3sjuc

## Fractured Domain

### **Undifferentiated Fractured Basement - Fr**

*Location* - With an area of 48,498 km<sup>2</sup>, it is the most predominant hydrostratigraphic unit. It occurs in all regions of the state, with the exception of the sedimentary basins (Paraíba, Rio do Peixe and a small part of the Araripe), as well as the alluvial cover.

*Lithological characteristics* - The Undifferentiated Fractured Basement defined here encompasses a series of lithological types, sometimes comprising metasediments and sometimes rocks from the crystalline basement, such as granites, volcanic rocks, metavolcanics, gneisses, migmatites, granulites, schists and quartzites.

*Hydrogeological characteristics* - This is a discontinuous environment, characterized by the occurrence of random reservoirs that together form a hydrogeological unit. It has low flow rates, generally less than 2 m<sup>3</sup> /h, although locally higher values can occur, depending on structural conditions. All areas with steep terrain and inselbergs are unproductive, with a remote possibility of obtaining water.

*Productivity* - Productivity generally falls into the class *Generally Very Low, but Locally Low (Class 5)*, although where the relief is steep and inselbergs, productivity is characterized as *Low Productive or Non-Aquiferous (Class 6)*.

*Hydrostratigraphic Unit acronym* - (5) Fr and (6) Fr

*Quality* - Its waters are generally salinized. The most likely causes of this salinization are the practically non-existent surface weathering mantle, the low rainfall rate and the high evaporation rates. In the areas where aquifers occur (Non-aquifer, class 6), the vulnerability is insignificant. In the other areas of the fractured basement, the natural vulnerability to contamination is low to medium.

#### **4.1.4 Mining Potential**

With regard to mining, a total of 4,240 polygonal areas were identified (database as of May 2, 2024), of which only 216 polygonal areas are mining concessions - the final stage of the federal government's authorization process so that mining can effectively operate, provided it has the appropriate environmental licensing.

It is important to consider that in Brazil, as provided for in the Mining Code, mineral assets belong to the Federal State, regardless of who owns the land, so - except for specific restrictions: Integral Protection Areas, Security Areas, Indigenous Lands, Urban Areas, among others - access is a right of mining, which must occur in agreement with the owners, but may come by court order, in the event of failure to agree, according to Article 27 of the Mining Code (Decree Law 227/1967) to enable mineral research:

*Art. 27 - The holder of the research authorization may carry out the respective work, as well as the necessary auxiliary works and services, on land in the public or private domain, covered by the areas to be researched, provided that it pays the respective owners or squatters a rent for occupying the land and compensation for damages that may be caused by the research work, subject to the following rules:*

*I - The rent may not exceed the amount of the maximum net income of the property to the extent of the area to be actually occupied;*

*II - Compensation for damage caused may not exceed the property's market value to the extent of the area actually occupied by the research work, except in the case provided for in the following item;*

*III - When the damage is such as to render the entire property on which the area required for the research work is located unusable for agricultural or pastoral purposes, the compensation for such damage may reach the maximum market value of the entire property;*

*IV - The sales values referred to in items II and III will be obtained by comparing the sales values of properties of the same type in the same region;*

*V - In the case of public land, the payment of rent is waived and the holder of the survey is only liable to pay for damages;*

*VI - If the holder of the Exploration Permit, by the date of the transcription of the authorization title, does not attach to the respective process proof of agreement with the owners or squatters of the land regarding the rent and compensation referred to in this article, the Director General of the D. N. P. M.<sup>18</sup>, within 3 (three) days of that date, shall send a copy of the title deed to the Judge of the District where the deposit is located;*

*VII - Within 15 (fifteen) days from the date of receipt of this communication, the judge shall order an appraisal of the income and of the damages referred to in this article, in the manner prescribed in the Code of Civil Procedure;*

*VIII - The District Prosecutor will be summoned for the terms of the action, as representative of the Union;*

*IX - The evaluation will be judged by the judge within a maximum of 30 (thirty) days from the date of the order referred to in item VII, and any appeals lodged will not have suspensive effect;*

*X - The legal costs of the evaluation process will be paid by the holder of the research authorization;*

*XI - Once the appraisal has been judged, the judge shall, within eight (8) days, summon the owner to deposit an amount corresponding to the rent for two (2) years and the security for payment of the indemnity;*

*XII - Once these deposits have been made, the Judge shall, within eight (8) days, summon the owners or squatters of the land to allow the survey work to be carried out, and shall communicate his order to the Director General of the D. N. P. M. and, upon request by the holder of the survey, to the local police authorities to guarantee the execution of the work. M. and, at the request of the owner of the survey, to the local police authorities, to guarantee the execution of the work;*

Once the Exploration phase has been completed and there are conditions to proceed with mining, the area of the deposit is delimited for the imposition of possession<sup>19</sup>, it is also important to note article 59 of the Mining Code, which states:

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<sup>18</sup> The DNPM - National Department of Mineral Production was abolished and its duties were transferred to the ANM - National Mining Agency.

<sup>19</sup> The imposition of possession is an administrative formality that consists of georeferencing, demarcation and setting of demarcation marks for the area granted by means of a Mining Ordinance for mineral exploitation, precisely defining the location and space of the deposit/mine. Obligation of the holder under Arts. 44 and 45 of Decree-Law 227/1967 - Mining Code.

*Art. 59 Not only the property where the deposit is located, but also the neighboring properties, are subject to soil and subsoil easements for the purposes of research or mining.*

Easements are all the actions and structures necessary for the proper functioning of mining (workshops, installations, accessory works, housing, transportation routes, electricity and communication networks, water collection and supply, deposits of waste material from mining activities, among others).

Finally, it is important to mention Article 60 on the creation of easements:

*Art. 60 Servitudes shall be established by prior indemnification of the value of the land occupied and the damage resulting from such occupation.*

*§ Paragraph 1 If there is no agreement between the parties, payment shall be made by means of a judicial deposit of the amount set for indemnification, by means of a survey or expert opinion with arbitration, including the rent for occupation, followed by the competent warrant for possession of the area, if necessary.*

*§ Paragraph 2 The calculation of the compensation and damages to be paid by the holder of the research authorization or mining concession to the owner of the land or the owner of the improvements will comply with the requirements of Article 27 of this Code, and will follow the procedure established in a Federal Government Decree.*

It is therefore important to note that such situations may occur in some of the areas that will be targeted by the project, especially given the large number of mineral research areas identified in the PROCASE II area, as shown in the table below.

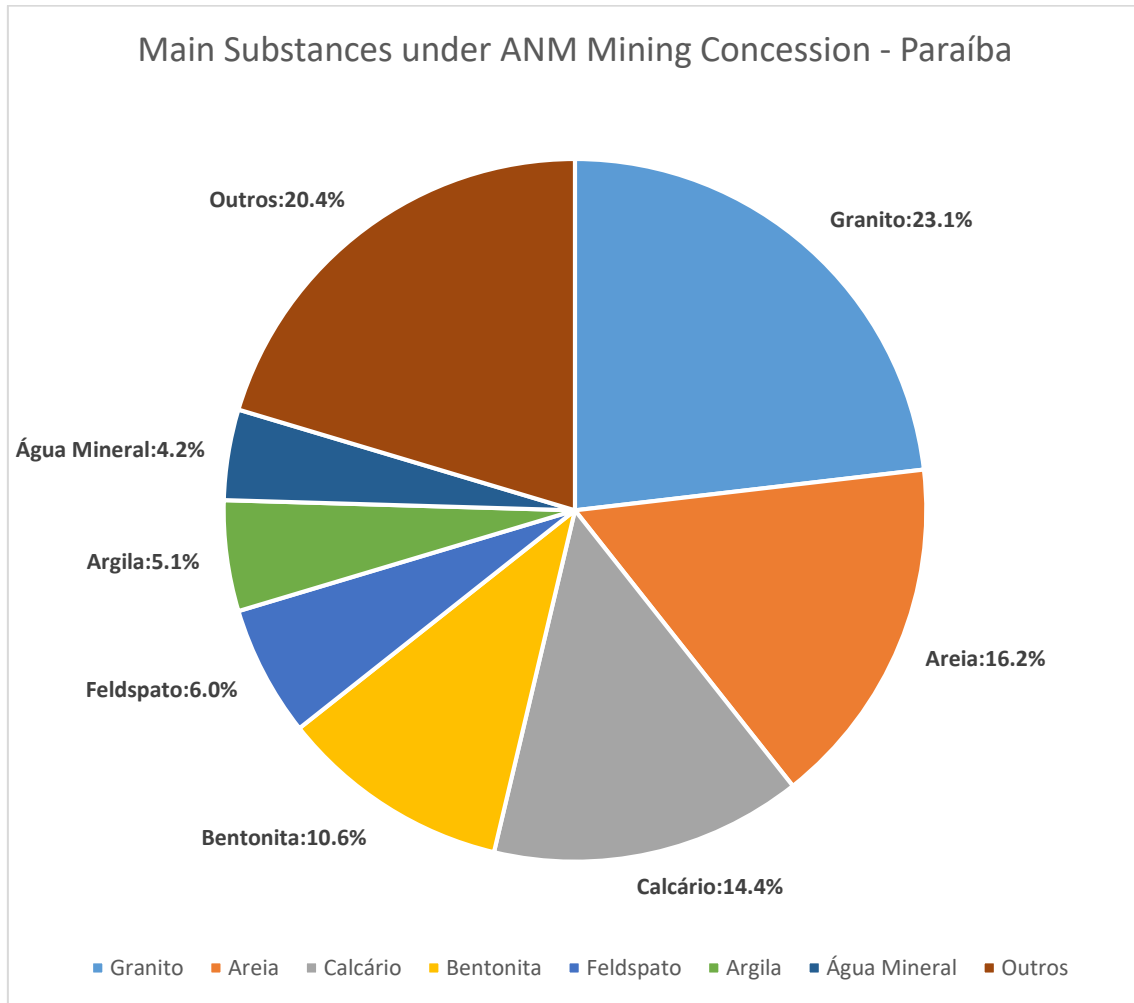
**Table 21 - Phases of the ANM Polygons in the area covered by Proc case II**

Phase	Polygonal	%
Research Authorization	2.248	53%
Mining Concession	216	5%
Area availability	325	8%
Mining (Application/Concession)	129	3%
Others	742	18%
Requirements	580	14%
Total	4.240	100%

Source: ANM, 2024 (consultation).

As shown, only 5% of the polygonal areas are in the Mining Concession phase (with the exception of garimpeiro mining); the figure below shows the graph of the main mineral substances, followed by the table showing the substances mined in the 216 polygonal areas currently in the mining concession situation (operational phase).

**42 - Main Substances under Mining Concession at ANM - Paraíba.**



Source: ANM, 2024 (consultation).

**Table 22 - Mined Substances - Mining Concessions in the Proc case II coverage area**

Substance	Polygonal	%
Mineral water	9	4,2%
Sand	35	16,2%
Foundry Sand	1	0,5%
Sandstone	1	0,5%
Clay	11	5,1%
Bentonite clay	4	1,9%
Ferruginous clay	1	0,5%
Refractory Clay	1	0,5%
Basalt	2	0,9%
Bentonite	23	10,6%
Beryl	1	0,5%
Limestone	31	14,4%
Calcitic limestone	2	0,9%
Chalcedony	1	0,5%

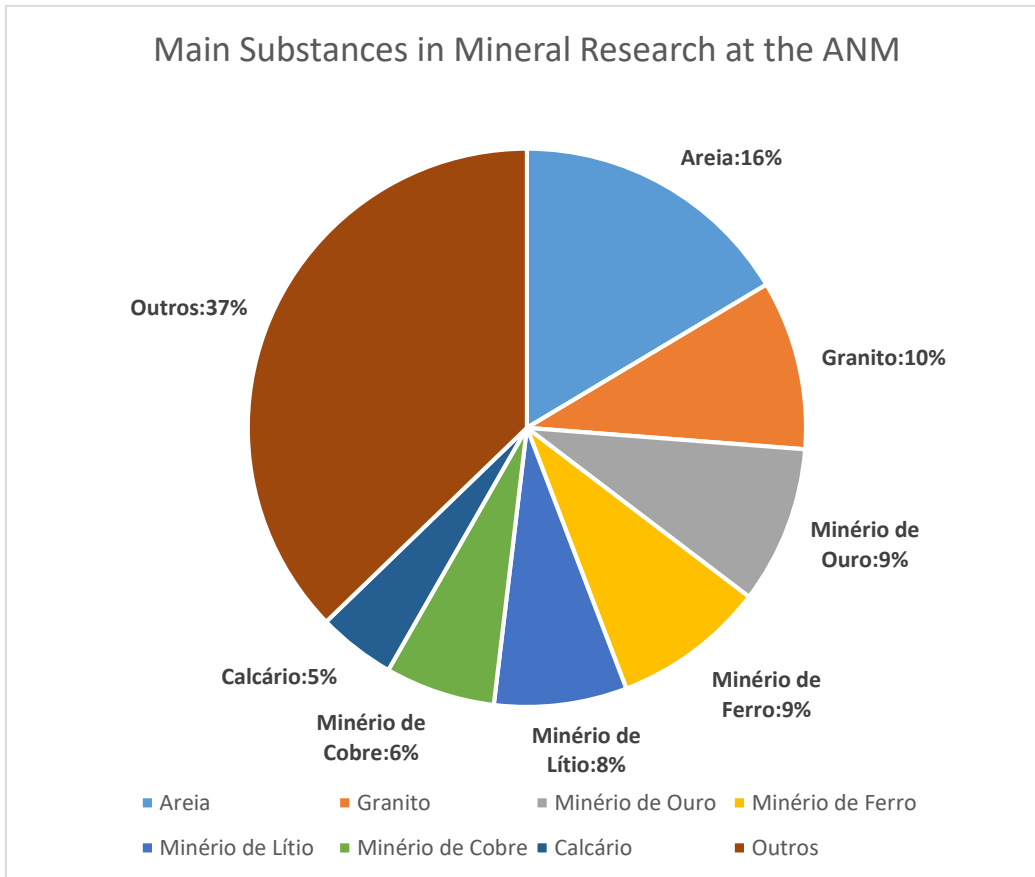
Substance	Polygonal	%
Calcite	1	0,5%
Cassiterite	2	0,9%
Kaolin	5	2,3%
Diorito	3	1,4%
Feldspar	13	6,0%
Phosphorite (O)	1	0,5%
Gneiss	2	0,9%
Granite	50	23,1%
Ornamental granite	1	0,5%
Ilmenite	1	0,5%
Migmatite	2	0,9%
Iron ore	1	0,5%
Gold	2	0,9%
Pegmatite	1	0,5%
Industrial Quartzite	1	0,5%
Sienite	1	0,5%
Tungsten	1	0,5%
Tourmaline	1	0,5%
Vermiculite	4	1,9%
Grand Total	216	100,0%

Source: ANM, 2024 (consultation).

As can be seen in the figure below, Mineral Surveys include a large number of substances, but the following prevail: Sand (16%), Granite (10%), Gold Ore (9%), Iron Ore (9%), Lithium Ore (8%), Copper Ore (6%) and Limestone (5%), representing 63% of the polygonal areas being surveyed.



**43 - Main Substances under Mining Research at the ANM - Paraíba**



Source: ANM, 2024 (consultation).

The following map shows the polygonal areas of the National Mining Agency - ANM, in Paraíba, according to the stage of the processes.



**Map 3 - ANM polygons in the Proc case II area.**



**Map 4 - ANM polygons by substance in the area covered by Proc case II.**

#### 4.1.5 Geomorphology

The geomorphological map presented below is based on the work carried out by the Paraíba State Water Resources Plan (AESAs, 2022), which was drawn up based on data published by the IBGE in 2017. It is a set of vector and alphanumeric information, georeferenced and stored in the Environmental Information Database (BDIA), surveyed and published on a scale of 1:250,000. With a description of the geomorphological units and morphostructural domains.

The geomorphological map was also updated to a scale of 1/250,000, taking into account, among other things, the updated relief map, EMBRAPA's Landsat image mosaics and the geodiversity map of the state of Paraíba published by CPRM in 2013 (AESAs, 2022).

#### 4.1.6 Geomorphology

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## Map 5 - Geomorphology of the State of Paraíba

## Quaternary Sedimentary Deposits.

This domain is made up of areas of accumulation represented by low slope plains and terraces and, eventually, depressions modeled on deposits of horizontal to sub-horizontal sediments from fluvial, marine, fluvial-marine, lagoonal and/or aeolian environments, arranged in the coastal zone or inland from the continent.

### Northeastern East Coast

According to Feio (1954), the coastal area was formed by a flexure that led to the lowering of the entire area in recent times. Phenomena resulting from eustatic processes (changes in sea level) have contributed to the current shape of the coastline and sea level. The eustatic movements either generated larger river and sea plains when the sea level receded or eliminated the coastal strip when the sea level directly hit the Barreiras Group cliffs.

The width of the coastal strip is variable, reaching approximately 4 kilometers to the east, with occasional interruptions in continuity due to the presence of cliffs formed in Cenozoic sediments of the Barreiras Group.

The fluvial-marine plains are found at the mouths of the main rivers. They are generally filled with clayey material, where there is a widespread proliferation of mangroves, especially at the mouths of rivers that have sediments from the Barreiras Group. Despite their perennial nature, the rivers carry little continental sediment and are hydrological barriers from which sandbanks can form.

On the coast, quartz sands predominate, with occasional podzolic soils (characteristic of the tabuleiros), as well as Solodized Solonetz on the river and sea plains. The sandy reefs have a fine texture, vary in hardness and contain rounded quartz pebbles and shell remains.

### **Photo 2 - Municipality of Baía da Traição, view of the Northeastern East Coast.**



Source: Consulting, 2024.

### **Plains and River Terraces**

The construction of plains and terraces shows evidence of adjustments to neotectonics and is accelerated by meander evolution processes. Clogging takes place through suspended sediments, dragging and bouncing of coarse material; suspended transport of colloids and deposition of sediments along stretches of the banks. Sometimes the material is pedogenized.

They include floodplains and alluvial terraces built on Holocene sedimentary deposits. They occur mainly along the main rivers, where they appear as discontinuous stretches of river plain. There are sectors where the terraces coalesce with the plains.

In some regions, riverbeds are marked by sandy ridges and, during the dry season, form steep ravines. Stretches of plains can look like veredas with sandy edges and peaty substrate, marked by shrubs including palm trees.

Levels of very fine to coarse, stratified clays, silts and sands are locally interspersed with ferruginous concretions and organic concentrations, resulting in Fluvial Neosols and Gleissols.

**Photo 3 - Municipality of Baía da Traição, landscape of the Plains and River Terraces unit.**



Source: Consulting, 2024.

### **Phanerozoic Basins and Sedimentary Covers Domain**

Plateaus and plateaus developed on horizontal to sub-horizontal sedimentary rocks, possibly folded and/or faulted, in different sedimentation environments, arranged on the continental margins and/or in the interior of the continent.

### **Cariri Depression**

The Cariri Depression is located to the east of the Araripe Plateau. It lies at an altitude of 450m and covers an area of 2,442 km<sup>2</sup>. It is characterized by extensive planes modeled on sedimentary rocks such as conglomerates, sandstones, calciferous and fossiliferous phyllites, bituminous shale and localized occurrences of granodiorites and alluvial sediments.

The origin of this unit follows ancient depositions that occurred in abaciated areas present on the crystalline, from a system of folds and faults in the geological complex known as the Borborema Province. The Araripe sedimentary basin (which also includes the Chapada do Araripe), formed in the Phanerozoic, is associated with events prior to, concomitant with and after the continental rift responsible for the opening of the Atlantic.

The occurrence of numerous springs in this system has given rise to one of the most typical foothill wetlands in northeastern Brazil. The Cariri region has very favorable environmental conditions from a water and soil point of view, which favors intense agricultural development and a large population concentration.

### **Retouched Pediplano from Iguatu**

During the Cretaceous, extensive sedimentation over the continent took place in two stages. In the first phase, the deposition of clastic sediments present in almost all the basins of this period persists. The presence of these coarse sediments, hundreds of meters thick in some cases, indicates the existence of a semi-arid climate and that they were transported over short distances.

In a second phase, sedimentation becomes marine, transgressive, indicating a lowering of the continental level as a continuation of tectonic reactivations and possibly a rise in sea level.

It comprises two depressed regions within the Sertaneja Depression: around Iguatu (CE) and along the stretch where the Jaguaribe river runs parallel to the São Vicente mountain range. It presents itself as a depression in relation to the Patamar Sertanejo, confusing itself altimetrically with the Depressão Sertaneja, and in some places at a lower level than it. Its altitudes vary between 180 and 280 meters.

The terrain is flat for almost the entire area, with staggered pedimented ramps at the contacts with other units. Some sectors are slightly dissected, with elongated shapes and higher levels than the surrounding area, with shallow incipient drainage.

### **Mountains of Martins-Portalegre and João do Vale**

This unit lies entirely within the Northern Sertaneja Depression. With altitudes ranging from 700 to 730 meters. These mountains occupy a small area in the state of Paraíba (0.05%).

According to the first detailed study of mountain ranges capped by consolidated sediments, carried out by Moraes (1924), these relief compartments formed an extensive plateau that encompassed the entire Borborema Plateau.

This unit is made up of cliff tops like those found in the Serra de Santana and Cuité units, but which are already separated from the Borborema Plateau as a result of widespread erosion. The Serra do Martins-Portalegre is a mountain range to the east of Pau dos



Ferros-RN, arranged in a SE-NO direction, with a granite framework capped in parts by sedimentary rocks. It has a flat top maintained by the sedimentary capping, while in the sectors where the granite outcrops, there is a beginning of dissection. The slopes are dissected into ridges with deep V-shaped valleys.

The João do Vale mountain range, located to the northwest of the western mountains of the Borborema Plateau and to the west of the Piranhas/Açu river, stands out from its flat surroundings with a sediment-covered top, just like the Santana mountain range, although it is already separated from the Borborema region as a whole.

The hills that make up this unit are formed by dystrophic yellow latosols.

### **Santana and Cuité mountains**

According to the first detailed study of mountain ranges capped by consolidated sediments, carried out by Moraes (1924), these relief compartments formed an extensive plateau that covered the entire Borborema Plateau, stretching as far as the Serra dos Bastiões and encompassing the Chapada do Araripe.

This unit is made up of several sedimentary plateaus arranged over the Borborema Plateau. The most significant of these, the Serra de Santana, is elongated in an east-west direction, approximately 40km long and 700m high. It stands out lithologically for being capped by sedimentary rocks within the crystalline complex that makes up the Borborema Plateau. It has a perfectly flat top contoured by abrupt dissected escarpments. In the areas where the sedimentary capping has been removed, there are small collinear planes that are uneven in relation to the summit. The top forms a small cornice approximately 2m thick.

Another significant sedimentary layer can be found in the Serra do Cuité, located in the interior of Borborema near the town of the same name, between the states of Paraíba and Rio Grande do Norte. The altitude difference in relation to the surrounding area is not significant, reaching 40 to 60 meters both north and south of the mountain. Further south, between the municipalities of Cuité and Barra de Santa Rosa-PB, is the Serra do Bom Bocadinho, with similar characteristics to the Serra do Cuité.

### **Eastern Tablelands of the Northeast**

First recognized by Birot (1958) as the Barreiras Accumulation Surface, formed by flexure. The surface of the Barreiras Group deposits was leveled by Cenozoic pediplanation, under aggressive climatic conditions, in two contrasting seasons.

Consisting of tabular shapes, this unit occupies the area marked by the presence of sediments from the Barreiras Group, bordered to the east by the eastern coast of the Northeast and to the west by the eastern piedmont of Borborema, which has erosive escarpments whose altimetric gradient increases from north to south. The altitude varies from 30 to 130 meters.

The unit's parallel drainage is markedly influenced by regional tectonics, which can be seen in the lower reaches of the longest rivers, such as the Paraíba. These rivers interrupt the continuity of the tablelands, which are higher flat areas interspersed with valleys where Quaternary sediments accumulate, with valleys deepening to around 90m.

**Photo 4 - Marcação municipality, landscape of the Tabuleiros Orientais do Nordeste unit.**



Source: Consulting, 2024.

**Photo 5 - Pitimbu municipality, landscape of the Tabuleiros Orientais do Nordeste unit.**



Source: Consulting, 2024.

## **Domain of the Neoproterozoic Mobile Belts.**

They comprise extensive areas represented by plateaus, mountain alignments and interplanaltic depressions made up of folded and faulted terrain, including mainly metamorphites and associated granitoids.

### **Southern Sertaneja Depression**

The unit is almost entirely contained in sheet SC.24, with a small stretch in the far north penetrating sheet SB.24, both of which cover areas of the state of Paraíba. The leveled surface, truncating different rock types, denotes the action of polycyclic pediplanation processes during the Plio-Pleistocene, under aggressive climatic conditions. The subsequent organization of the drainage network led to erosive reworking of the pediplain, with the creation of humps. Sectors of convex shapes along the streams are evidence of sub-date phases of erosion.

In the Southern Sertaneja Depression, preserved (Pgi) and retouched (Pri) plateaus predominate, with formations that indicate successive relocation of the material. These forms are ramped and weakly dissected with hump features with a slope of less than 5°. In other sectors, considered to be denuded retouched flatland (Pru), the erosion processes at work make the little altered rock appear on the surface, locally under the slabs.

Scattered throughout the unit are residual reliefs in the form of ridges and bars with a preferential N-S and NE-SO orientation, in line with the structural alignments. Around some streams there are areas of homogeneous dissection with different drainage densities and shallow depths, indicating a resumption of sub-date erosion. This resumption of erosion is also evidenced by the occurrence of narrow terraces with gradients of 2 to 3 m. In general, the valleys have flat bottoms and sandy, locally stony beds, limited by altered and gullied shoulders.

The branched planes to the northwest and northeast of the unit show alterations 1.50 to 2.00 m thick, with a variation in color from orange to red and textures related to the nature of the rocks. In the foothills of the Peripheral Patamares to Ibiapaba - Araripe, the Northern Massifs of the Borborema Plateau and the Chapadas do Tonã and Serra Talhada, these alterations, coming from different paleoclimatic conditions to those of today, give rise to Latosols, Argissols and Luvisols.

### **Eastern slopes of the Borborema Plateau**

The pumping of the Borborema massif towards the Atlantic Ocean led to erosive processes dissecting the eastern slopes to the east. The lithostructural aspects controlled these erosive processes, resulting in models strongly controlled by the structure.

The unit occupies 14.34% of the territory of Paraíba and comprises the eastern facade of the Borborema Plateau. It is an intensely dissected area with tops decreasing in altitude towards the coast. Morphologically, it is characterized by the predominance of convex and sharp forms of structural dissection, evidenced by the deepening orientation of the valleys, usually in a "V" shape. This pattern shows drainage depths varying from low to high and slopes with gradients varying from 5° to 25°.

In the middle of these reliefs, homogeneous dissection patterns were also mapped, with drainage densities varying from fine to medium and low to medium depths, found in the central and southern parts of the unit, where the processes of relief sculpture partially mask the structural features, producing more dissected compartments and consequently less spaced interfluves.

The interfluves, represented by ridge lines and symmetrical and asymmetrical *hogback ridges*, reflect the structural constraints and are aligned according to the directions of the faults. The relationship between these factors and drainage also explains cases of overlapping rivers opening gorges on the ridges. The preferential orientation of the valleys, combined with high rainfall, has favored the installation of an intricate and complex drainage network ranging from dendritic to parallel and lattice.

To the south of Campina Grande, extending as far as the Capibaribe valley in the state of Pernambuco, the altitudes are around 400m, reaching heights close to 800m, with the surface sloping gently to the east. The area is very dissected in the form of hills interspersed with valleys. In some places, particularly in stretches bordering the Capibaribe River, the hills are bare with steep slopes and rock outcrops.

Immediately south of Campina Grande-PB is the Serra das Queimadas-Bodopitá. This is a higher portion of the mountain, which would have formed the Borborema dome when it rose, corresponding to a granite stock stripped bare by differential erosion.

**Photo 6 - Arara municipality, landscape of the Eastern Slopes of the Borborema Plateau unit.**



Source: Consulting, 2024.

**Photo 7 - Remígio municipality, landscape of the Eastern Slopes of the Borborema Plateau unit.**



Source: Consulting, 2024.

### **Serra do Pereiro**

The Sertanejo Residual Massifs are made up of ancient lithologies, formed before the Brasiliano Cycle, which were uplifted as a result of geanticlinal processes and have resisted successive pediplanations and wear and tear due to mechanical erosion (in arid and semi-arid climates) and chemical erosion (during humid climates). They stand out in the Sertanejo landscape for being elevated clusters in the midst of the current level of pediplanation represented by the Sertaneja Depression.

The unit is located in the central region of Paraíba near the municipality of Boa Vista and covers 0.48% of the state. It is a group of mountain ranges, carved out of parametamorphic rocks with quartzites, schists, phyllites and gneisses, intercalated with metamorphic limestones, fine to coarse granites, anatexites and diorites, whose variation is clearly reflected in the morphological features. It can be seen that in the central part, the granitic rocks are more resistant to erosion, preserving a relief that's less rocky. In the gneissic zones, there is dissection in the form of ridges and hills. Altitudes vary between 420 and 750 meters, with a lattice drainage pattern.

Escarpmets limit the entire mountain range, and the northern limit, where the Bastiões and Aimoré mountain ranges meet, has large alignments of asymmetrical *hogback* ridges. Between these two mountain ranges there are depressions carved into anticlinal zones. In the extreme south, the relief is also highlighted by extensive alignments of ridges arranged in semicircular shapes, flanking closed depressions. The steppe savannah vegetation (Caatinga) practically colonizes the entire slope where the soils are thin and sandy in texture, with the presence of boulders.

There are no significant differences between the morphogenesis of the eastern escarpment and that of the western escarpment, both of which have a semi-aridity similar

to that of the Sertaneja Depression. As you reach the top, the climate softens, giving rise to the appearance of forest, which has now been practically replaced by agriculture.

### **Ridge alignment of the Sertanejo plateau**

Ab'Saber (1969) characterized the Superfície Sertaneja as being formed by modern pediplanes, locating it around Borborema, the residual massifs and Araripe up to the foothills of Ibiapaba. He focused on the notching and remodeling undergone by the pediplains during the Quaternary. He stated that the Quaternary deposits of the semi-arid lowlands of the Northeast are testimony to the occurrence of renewed pedimentation during the Quaternary, which resulted in the lowering of the Sertaneja Surface.

The unit covers 7.71% of the state of Paraíba. It has a rectangular and dendritic drainage pattern. Altitudes vary between 250 and 680 meters. It is characterized by intense dissection of the relief, resulting in ridges and hills generally arranged in a preferential SO-NE and E-W direction. It is an area with a structural framework of lineaments that represent fault zones, where major faults are reflected in the relief through extensive alignments of ridges, generally parallel to each other, some semicircular, others rectilinear, interspersed with depressed collinear areas.

These reliefs are carved into zones of intense migmatization, predominantly gneiss-granite-migmatite rocks, and subordinately metasedimentary rocks and acid and intermediate dykes, with intercalations of metabasites, quartzites and metamorphic limestones. These ridges would fall into the category of "Dry Mountains", subject to the water deficiencies typical of a semi-arid climate, which condition the surface to be covered with Caatinga vegetation. In the vicinity of Carrapateira and Aguiar-PB, the alignments make up a remarkable mountain range called the Serra da Santa Catarina. The Piranhas/Açu river, whose headwaters are in the vicinity of the Serra do Braga, to the south, opens up a vast reservoir as it cuts through the Serra de Santa Catarina, then takes a northeasterly direction until it enters the Retouched Pediplano of the Rio do Peixe Valley.

### **Northern Sertaneja Depression**

Identified as a plain by the initial survey carried out by Crandall (1910), for Ab'Saber (1953) it would be the result of the process of marginal denudation in the interior of the Eastern Northeast, with a pronounced rebuilding of the Pre-Araripe Series crystalline floor, accompanied by a rejuvenation and partial lowering of the old levels.

Andrade (1958) considered this entire flattened area with altimetry between 50 and 280m to be a residual formed in the Pliocene, through the erosion of the edges of Borborema and the retreat of the escarpments.

Ab'Saber (1969) proposed calling this unit the Superfície Sertaneja, a proposition followed by Moreira and Gatto (1981). The coalescence between the Northern Sertaneja Depression and the Eastern Piedmont of Borborema, in Rio Grande do Norte, according to Feio (1954) was the result of the erosive phase after the last uplift of portions of the Borborema Plateau, generating deposits in the upper basins of the Piranhas or Açu, Apodi and Jaguaribe rivers.

The unit covers 12.96% of the state of Paraíba. Positioned between the highest compartments of the relief or extending from the steep bases of the plateaus, this large unit is characterized by having a dominantly flat topography (tabular interfluves) with

small sectors showing incipient dissection translated into hills and ridges. There are also remnants of preserved plateaus around the Baturité mountain range and in the upper reaches of the Piranhas/Açu river, near the Serra do Pereiro. This unit is made up of crystalline basement rocks such as migmatites, metasediments, granitoid cores, etc., by the prominent action of physical weathering processes and the removal of debris by diffuse and concentrated flow. The dendritic and parallel drainage pattern predominates.

There is a generalized covering of caatinga, with occasional changes in physiognomy and flora as a result of local changes in climate and soils. The effect of selective erosion can be seen in the residual reliefs (*inselbergs*) distributed in isolation or forming groups, such as the Sertanejos Residual Massifs. The *inselbergs* are defining elements of the landscape. The ridges, made up mainly of quartzite, are sometimes cut off by rivers, which leads to the formation of boqueirões, which are preferred spots for dams.

In this unit, semi-arid conditions tend to be more pronounced, as evidenced by the minimal thickness of the alterations and the widespread covering of the surface by stony material. The soils are generally not very thick, developed from the alteration of rocks from the crystalline basement. Litholic soils, Luvissoles, Planossolos and Argissolos Vermelho-Amarelos predominate, and there are also outcrops scattered throughout the area.

**Photo 8 - Santa Luzia municipality, landscape of the Northern Sertaneja Depression unit.**



Source: Consulting, 2024.

**Photo 9 - Pombal municipality, landscape of the Northern Sertaneja Depression unit.**



Source: Consulting, 2024.

### **Serra do Braga**

The Sertanejo Residual Massifs are made up of ancient lithologies, formed before the Brasiliano Cycle, which were uplifted as a result of geoanticlinal processes and have resisted successive pediplanations and wear and tear due to mechanical erosion (in arid and semi-arid climates) and chemical erosion (during humid climates). They stand out in the Sertanejo landscape for being elevated clusters in the middle of the current level of pediplanation represented by the Sertanejo Plateau.

The Serra do Braga is a high mountain range in the middle of the Patamar Sertanejo, with contact with the Cariri Depression to the west. The altitude varies from 380 to 740 meters, with a dendritic drainage pattern.

The unit covers an area of 2.98% of the state of Paraíba. It is made up of the mountain range found in the Paraíba municipalities of Monte Horebe, Bonito de Santa Fé, Serra Grande, São José de Caiana and part of the neighboring municipalities. It has dissected reliefs with sharp tops in the western portion and tabular dissections in the center of the mountain range.

In the residual massifs, litholic soils with a sandy texture generally occur. In areas where there are better soil conditions (due to humidity), eutrophic Red-Yellow Podzolic soils develop, with low clay activity and a medium/clayey texture.

### **Central Pediplano of the Borborema Plateau**

Ancient (pre-Neogene) pediplanation can be detected on the tops of residual reliefs (Pgi). Subsequent stages of Cenozoic pediplanation developed the broader surface of the unit, truncating rocks and structures. This pediplano corresponds to an intermediate level of Borborema, related to the Cariris Velhos Surface or Soledade Surface (Andrade, 1958 and 1968).



Subcurrent processes of relief sculpture, led by fluvial dynamics, mask the structural features that are occasionally reflected in straightened stretches of drainage. The Borborema Plateau is a slightly dome-shaped edifice, the result of a pre-Cretaceous flexure, surrounded by peripheral depressions (Ab'Saber, 1953).

The unit occupies a significant area of 26.30% of Paraíba's territory. It is characterized by a set of high reliefs, slightly inclined to the east, with average altitudes of 500 to 600 m, with stretches reaching over 800 m represented by residual mountain blocks. Although flattened forms (Pri, Pru) predominate in the area, there are also structural and homogeneous dissection patterns with low to medium drainage density and shallow to medium depths. The structural dissection patterns indicate strong structural control and have been identified in the residual reliefs and on the western boundary of the unit, marked by a fault scarp festooned with deep valley notches adapted to transverse faulting. The homogeneous dissection patterns are characterized by convex top forms with medium drainage density and weak notches.

Although the Central Pediplano is not the highest sector of Borborema, it is an important hydrographic disperser, with drainage patterns that vary from radial to dendritic, with structural control. Among the most important rivers is the Ipojuca, which runs along the so-called Pernambuco Lineament in the northern part of the unit.

The region drained by the Pajeú river is significant, from the southwest of São José do Egito to Triunfo-PB. It is an interplanal depression marked by major faults, embedded in the high reliefs of the western edge and in the elevations that mark the Paraíba and Pajeú interfluve, with converging pediments in the form of ramps. It has an altitude of around 540m, which gradually decreases towards the southwest. It is dominated by flat terrain made up of tabular interfluves.

Mechanical weathering processes are responsible for breaking down the rocks, resulting in a predominance of lithic neosols, which vary to planosols in flat areas and around drainage channels. Rock outcrops are a frequent presence. In the higher areas, subject to wetter climatic conditions, the dominant chemical weathering results in thicker surface formations and deeper soils.

**Photo 10 - Cubati municipality, landscape of the Central Pediplano unit of the Borborema Plateau.**



*Source: Consulting, 2024.*

**Photo 11 - Municipality of Cabaceiras, landscape of the Central Pediplano unit of the Borborema Plateau.**



*Source: Consulting, 2024.*

**Photo 12 - Camalaú municipality, landscape of the Central Pediplano unit of the Borborema Plateau.**



Source: Consulting, 2024.

**Photo 13 - Sumé municipality, landscape of the Central Pediplano unit of the Borborema Plateau.**



Source: Consulting, 2024.

**Western Sierras of the Borborema Plateau**

Continuous steep slope to the west of the Borborema Plateau. According to Czajka (1958), the high-altitude stretch of the Serra do Teixeira corresponds to an arching zone

related to one of the periods of uplift of the Borborema dome. Demangeot (1959) considered the Serra do Teixeira to be one of the flattening surfaces of eastern Brazil, and therefore of the upper Cretaceous to Paleogene period (prior to the uplift of Borborema).

Its irregular and tortuous layout has close connections with tectonic events and, above all, with morphogenetic evolution associated with the processes of pedimentation that justify the expansion of the sertanejo depressions in the Cenozoic.

This unit occupies an area corresponding to 8.05% of the state of Paraíba, with altitudes ranging from 350 to 1030 meters, with a parallel and dendritic drainage pattern. It is made up of a steep slope to the west of the Borborema Plateau with a concave-convex semicircular configuration, extending from the Serra de Santana in a south-westerly direction to the city of Triunfo-PE. It is characterized by forms carved out of granitic rocks and ridges carved out of phyllites, biotite schist and quartzites. Mechanical morphogenesis dominates. The steppe savannah (Caatinga) occupies even the highest parts. This slope is the source of most of the right bank tributaries of the Piranhas/Açu river, which flow towards the Northern Sertaneja Depression in a dendritic pattern.

The northern boundary of the unit is made up of the mountains to the west of the Serra de Santana, which are isolated from the Borborema Plateau as a whole. The Serra da Garganta stands out, next to the Serra de Santana, whose depressed central part forms an intensely dissected hill plateau, like bad lands, flanked by bare ridges.

The alignment of ridges that began in Parelhas-RN, with a general north-south direction, ends in the town of Quixabá-PB to the east of Patos-PB, where it already has a general east-west direction following the fault zone related to the Patos Lineament. These ridges are sometimes sectioned off by rivers that open boqueirões. These ridges have concordant tops and ravine slopes. This whole complex is separated from the Serra da Borborema by the widened valley of the Farinha river, which is a fault valley in the form of a pedimented ramp that narrows towards the plateau.

### **Eastern Piedmont of the Borborema Plateau**

Remnants of flat tops appear as residuals, indicating that pediplanation processes were at work in the Cenozoic. The erosion surface was almost entirely de-characterized by erosion processes triggered by subsequent climatic humidification, giving rise to highly dissected reliefs covered with thick alterites. The morphogenetic conditions characterized by chemical actions and the intensity of fluvial dissection have masked the geological structures, which are revealed sporadically in straight stretches and abrupt inflections of the drainage.

The unit extends over the eastern part of the state of Paraíba, occupying an area of 7.80% of the state, with altitudes varying between 70 and 250 meters, and a parallel drainage pattern. In the southeast, it is characterized by intense dissection, with a predominance of convex top features, with slopes between 5° and 15°, and occasional sharp top features, with slopes of between 15° and 25°. This pattern mainly includes forms of homogeneous dissection with drainage densities varying from fine to coarse and notches in the 20 to 25 m range. At the contact with the Eastern Slopes of the Borborema Plateau, the modeling shows flat tops limited by valleys with depths of around 30 m, with slopes with steeper gradients cultivated with sugar cane.

Spread out behind the Tabuleiros Costeiros to the foot of the eastern slope of the Borborema Plateau, this unit is made up of a dissected area with small tabular interfluves. Its pre-littoral position, together with the large orographic barrier represented by the eastern escarpment of the Borborema Plateau, means that it receives regular and intense rainfall. Chemical morphogenesis prevails over mechanical processes, a fact that sets this sector apart from the others that make up the Depression.

The portion of this unit in Pernambuco and Paraíba is dissected into convex and tabular forms known locally as *chãs*. Generalized processes of reptation and colluviation predominate on the slopes of these areas. The valleys are flat-bottomed and clogged with sandy material.

Positioned along the ocean coast, the unit is subject to the influence of the southeast trade winds and therefore has a very humid climate. The climatic conditions interfere with the nature of the surface formations, constituting thick mantles of weathering, which has enabled the development of deep soils such as Argissolos and Latossolos.

The unit has a prominent position in the regional economy as it concentrates development poles based on the sugarcane agro-industry.

### **Patos Depression**

The Patos Depression is a lower unit in relation to its surroundings, but higher than the Northern Sertaneja Depression. The unit covers 7.13% of the state of Paraíba, with altitudes varying between 270 and 360 meters and a dendritic drainage pattern. The area of Patos (PB) is a semi-arid depression bordering one of the highest sectors of the Borborema Plateau. In this depression, residual reliefs stand out with the most distinct geomorphological features; sometimes they are elongated in the form of quartzite ridges arranged in a SO-NE direction, others have convex tops carved out of granites and gneisses. These elevations have steep, bare slopes and at the base there is a constant presence of blocky chaos.

Patos (PB) has a remarkable field of *inselbergs*. According to Fenelon (1958), the shape of the *inselbergs* correlates with their lithology. According to this author, "granulites are pyramids; gneisses are half spheres, sugar loaves or the backs of pachyderms; quartzites are monoclinical hills with serrated crests".

**Photo 14 - Passagem municipality, landscape of the Patos Depression unit - in the background with *inselbergs*.**



*Source: Consulting, 2024.*

Recognized by various authors as a low pediplain area (around 250m above sea level), it is called a closed basin, to the south of the Serra do Teixeira escarpment, where there are two types of relief: the pediplain at the beginning of dissection (created at the end of the Pliocene) and residuals of different lithology, which were carved during the Pleistocene.

**Photo 15 - Quixabá municipality, landscape of the Patos Depression unit.**



*Source: Consulting, 2024.*

### **Araripe-Borborema Hinterland Plateau**

Ab'Saber (1969) characterized this unit as part of the Sertaneja Surface, as being formed by modern pediplains, focusing on the notching and remodelling that the pediplains underwent during the Quaternary. He stated that the Quaternary deposits of the semi-arid lowlands of the Northeast are testimony to the occurrence of renewed pedimentation during the Quaternary, which resulted in the lowering of the Sertaneja Surface.

The unit has a dendritic drainage pattern, with altitudes varying between 400 and 700 meters, occupying an area of 1.97% of the state of Paraíba. It is located from the south of the Chapada do Araripe to the foothills of Borborema, near Serra Talhada (PE), from an approximate level of 500m which gradually decreases to the south. The morphology is largely subject to a principle of dissection as the drainage density increases. The current morphogenesis of this stretch is also driven by semi-arid conditions, except at the foot of the Chapada do Araripe, where the processes of chemical morphogenesis are of some significance.

It has Eutrophic Litholic and Red-Yellow Podzolic soils. The colluvial cover is made up of dystrophic Red-Yellow Latosols with a medium/clayey texture.

#### **4.1.7 Pedology**

The pedological map presented below is based on the mapping prepared from the databases published by the IBGE in 2017. It is a set of vector and alphanumeric information, georeferenced and stored in the Environmental Information Database (BDIA), surveyed and published on a scale of 1:250,000. The descriptions of the soil units below are mainly from Embrapa - Brazilian Soil Classification System SiBCS<sup>20</sup>, (consultation in 2024) and are presented below.

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<sup>20</sup> <https://www.embrapa.br/agencia-de-informacao-tecnologica/tematicas/solos-tropicais> (Silva, MSL; Neto, MBO; Santos, HG)



## Map 6 - Pedology of the State of Paraíba



## Argisols

These are mineral soils mainly related to Barreiras Group sediments, non-hydromorphic, with an A or E horizon (horizon with loss of clay, iron or organic matter, light in color) followed by a textural B horizon, with a clear difference between the horizons. They have a reddish to yellowish B horizon and iron oxide contents of less than 15%. They can be eutrophic, dystrophic or alkalic. They have varying depths and a wide range of textural classes.

Argisols with higher natural fertility (eutrophic), good physical conditions and more gentle terrain have greater potential for agricultural use. Their limitations are more related to their low fertility, acidity, high aluminum content and susceptibility to erosion processes, especially when they occur on busier terrain. Argissolos tend to be more susceptible to erosion due to the textural relationship present in these soils, which implies differences in the infiltration of surface and subsurface horizons. However, those with lighter textures or medium texture and a lower textural ratio are more porous, have good permeability and are therefore less susceptible to erosion.

Given the limitations of Argissolos, their use requires proper management with the adoption of correction, fertilization and conservation practices to control erosion.

In the area of this study, the Argissolos represent 16.55% of the surface area of the state of Paraíba.

### Photo 16 - Sector of the South Coast, municipality of Pitimbu with a landscape of Yellow Argissolo



Source: Consulting, 2024.

**Photo 17 - Sector of the South Coast, municipality of Pitimbu with a landscape of Yellow Argissolo**



Source: Consulting, 2024.

**Photo 18 - Municipality of Remígio, Red Argissolo landscape.**



Source: Consulting, 2024.

### **Cambisols**

These are non-hydromorphic mineral soils with a small degree of development, with an incipient B horizon (Bi) underlying any type of surface horizon (Embrapa, 2007). Depending on their stage of evolution, they have different characteristics in terms of

color, depth, texture, base saturation, etc., and it is very common to identify some characteristics inherited directly from the source material.

Cambisols are found in a wide range of environments and are usually associated with areas of very steep terrain (undulating to mountainous), although they can also occur in flat areas (lowlands) outside the influence of the water table.

The Cambissolos class includes shallow to deep soils. They are burnished or yellowish-bronze in color, even dark red. They can be strongly to imperfectly drained. They can have high to low base saturation and chemical activity of the clay fraction.

In flatter areas, Cambisols, especially those with higher natural fertility, low clay activity and greater depth, have potential for agricultural use. On the other hand, in environments with steeper slopes, the shallower Cambisols have strong limitations for agricultural use related to mechanization and high susceptibility to erosion processes.

Proper management of Cambisols involves correcting acidity and aluminum levels that are harmful to most plants, as well as fertilizing according to the crop's needs. Cambisols on hillsides, on the other hand, require conservation practices due to their greater susceptibility to erosion.

The Cambissolos found in the study area represent only 0.34% of the surface area of the state of Paraíba.

## **Spodosol**

This soil class is defined by the presence of a spodic B diagnostic horizon in sequence with an E horizon (albic or not) or an A horizon, according to criteria established by the SiBCS (Embrapa, 2006).

In the field, it can be identified by the color of the spodic horizon, which varies from grey, dark or black, to reddish or yellowish, and by the clear differentiation of horizons. They may have a cemented horizon such as fragipã, duripã or "ortstein" underlying the spodic horizon.

Chemically, they are poor soils, with low fertility due to low nutrient reserves, a pH reaction ranging from moderately to strongly acidic, low base saturation and high levels of extractable aluminum. The process of loss of aluminum compounds with or without iron occurs in the presence of acid humus and the consequent accumulation of these constituents at depth.

These soils are generally moderately to strongly acidic, usually with low base saturation (dystrophic), and there may be high levels of extractable aluminum. The texture is predominantly sandy, less commonly medium-textured and rarely clayey (tending towards medium or silty) in the spodic B horizon. They range from shallow to very deep. Drainage is very variable, with a close relationship between depth, degree of development, hardening or cementation of the diagnostic horizon (spodic B) and soil drainage.

They originate mainly from sandstone materials, under tropical and subtropical climate conditions, on flat, gently undulating or wavy terrain. They occur in places of high humidity, in areas of emergence, subsidence and depressions, under the most diverse types of vegetation.

The main limitations of this soil class are related to its sandy texture, the presence of an impediment horizon and low fertility. The presence of a fragipã, duripã or "ortstein" horizon can hinder root penetration and water infiltration.

They are not normally suitable for agriculture and are recommended for environmental conservation areas. However, in some areas the Spodosols can be used for grazing. There are also areas of Spodosols used for coconut cultivation.

The spodosols found in the study area make up only 0.33% of the surface area of the state of Paraíba.

### **Gleissols**

These are mineral, poorly evolved, hydromorphic soils that have a glei horizon in the first 50 cm from the surface, or at depths of 50 to 125 cm, as long as they are immediately below the A horizon. Soils in this class are saturated by water permanently or periodically, unless artificially drained. The saturated water remains stagnant internally or saturation occurs through lateral flow in the soil. In either case, the water in the soil can rise by capillary ascension, reaching the soil surface.

They are thus characterized by strong gleaning, due to the reducing humidity regime, virtually free of dissolved oxygen, due to water saturation throughout the year, or at least for a long period, associated with oxygen demand from biological activity.

They are defined by the SiBCS (Embrapa, 2006) as hydromorphic soils, made up of mineral material, which have a glei horizon, which can be a subsurface horizon (C, B or E) or a superficial A horizon. The surface horizon ranges in color from grey to black, is usually between 10 and 50 cm thick and contains medium to high levels of organic carbon.

The gleaning process implies the manifestation of greyish, bluish or greenish colors, due to the reduction and solubilization of iron, allowing the expression of the neutral colors of clay minerals, or even the precipitation of ferrous compounds.

They may have a sulphuric or calcium horizon, solodic or sodic properties, a salic character or plinthite in a quantity or position that is not diagnostic for classification in the plinthosol class.

These are soils formed by stratified or unstratified original materials, subject to constant or periodic excess water. They commonly develop in recent sediments near watercourses and in colluvial-alluvial materials subject to hydromorphic conditions (water-influenced environments). They can also form in areas of flat relief on river, lake or marine terraces, as well as in residual materials in depressed areas. They can also form in sloping areas under the influence of groundwater outcrops (emergents).

These are soils that occur under hydrophilous or hygrophilous herbaceous, shrub or tree vegetation. They have low natural fertility (dystrophic) and may also have problems with acidity (very low pH) and high levels of aluminum, sodium (saline) and sulfur (thiomorphic).

In terms of physical characteristics, they are poorly or very poorly drained soils under natural conditions.

Its proximity to rivers limits the agricultural use of this soil class, and it is also an area suitable for preserving riparian forests. However, areas outside environmental protection

have potential for agricultural use, provided they do not have high levels of aluminum, sodium and sulfur.

Proper management of Gleissolos requires taking care with drainage because of the risk of sulphur precipitation (formation of jarosite), correcting acidity and aluminum levels that are harmful to most plants, and fertilizing according to the crop's needs.

Restrictions on agricultural use are related to toxicity to most plants caused by high levels of aluminum, sodium and sulfur.

The Gleissolos found in the study area represent only 0.59% of the surface area of the state of Paraíba.

## **Latosols**

Intense weathering soils are popularly called old soils and are defined by the SiBCS (Embrapa, 2006) by the presence of a latosolic diagnostic horizon and general characteristics such as: clays with a predominance of iron, aluminium, silicon and titanium oxides, low activity clays (low CTC), strongly acidic and low base saturation.

They usually have low fertility, except when they originate from rocks that are richer in minerals essential to plants, and high acidity and aluminum content. They have good physical conditions for agricultural use, associated with good permeability as they are well-structured and very porous soils. However, due to the same physical aspects, they have low moisture retention, especially those with a coarser texture in drier climates.

Considering other morphological characteristics, these are very deep soils, with surface and subsurface horizons over 100 cm thick, with a natural sequence of horizons: A, B and C. There is little differentiation between subhorizons and the transitions between them are usually diffuse or gradual. In contrast to the darker colors of the A horizon, the colors of the B horizon are brighter, ranging from yellow or even grayish-bronze to dark grayish-red, in shades from 2.5 YR to 10 YR, depending on the nature, form and quantity of the mineral constituents - especially iron oxides and hydroxides - subjected to the type of water regime and drainage and even whether or not the hematite is inherited. The C horizon is usually less colorful, and its heterogeneous chromatic expression is quite variable, depending on its saprolitic or sedimentary nature (AESA, 2022).

They are the most common soils in Brazil, being more frequent in equatorial and tropical regions, although they can also occur in subtropical zones. They are distributed over broad and ancient erosion surfaces: tablelands, plateaus, plateaus, river terraces, and are usually associated with flat and gently undulating reliefs and, more rarely, with more rugged areas.

Due to their good physical conditions and gentle terrain, they have high potential for agricultural use. They are widely used for grain production: soybeans, corn and rice, among others. Their limitations are more related to the low fertility found in most latosols and low moisture retention when the textures are coarser and in drier climates.

The management of Latosols generally requires the adoption of acidity correction, fertilization and, in drier climates, irrigation according to the crop's requirements. Despite being considered more erosion-resistant soils, latosols require careful management. The strong, very small and granular structure means that clayey latosols behave similarly to sandy soils when bare. In addition, when intensively mechanized, the structure of clayey to very clayey latosols is destroyed, leading to a reduction in soil porosity and the

consequent formation of a compacted layer (20 to 30 cm), making it difficult for plants to take root and for rainwater to infiltrate.

It comprises mineral soils with a high degree of pedogenetic development, with solum thicknesses of more than 2 meters in the vast majority of cases, absence of easily weatherable primary or secondary minerals, cation exchange capacity of less than 17 cmolc/kg of clay without correction for carbon, with kaolinitic or oxidic clay mineralogy (Embrapa, 2007).

The latosols found in the study area represent only 0.65% of the surface area of the state of Paraíba.

### **Luvissolos**

These are shallow to shallow soils, with a textural B horizon (horizon resulting from the accumulation or absolute or relative concentration of clay due to illuviation and/or in situ formation processes) of bright colors and high clay activity, with a weak A horizon, light in color, not very thick, massive or with a weakly developed structure. They are moderately acidic to neutral, with high base saturation. They often have a stony coating on the surface (desert sidewalk) or in the soil mass and usually have a surface crust 5 to 10 mm thick, as well as high silt contents. They are highly susceptible to erosion due to the large textural difference between the A and B horizons (Jarbas *et al.*, 2021).

Drainage ranges from well to imperfectly drained. In the superficial part, stoniness may occur. On the subsurface, solodic or sodic character may or may not appear. The color of the Bt horizon can be reddish, yellowish and less often burnished or greyish. The structure is usually blocky, moderately or strongly developed, or prismatic, made up of angular and sub-angular blocks.

These soils occupy crystalline areas of the northeastern sertão, where desert sidewalk is often present on the soil surface or within the A horizon, and are mainly related to biotite-gneiss and biotite-shale containing a good amount of easily weathered primary minerals (nutritional reserves), which are a source of nutrient release from the soil, and are rich in exchangeable bases, especially potassium. Most of them occur in flat and gently undulating areas (Embrapa, 2006).

Despite the good terrain and natural fertility conditions, the limitations of these soils for agricultural use are primarily due to the lack of water in the regions where they occur and the frequent presence of pebbles and even clods that are scattered on the surface of the soil and in the surface layer, and the consistency ranging from very to extremely hard, which hinders the development of the root system of crops, and also due to the lack of water in the regions where they occur (Oliveira *et al.*, 1992).

The main use of these soils in the semi-arid region is associated with rainfed agriculture (maize and beans), fodder palm and extensive livestock farming, which means that animals are raised in large areas, without much care and are almost always fed on native, uncultivated pastures; as a result, productivity is low (Oliveira *et al.*, 1992).

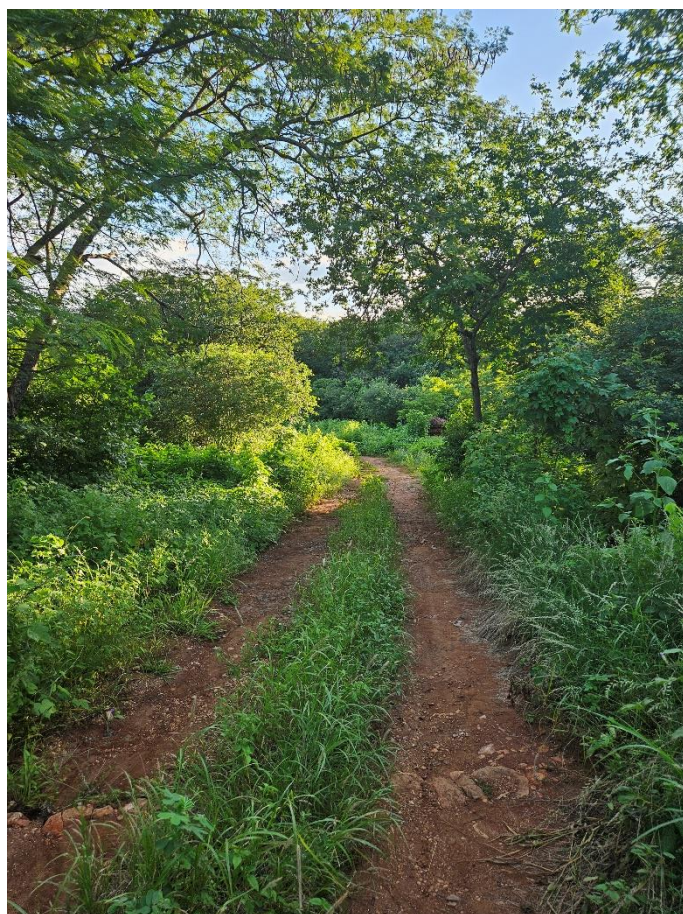
Luvissolos are found in abundance in the state of Paraíba, representing 35.57% of the state's surface according to mapping data from IBGE/BDIA.

**Photo 19 - Municipality of Cabaceiras, landscape where Luvissole Crômico occurs.**



*Source: Consulting, 2024.*

**Photo 20 - Sumé municipality, Luvissole Crômico landscape.**



*Source: Consulting, 2024.*

**Photo 21 - Pombal municipality, Luvissole Crômico landscape.**



Source: Consulting, 2024.

## Neosols

Soils made up of mineral material or thin organic material, with insufficient manifestation of the diagnostic attributes that characterize the various soil formation processes, either due to the greater resistance of the parent material or other formation factors (climate, relief or time) that can prevent or limit soil evolution. They show a predominance of characteristics inherited from the original material and are defined by the SiBCS (Embrapa, 2006) as poorly evolved soils with no diagnostic horizon.

Neosols can have high (eutrophic) or low (dystrophic) base saturation, acidity and high levels of aluminum and sodium. They range from shallow to deep soils with low to high permeability.

They cover a wide range of climatic environments, ranging from areas with very steep terrain (undulating to mountainous) to flat areas under the influence of the water table. As for the source material, it ranges from alluvial sediments to materials from the decomposition of crystalline rocks (Precambrian).

In flatter areas, neosols, especially those with higher natural fertility (eutrophic) and greater depth, have potential for agricultural use. Soils with low natural fertility (dystrophic) and more acidic are more dependent on the use of fertilizers and liming to correct acidity. Neosols with a sandy texture are restricted by low moisture retention.

The use of these soils should be restricted when they are close to watercourses, as they are areas for preserving riparian forests. On the other hand, in environments with steeper slopes, the shallower neosols have strong limitations for agricultural use related to restrictions on mechanization and strong susceptibility to erosion processes.

Proper management of neosols in flatter areas generally requires correction of acidity and harmful aluminum levels for most plants, and fertilization according to the crop's



needs. For hillside neosols, in addition to these, there is a need to use conservation practices due to their strong susceptibility to erosion processes.

Neosols occupy a significant area of the state of Paraíba with around 33.25%, of which the largest percentage is attributed to lithic neosols with 28.53% according to mapping data from IBGE/BDIA. These occur throughout the semi-arid region of the state, mainly in areas where rocky outcrops are found. They are poorly developed, shallow to very shallow, stony and rocky with a medium or sandy texture and an A horizon resting on rock or thick gravel, or on thin C horizons. They occur on both gently undulating and mountainous terrain. It is common to find coarse material both in the soil mass and on the surface, represented by pebbles and gravel (Cunha *et al.*, 2021).

**Photo 22 - Marcação municipality with a landscape of Quartzarenic Neosols.**



Source: Consultoria, (2024).

**Photo 23 - Municipality of Arara, Regolithic Neosol landscape.**



*Source: Consulting, 2024.*

**Photo 24 - Caraúbas municipality, Neossolo Litólico landscape.**



*Source: Consulting, 2024.*

**Photo 25 - Santa Luzia municipality, Neossolo Litólico landscape.**



Source: Consulting, 2024.

## Nitossols

These are mineral soils with a B horizon. The texture is clayey or very clayey (clay contents are equal to or even greater than 350g kg<sup>-1</sup> of TFSA) from the surface. They have a moderate or strong structure in the form of subangular or angular blocks or prismatic blocks. They also show cerosity and/or compressive surfaces on the faces of the aggregates and/or a retractable character. The textural gradient is equal to or less than 1.5. The class does not show a significant increase in clay content with depth, as is the case with the textural B horizon; however, the differentiation of horizons is much less marked than in the Argissolos. The transition from A to B is clear or gradual and in the sub-horizons of B gradual or diffuse. The soils are deep, well-drained and vary in color from red to burnished (Santos and Zaroni, 2021).

As far as chemistry is concerned, these are soils with a pH of moderately acidic to acidic, with low-activity clay or with an aliphatic character combined with high-activity clay and with a kaolinic-oxidic composition.

They can be found in a variety of climatic environments and are usually associated with areas of gently undulating to steeply undulating terrain.

Nitossolos can have high (eutrophic) or low (dystrophic) natural fertility, slightly high acidity and variable aluminum content. In flatter areas, Nitossolos, especially those with higher natural fertility and greater depth, have high potential for agricultural use. On the other hand, in more sloping environments, they have some limitations for agricultural use related to restrictions on mechanization and susceptibility to erosion.

Proper management of Nitossolos involves correcting the acidity of those with low pH and higher aluminum levels and fertilizing according to the crop's needs. As for Nitossolos in steeper areas, in addition to these, there is a need for conservation

practices due to their greater susceptibility to erosion processes (Santos and Zaroni, 2021).

According to the IBGE/BDIA survey, Nitossolos in the state of Paraíba account for 0.67% of the state's area.

### **Planosol**

Mineral soils that show vigorous desargilization (loss of clay) of the superficial part and intense accumulation or concentration of clay in the subsurface horizon, giving them the distinctive characteristics of a normally abrupt textural change or abrupt transition combined with a marked difference in texture from the A to the B horizon. This desiccation is responsible for the sandy texture of the surface horizons (A or E).

They are defined by the SiBCS (Embrapa, 2006) by the presence of a plannic B horizon, underlying any type of A horizon, and may or may not have an E horizon (albic or not). They may have a calcium horizon, carbonate character, duripppa, sodic or solodic properties, saline or salic character.

Normally thickened due to the accumulation of clay in the subsurface, they sometimes have a bread horizon (a horizon that hardens or cements when dry). They occur preferentially in areas of flat or gently undulating terrain, where the environmental conditions and the soil itself favor periodic annual excess water, even if it is short-lived, especially in regions subject to prolonged drought, and even under semi-arid climate conditions.

In the lowlands, floodplains and depressions under humid climate conditions, these soils are truly hydromorphic soils. However, in semi-arid zones, even in areas where the soil is subject to an excess of water for a short period, mainly under conditions of gentle undulating relief, they are not really hydromorphic soils.

The potential for agricultural use of these soils is related to the environment in which they occur, especially the flat and gently undulating terrain. The hydromorphic soils are used for irrigated rice.

The limitations or restrictions are related to slow or very slow permeability, usually densified due to the accumulation of clay on its surface. The presence of a hardened or cemented horizon is responsible for the formation of an overlying (suspended) water table, which is present periodically and varies throughout the year. This condition is responsible for restricting the percolation of water, regardless of the position of the water table, causing temporary water retention.

Also limiting their use are their sandy surface texture, which has implications for moisture retention and nutritional deficiency, and the presence of high sodium levels, which can affect the development of most crops. According to the limitations listed above, proper management of Planosols requires care with drainage, especially hydromorphic ones, correction of acidity and harmful aluminum levels for most plants.

The Planosols found in the study area represent 8.30% of the surface area of the state of Paraíba.

### **Vertisols**

Vertisols are soils with restricted development due to expansion and contraction, generally associated with the high activity of the clays, which gives the soil's constituent

material great capacity for movement. They are soils with a high cation exchange capacity (CEC), high base saturation (eutrophic) with high calcium and magnesium contents, with a neutral to alkaline reaction (pH) and, less frequently, in the moderately acidic range (Santos and Zaroni, 2021).

The expression of the phenomenon of expansion and contraction of the inorganic clay material that makes up the soil can be seen in the resulting features, such as pronounced changes in volume with increasing soil moisture content, deep cracks in the dry season and evidence of movement of the soil mass in the form of slickensides. They may show gilgai-type micro-reliefs, consisting of elevations and depressions in the terrain, and cuneiform-type structures that are inclined and form an angle with the horizontal. They are usually shallow to deep, although shallow soils also occur. They range from imperfectly to poorly drained.

These soils are normally developed in sedimentary basin environments or from sediments with a predominance of fine-textured materials with high calcium and magnesium contents, or directly from basic rocks rich in calcium and magnesium. They occur in a wide range of climates, from the wettest (with a defined dry season) to the driest, and are most prevalent in the sedimentary basins located in the semi-arid region of northeastern Brazil. As far as relief is concerned, these soils are distributed in flattened areas with little movement.

Its agricultural potential is due to its high fertility. Its main limitations are related to the use of machinery in the rainy season. At this time, these very clayey soils, when very wet, become "heavy", restricting the use of machinery. Low water infiltration and slow drainage encourage these soils to become waterlogged.

The management of these soils requires, in addition to fertilization according to the crop's needs, drainage in the case of use with plants susceptible to excess water and use with crops that are not very mechanized. In areas with a semi-arid climate, care must be taken with the quality of irrigation water, specifically the salt content, so as not to salinize the soil (Santos and Zaroni, 2021).

The Vertisols found in the study area represent 1.89% of the surface area of the state of Paraíba.

## Dunes

These are accumulations of homogeneous fine quartz sands at the back of the seafront resulting exclusively from the action of winds in removing beach sands, transporting them and depositing them.

These are very deep soils, with low natural fertility, excessively drained and which can present serious problems of wind erosion in the areas most exposed to the action of the winds. Their base saturation can vary from low to high.

They are considered a separate class, as they only have dystrophic profiles. This class includes not only fixed dunes, which have a very poorly developed A horizon, but also mobile dunes with no horizon development, which are considered to be a type of terrain (Jacomine *et al.*, 1972).

The vegetation cover, when it exists, is made up of typical dune formations, herbaceous or sub-shrubby, forming dense thickets (fixed dunes). Large areas, however, are completely devoid of vegetation (mobile dunes). It is also highly susceptible to wind

erosion; the A horizon has not yet been formed or is very poorly developed; and it has no agricultural use.

They occur in the Baixada Litorânea or, in some cases, capping the Low Coastal Plateaus closer to the coast. The relief is made up of a series of hills of varying size, arranged in chains according to the direction of the prevailing winds. In the parts devoid of vegetation (mobile dunes), there can be major shifts, with changes in physiognomy over a short period of time. The altitudes vary between 0 and 20 meters, with higher altitudes occurring in cases where they are capped by sediments from the Barreiras Group, intersecting at many points with the appearance of cliffs (Jacomine *et al.*, 1972).

These areas date back to the Holocene and the original material consists of unconsolidated sandy-quartz sediments, white or light grey in color, of marine origin.

In terms of morphological characteristics, these soils have a sequence of A and C horizons. The A horizon may be absent in some areas without vegetation, which are located closer to the sea or are subject to constant wind action.

This horizon is weakly developed and can reach a depth of 30 or 40 cm. It is made up of loose (quartz) sand, dark or very dark grey in color, due to the presence of organic matter. It has many white dots of washed sand and the color of the dry soil is usually grey. The texture is sand; simple grain structure; with many small and medium pores and, in terms of consistency, it is loose when dry and moist, non-plastic and non-sticky when wet; its transition to the C horizon is normally gradual and undulating (Jacomine *et al.*, 1972).

These soils have no agricultural use. They have strong or very strong limitations in almost every respect. The natural vegetation should be conserved, and attempts should be made to plant vegetation in the unprotected areas, in order to promote sediment fixation.

#### 4.1.8 Hydrography

The state of Paraíba (an area of 56,439.84 km<sup>2</sup>) is located in the Atlantic Hydrographic Region of Northeast Brazil, with approximately 90% of its territory in the Brazilian semi-arid region, which is prone to periodic droughts. As such, it is characterized by: (i) low rainfall rates (annual average of less than 500 mm); (ii) high spatial variability (for example, 300 mm in Cabaceiras, in the Cariri region of Paraíba, and more than 1,700 mm on the state's coast), inter-seasonal (concentration in four months of the year) and inter-annual rainfall; (iii) high evaporation rates (2,000 mm/year); (iv) intermittent rivers, which require the accumulation of water in reservoirs with regularization capacity.

Paraíba's Executive Water Management Agency (AESAs) is responsible for making the actions proposed by the state's CBHs feasible and operational as the executive secretariat. In addition, these bodies are linked to the State Secretariat for Infrastructure, Water Resources and the Environment (SEIRHMA) and the Paraíba State Water Resources Council (CERH-PB), in accordance with the Integrated Water Resources Planning and Management System, established by Law No. 6.308/1996.

In Paraíba there are three Basin Committees under state control: the Paraíba River Basin Committee (CBH-PB), the North Coast Basin Committee (CBH-LN) and the South Coast Basin Committee (CBH-LS); as well as one under federal control: the Piancó-Piranhas-Açu River Basin Committee (CBH-PPA).

The state is divided into eleven hydrographic basins - six state-owned (Paraíba, Abiaí, Gramame, Miriri, Mamanguape and Camaratuba rivers) and five federally-owned (Guaju, Piranhas, Curimataú, Jacu and Trairi rivers) - in this study, the subdivisions of some hydrographic basins were also considered: Piranhas River basins: sub-basins of the Peixe River, Piancó River, Espinharas River, Seridó River, Alto Piranhas River, Médio Piranhas River; and Paraíba River basins: Taperoá River sub-basin, Alto Paraíba River sub-basin, Médio Paraíba River sub-basin and Baixo Paraíba River sub-basin, as indicated on the following map.

The following information on the characteristics of the basins is based on the Paraíba State Water Resources Plan (AESAs, 2022), other information was consulted on the AESA website and the Basin Committees, which are duly cited in this report.



## Map 7 - Paraíba State Hydrographic Basins



### **Abiaí River Basin**

The Abiaí River basin is located in the extreme southeast of Paraíba, between 7°15'16" and 7°32'59" South Latitude and 34°47'37" and 35°03'60" West Longitude. The drainage area of the basin is 584.83 km<sup>2</sup>. The basin is bordered to the south and west by the state of Pernambuco, to the north by the Gramame River basin and to the east by the Atlantic Ocean. Five municipalities belong to this basin: Alhandra, Caaporã, Conde, Pedras de Fogo and Pitimbu.

Argisols dominate the surface of this watershed, making up at least  $\frac{3}{4}$  of the total. The rest of the area is occupied by Spodosols, Gleissols and Indiscriminate Mangrove Soils. There are occurrences of Quartzarenic Neosols by the sea.

The relief of the basin is completely flat. Subperennial rainforest dominates the area. In the background, the Cerrado and, later, the Campo de Várzeas.

The basin has a total of 15 watercourses, 4 of which are federally owned. The most important tributaries of the Abiaí basin are the Popocas, Camocim and Aterro rivers.

### **Camaratuba River Basin**

The Camaratuba River basin is located in the eastern region of the state of Paraíba, between latitudes 6°33'13" and 6°46'05" South and longitudes 34°57'48" and 35°27'54" West of Greenwich. It is bordered to the north by the Guaju and Curimataú basins, to the south by the Mamanguape basin, to the west by the Curimataú basin and to the east by the Atlantic Ocean. The basin drains an area measuring around 640.19 km<sup>2</sup>.

The area of this basin covers the municipalities of Araçagi, Baía da Traição, Curral de Cima, Duas Estradas, Jacaraú, Lagoa de Dentro, Mamanguape, Mataraca, Pedro Régis, Rio Tinto, Serra da Raiz and Sertãozinho.

The dominant soil in this basin is the Quartzarenic Neosol, with the Argisols coming in second, much less expressive.

The most representative relief is flat and only a small area has undulating relief.

Cerrado-type vegetation is completely dominant. There are, however, areas with deciduous and sub-deciduous forests.

In the Camaratuba River basin region, there are the Duas Estradas and Suspiro weirs, located in the municipalities of Duas Estradas and Serra da Raiz, respectively, both with a capacity of less than 1 hm<sup>3</sup>.

### **Curimataú River Basin**

The main river in the Curimataú basin is the Curimataú, which takes its name from the confluence of the Guandu and Urubu rivers. The basin is directed to the north and penetrates the state of Rio Grande do Norte. It is a federally controlled basin and is located almost entirely in the Curimataú Homogeneous Microregion, between coordinates 6°25'01" and 7°04'08" south latitude and 35°11'51" and 36°15'34" west longitude. Its area is approximately 3,350.85 km<sup>2</sup>.

There are 4 dams with a capacity of more than 1 hm<sup>3</sup> in this basin: Algodão, Curimataú, Jandaia and Poleiros dams. In addition, the following municipalities are located in its territory: Algodão de Jandaíra, Araruna, Areial, Bananeiras, Barra de Santa Rosa,

Belém, Cacimba de Dentro, Caiçara, Campo de Santana (Tacima), Casserengue, Cuité, Damião, Dona Inês, Esperança, Jacaraú, Lagoa de Dentro, Logradouro, Mamanguape, Olivedos, Pedro Régis, Pocinhos, Remígio, Riachão, Serra da Raiz, Solânea and Sossêgo.

It is a favorable basin for damming if the topographic conditions of the valleys are satisfactory.

Neosols dominate almost the entire basin area, with lithic soils being the most expressive, although regolithic soils also appear. Planosols are a close second. There are even less significant areas of Luvissoles and Argissolos. Latosols, Nitosols and Quartzarenic Neosols appear almost as occurrences. The wavy/smoothly undulating relief is dominant.

The hyperxerophytic caatinga is practically the entire type of vegetation in this watershed.

The watershed of this river has a compactness coefficient of 1.71 and a shape factor of 0.12. The drainage density is 1.15 km/km<sup>2</sup>. These factors indicate that the basin is not prone to flooding and that its drainage is in the reasonable to average range.

### **Gramame River Basin**

The main watercourse in the basin, the Gramame River, is 54.3 km long. It is located in the east/southeast region of the state. The Gramame River basin is located between latitudes 7°10'27" and 7°24'23" south and longitudes 34°48'12" and 35° 10'46" west, on the south coast of the state of Paraíba. It has an area of approximately 592.53 km<sup>2</sup>.

The basin is made up of the municipalities of Alhandra, Conde, Cruz do Espírito Santo, João Pessoa, Pedras de Fogo and Santa Rita, as well as a small section of the municipality of São Miguel do Taipu.

The basin is predominantly occupied by Argisols, more or less  $\frac{3}{4}$  of the area. Spodosols are in the background, followed by a small area of Gleissols. At the point where the water flows into the sea, there is an insignificant area of Indiscriminate Mangrove Soils. The relief of this basin is practically flat.

As far as vegetation is concerned, there is a certain balance between the cerrado type and the forest type. The latter can be subperenifolia and subcaducifolia.

In this basin, the values of the shape factor, equal to 0.2, and the compactness coefficient, equal to 1.43, indicate that the basin is slightly rounded, relatively compact and regular. Therefore, without considering the influence of other factors, we can conclude that the basin is not very prone to flooding.

Crossing the Gramame and Mamuaba Rivers is the Gramame-Mamuaba dam, with a capacity of almost 57 hm<sup>3</sup>.

### **Guaju River Basin**

The Guaju River basin, a federally-owned basin, lies at latitudes 6°29'04" and 6°35'30" south and longitudes 34°57'578" and 35°10'12" west of Greenwich.

The area of the basin in the state of Paraíba is approximately 152.62 km<sup>2</sup> and is located in the extreme northeast of Paraíba, covering part of the municipalities of Mamanguape

and Mataraca. The watercourses that cross the basin's territory are the Uriúna Creek, Catu River, Volta River, Coelho River and Guaju River.

It is basically occupied by Quartzarenic Neosols, with some Argisols and Spodosols. The relief is flat.

Cerrado-type vegetation occupies at least 65% of the basin's area, the rest being suberenifolia forest.

### **Jacu River Basin**

The Jacu river basin occupies the northern part of the state of Paraíba, although it continues into Rio Grande do Norte. A federal watershed, it is located almost entirely in the Curimataú Homogeneous Microregion, between the coordinates 6°26'10" and 6°50'33" south latitude and 35°49'15" and 36°17'53" west longitude. In the state of Paraíba, the Jacu River basin covers an area of approximately 967.43 km<sup>2</sup>, in which the municipalities of Araruna, Baraúna, Barra de Santa Rosa, Cacimba de Dentro, Cuité, Damião, Nova Floresta, Nova Palmeira, Pedra Lavrada, Picuí and Sossego are located.

The Rio Jacu changes its name when it crosses the border into the state of Paraíba, taking on the name Rio Japi. Its source is located at an altitude of 700 m, called Alto do Chapéu. Its main tributary in Paraíba, on the left bank, is the Rio Campo, with no tributary on the right bank. It also has a reservoir located in the municipality of Cuité, the Boqueirão do Cais reservoir, with a capacity of 12,367,300 m<sup>3</sup>, and the Santa Rita do Cais reservoir, in the municipality of Sossego, which can store 5,456,120m<sup>3</sup>.

The watershed of this river has a compactness coefficient of 1.62, a shape factor of 0.20 and a drainage density of 0.76 km/km<sup>2</sup>. These indices indicate that the basin is not prone to flooding and has reasonable to average drainage.

Hydrological studies show that the possibilities of dams with a certain volume of water storage are relatively weak.

The soils that occupy this basin are mainly the very expressive Luvisolos and Litholic Neosols and Regolithic Neosols, with less significant areas. Latosols do occur.

The predominant type of relief is undulating, followed at a distance by strongly undulating and, to a lesser extent, gently undulating. There are insignificant occurrences of flat terrain.

In terms of vegetation, hyperxerophilous caatinga dominates almost the entire area of the basin. In areas of no geographical significance, there is sub-caducifolia forest type vegetation.

### **Mamanguape River Basin**

The Mamanguape River basin, located in the extreme east of the state of Paraíba, lies between latitudes 6°36'49" and 7°11'08" South and longitudes 34°54'42" and 35°57'51" West of Greenwich. The municipalities in this basin are as follows: Alagoa, Grande, Alagoa Nova, Alagoinha, Algodão de Jandaíra, Araçagi, Arara, Areia, Areial, Baía da Traição, Bananeiras, Belém, Borborema, Capim, Casserengue, Cuité de Mamanguape, Cuitegi, Curral de Cima, Duas Estradas, Esperança, Guarabira, Gurinhém, Itapororoca, Juarez Távora, Lagoa Seca, Mamanguape, Marcação, Mari, Massaranduba, Matinhas, Montadas, Mulungu, Pilões, Pilõezinhos, Pirpirituba, Pocinhos, Puxinanã, Remígio, Rio

Tinto, São Sebastião da Lagoa de Roça, Serra da Raiz, Serra Redonda, Serraria, Sertãozinho and Solânea.

Its main river is the Mamanguape, an intermittent river that rises in the Agreste da Borborema micro-region and flows into the Atlantic Ocean in the municipality of Rio Tinto, draining an area of around 3,520.36 km<sup>2</sup>. It receives contributions from watercourses such as the Guandu, Araçagi and Saquaiba rivers.

The dominant soils in the basin area are Argissolos, followed by Neossolos, expressed according to their territorial dominance by Neossolos: Quartzarenic, Regolithic and Litholic. There is a representative area of Luvisolos and, to a lesser extent, areas of Nitossolos.

As far as relief is concerned, the wavy/strong wavy and gentle wavy forms dominate in the westernmost part of the basin. In the central part of the basin, wavy relief prevails. In the easternmost region, flat terrain is dominant. In short, the most expressive landforms in the basin are: undulating and strongly undulating. In second place is gently undulating.

As far as vegetation is concerned, the forest type dominates, sometimes sub-perennial, sometimes sub-caducifolous, and rarely deciduous. The hypoxerophilous caatinga appears in the background, as does the cerrado.

The Mamanguape River basin has 21 reservoirs in its territory, 14 of which have a capacity of over 1 hm<sup>3</sup>: Araçagi, Camará, Canafístula II, Lagoa do Matias, Pirpirituba, Pitombeira, Saulo Maia, Sindô Ribeiro, Tauá and Vaca Brava, etc. The Araçagi reservoir is the largest, with a maximum volume of around 63.3 hm<sup>3</sup>.

### **Miriri River Basin**

The Miriri river basin is located in eastern Paraíba and lies between latitudes 6°49'45" and 7°1'59" south and longitudes 34°51'13" and 35°18'54", west of Greenwich. It has a drainage area of 432.42 km<sup>2</sup>, which flows into the Atlantic Ocean in the municipality of Rio Tinto.

The basin covers all or part of the municipalities of Araçagi, Capim, Cuité de Mamanguape, Lucena, Mari, Rio Tinto, Santa Rita and Sapé.

This is a basin that is not conducive to significant water impoundments.

The basin is mainly occupied by Argissolos. The relief is flat and rarely gently undulating.

It has cerrado-type vegetation and subperenifolia forest, as well as a small area of subcaducifolia forest.

### **Paraíba River Basin**

The Paraíba River basin has an area of 20,116.42 km<sup>2</sup>, lying between latitudes 6°51'31" and 8°26'21" South and longitudes 34°48'35"; and 37°2'15"; West of Greenwich, and is the second largest in the state of Paraíba, as it covers 38% of its territory and is home to 1,828,178 inhabitants, corresponding to 52% of its total population. In addition to its high population density, the basin includes the cities of João Pessoa, the state capital, and Campina Grande, its second largest urban center (AESAs, c2024).

The Paraíba River Basin occupies areas in the mesoregions of Borborema, Agreste Paraibano and Litoral Paraibano, with a wide variety of climates and distinct physical (geomorphological) characteristics that divide the basin into four sub-basins. The sub-basin is made up of the Taperoá River and the Upper Paraíba River, Middle Paraíba

River and Lower Paraíba River regions, making it possible to carry out a more complete and detailed study of these areas.

Through the federal and state governments, several public reservoirs have been built in the Basin area, which are used to supply the population and livestock, irrigation, fishing and some regional leisure and tourism initiatives. These reservoirs are the main sources of water in the region and during droughts many of them collapse, causing conflicts over the use of water resources and serious social and economic problems, as is the case with the Epitácio Pessoa Dam in Boqueirão (AESAs, c2024).

### **Upper Paraíba sub-basin**

Located in the southwestern part of the Borborema Plateau, the Alto Paraíba sub-basin lies between latitudes 7°20'48" and 8°18'12" south and between longitudes 36°7'44" and 37°21'22", west of Greenwich. It has a catchment area of 6,712.36 km<sup>2</sup>, of which 10.30 km<sup>2</sup> are outside the state of Paraíba. The sub-basin covers all or part of the municipalities of Amparo, Barra de São Miguel, Boqueirão, Cabaceiras, Camalaú, Caraúbas, Congo, Coxixola, Monteiro, Ouro Velho, Prata, São Domingos do Cariri, São João do Cariri, São João do Tigre, São José dos Cordeiros, São Sebastião do Umbuzeiro, Serra Branca, Sumé and Zabelê.

The main watercourse in the basin is the Paraíba River, which receives contributions from the Monteiro, Sucurú and Taperoá Rivers. In addition, there are 17 dams in the region: Bichinho, Camalaú, Campos, Cordeiro, Epitácio Pessoa, Ouro Velho, Poções, Prata II, Santo Antônio, São Domingos, São José II, São Paulo, Serrote, Sumé etc, with the Epitácio Pessoa dam standing out, which can store up to 466 hm<sup>3</sup>.

The rainfall in the Upper Paraíba River region averages between 350 and 600 mm per year. The annual totals are concentrated in a four-month period, which generally corresponds to the months of February, March, April and May (CBH PB, 2004).

The predominant vegetation is hyperxerophilous Caatinga, deciduous and sub-deciduous forest. The areas that have been deforested and used for agriculture are generally planted with fodder palm, agave, cotton and corn and beans.

The relief of the region, which is part of the southwestern escarpment of the Borborema Plateau, is higher than 600 meters, with undulating and strongly undulating terrain, and some areas are also mountainous.

The predominant soils are of the Non-Calcareous Bruno type, which cover all the crystalline rock in the area covered by the Upper Paraíba River course.

The geology is made up of geological compartments classified as Proterozoic and Archezoic formations, including quartzites, gneisses and migmatites, as well as mica schists and lithology associated with the gneissic complex. There are also volcanic and plutonic rocks of various ages (CBH PB, 2004).

### **Middle Paraíba sub-basin**

The Médio Paraíba sub-basin is located to the south of the Borborema Plateau, in the state of Paraíba, between latitudes 7°3'50" and 7°49'13" South, and longitudes 35°30'15" and 36°16'38", west of Greenwich. It is bordered to the south by the state of Pernambuco, to the west by the Taperoá basin and the Alto Paraíba sub-basin, and to the east by the Baixo Paraíba sub-basin.

The Médio Paraíba basin covers an area of approximately 3,756.35 km<sup>2</sup>, of which 36.93 km<sup>2</sup> is outside the state. It has 19 municipalities in its territory that are totally or partially part of it: Alcantil, Aroeiras, Barra de Santana, Barra de São Miguel, Boa Vista, Boqueirão, Campina Grande, Caturité, Fagundes, Gado Bravo, Itatuba, Montadas, Natuba, Pocinhos, Puxinanã, Queimadas, Riacho de Santo Antônio, Santa Cecília and Umbuzeiro.

It receives contributions from watercourses such as the Ingá, São Pedro and Catolé rivers, as well as the Bodocongó stream. There are also 9 dams in the region, the most notable being the Acauã dam (Argemiro de Figueiredo), with 253 hm<sup>3</sup>.

Rainfall data shows that the region has an average annual rainfall of between 600 and 1,100 mm, with decreasing values from east to west.

The dominant natural vegetation is hyperxerophilous, hypoxerophilous Caatinga, deciduous and sub-deciduous forest. The deforested areas used for agriculture are generally occupied by fodder palm, agave, cotton and corn and beans (CBH PB, 2004).

The relief of the area, which is situated on part of the Borborema Plateau, has three transitional bands between the Sublittoral Depression and the Serra da Borborema region, in the municipality of Campina Grande with undulating, strongly undulating and mountainous sectors.

The region is home to soils of the following types: Bruno Não Cálcico with little thickness, Litólicos, Solonetz Solodizado, Regossolos and Cambissolos.

From a geological point of view, the lithology of the middle reaches of the Paraíba River is dominated by the crystalline complex and sedimentary soils, as well as occurrences of volcanic and plutonic rocks of various ages - granitic and volcanic (CBH PB, 2004).

### **Lower Paraíba sub-basin**

The Baixo Paraíba sub-basin is located in the coastal part of the state of Paraíba, between latitudes 6°55'13" and 7°30'20" south and longitudes 34°47'37" and 35°55'23", west of Greenwich. The municipalities included in this sub-basin are Alagoa Grande, Bayeux, Cabedelo, Caldas Brandão, Campina Grande, Cruz do Espírito Santo, Fagundes, Gurinhém, Ingá, Itabaiana, Itatuba, João Pessoa, Juarez Távora, Juripiranga, Lagoa Seca, Lucena, Mari, Massaranduba, Mogeiro, Mulungu, Natuba, Pedras de Fogo, Pilar, Puxinanã, Queimadas, Riachão do Bacamarte, Riachão do Poço, Salgado de São Félix, Santa Rita, São José dos Ramos, São Miguel de Taipu, Sapé, Serra Redonda and Sobrado.

The Lower Paraíba sub-basin covers an area of 3,970.64 km<sup>2</sup>, of which 15.04 km<sup>2</sup> is located outside the state. Its main river is the lower course of the Paraíba River, and its main tributary is the Paraibinha River. This region also has 8 reservoirs, all with a capacity of more than 1 hm<sup>3</sup>, with the São Salvador reservoir being the most notable, storing more than 12 hm<sup>3</sup>.

In the general context of the coastal region, rainfall data indicates that the average annual rainfall varies between 1,200 and 1,600 mm, with decreasing values inland. It can be seen that the greatest concentration of rainfall occurs in the areas closest to the ocean, in the coastal areas (CBH PB, 2004).

The natural vegetation that dominated the area consisted of the Atlantic Forest and associated ecosystems, i.e. mangroves, floodplain fields and mixed formations of

tabuleiros, cerrados and restingas. However, throughout the process of colonization and occupation of the land, almost all of the natural vegetation was indiscriminately removed and replaced by sugar cane, pineapple and manioc crops, among others of an intensive and extensive nature. Today, only a few small patches of Atlantic forest and its ecosystems remain.

The relief of the region is flat, with a predominance of tableland areas with shallow U-shaped valleys.

As far as soil characterization is concerned, the predominant types are: thin non-calcareous Bruno, Litholic, Solodized Solonetz, Regosols and Cambisols. Also noteworthy is the occurrence of Eutrophic Alluvial soils with a sandy texture, well-drained and with no stoniness.

From a geological point of view, the lithology shows a predominance of sedimentary soils, sands belonging to the barrier group, variegated sandstones and limestone, as well as mangroves and soils influenced by the tides (CBH PB, 2004).

### **Taperoá River sub-basin**

The Taperoá River sub-basin, a sub-basin of the Paraíba River basin, is located in the central part of the state of Paraíba, between latitudes 6°51'47" and 7°34'33" south, and between longitudes 36°0'10" and 37°14'0", west of Greenwich. The sub-basin includes, in whole or in part, 26 municipalities: Areia de Baraúnas, Assunção, Barra de Santa Rosa, Boa Vista, Cabaceiras, Cacimbas, Cubati, Desterro, Gurjão, Juazeirinho, Junco do Seridó, Livramento, Olivedos, Parari, Pocinhos, Salgadinho, Santo André, São João do Cariri, São José dos Cordeiros, São Vicente do Seridó, Serra Branca, Soledade, Sumé, Taperoá, Teixeira and Tenório.

Its main river is the intermittent Taperoá, which rises in the Serra de Teixeira and flows into the Paraíba River at the Boqueirão Dam (Açude Presidente Epitácio Pessoa).

Its watershed has an area of approximately 5,677.07 km<sup>2</sup> and receives contributions from watercourses such as the Soledade and Boa Vista rivers and the Carneiro stream.

The Taperoá River sub-basin has 16 dams built: Gurjão, Jeremias, Lagoa do Meio, Livramento (Russos), Mucutu, Namorado, Olivedos, Serra Branca I, Serra Branca II, Soledade, Taperoá II (Manoel Marcionilo) and others.

Rainfall data shows that the region has an average annual rainfall of between 350 and 600 mm. It can be seen that the greatest concentration of rainfall occurs in a period of approximately two to four months, corresponding to 65% of the total annual rainfall (CBH PB, 2004).

The dominant natural vegetation in the Taperoá River Sub-Basin area is hyperxerophilous and hypoxerophilous Caatinga, deciduous and sub-deciduous forest. The areas that have been deforested and used for agriculture are generally planted with fodder palm, agave, cotton and corn and beans.

The relief of the sub-basin is undulating, strongly undulating and mountainous. The topography's hypsometric variations take on altitudes that are considered relevant, with the highest points reaching 600 m on the eastern escarpments of the Borborema Plateau.

In the Sub-Basin region, there are soils of the following types: Bruno Não Cálculo, which is thin and covers all the crystalline rock in the basin area, Litholic, Solodized Solonetz, Regossolos and Cambissolos.

In geological terms, the area of the Taperoá River Sub-Basin is predominantly made up of formations from the Proterozoic and Archezoic, including quartzites, gneisses and migmatites, as well as mica schists and lithology associated with the gneissic complex. There are also granites originating from volcanic and plutonic rocks (CBH PB, 2004).

### **Piranhas River Basin**

The hydrographic basin of the Piranhas River is a federal domain, considering that it rises in the mesoregion of the Paraíba hinterland and also drains a large area of the state of Rio Grande do Norte, with a total area of 22,605.60 km<sup>2</sup>, 210 km<sup>2</sup> of which is located outside the state of Paraíba.

It is an intermittent river under natural conditions. Its perennial flow is ensured by two regularization reservoirs built by DNOCS: Coremas - Mãe d'Água, in Paraíba, with a capacity of 1.360 billion m<sup>3</sup> and a regularized flow of 9.5 m<sup>3</sup>/s, and the Armando Ribeiro Gonçalves dam, in Rio Grande do Norte, with 2.400 billion m<sup>3</sup> and a regularized flow of 17.8 m<sup>3</sup>/s, considered strategic for the socio-economic development of these states (CBH PPA, c2024).

The basin is entirely located in semi-arid territory, with average rainfall varying between 400 and 800 mm per year, concentrated between the months of February and May. The concentration of rainfall in a few months of the year, combined with the geomorphology of the region, characterized by shallow soils formed on a crystalline substrate, with low storage capacity, is responsible for the intermittent nature of the region's rivers. In addition, the rainfall pattern tends to show strong inter-annual variability, causing years of regular rainfall to alternate with years of severe water scarcity, leading to water droughts. On the other hand, evapotranspiration rates are quite high, reaching over 2000 mm/year, which causes a significant water deficit and is a key factor to be considered in the operation of the region's reservoirs (CBH PPA, c2024).

Its main river, the Piranhas River, is 405 km long and forms a hydrographic system made up of its upper and middle reaches, the basins of the Peixe and Piancó Rivers and part of the basins of the Espinharas and Seridó Rivers, these four being its main tributaries.

Due to its specific characteristics, the Piranhas River Basin was divided into six sub-basins: Upper and Middle reaches of the Piranhas River and sub-basins of the Peixe, Piancó, Espinharas and Seridó Rivers.

This basin is one of the most important in the semi-arid Northeast and, together with the Paraíba River basin, makes up 82% of the total surface area of the state of Paraíba.

### **Fish River sub-basin**

The Rio do Peixe sub-basin, which has a drainage area of 3,432.82 km<sup>2</sup>, is located in the extreme northwest of the state of Paraíba, between 6°20' and 7°03' south latitude and 37°57' and 38°46' west longitude. Its territory includes 21 municipalities, either totally or partially: Aparecida, Bernardino Batista, Bom Jesus, Cachoeira dos Índios, Cajazeiras, Joca Claudino, Lagoa, Lastro, Marizópolis, Poço Dantas, Poço de José de Moura, Pombal, Santa Cruz, Santa Helena, São Francisco, São João do Rio do Peixe, São José de Piranhas, Sousa, Triunfo, Uiraúna and Vieirópolis.



According to studies by the Paraíba State Master Plan (SCIENTEC, 1996), the Rio do Peixe basin has shape factor and compactness coefficient values that indicate that it is a slightly elongated, relatively compact and regular basin. Thus, it is interpreted that, without considering the influences of other factors, it would be subject to intense floods, but of short duration. In addition, it reports that the Rio do Peixe basin has a drainage density of 1.1 km/km<sup>2</sup>, which means drainage in the reasonable to medium range.

The Peixe River basin has 11 dams in its territory, 6 of which have a capacity of over 6 hm<sup>3</sup>. The most notable are the Lagoa do Arroz dam, which can store up to 80 hm<sup>3</sup>, and the Capivara dam with a storage capacity of 37.5 hm<sup>3</sup>

Its main watercourse is the Rio do Peixe, which is 106.1 km long and has its source in Serra do Padre, in the municipality of Uiraúna, until it flows into the left bank of the Piranhas River in the district of Aparecida, in the municipality of Sousa.

There are significant areas with surface water runoff that is favorable to damming, provided there are satisfactory culverts.

As for the soils that occupy it, there is an almost equal distribution among the most significant. They are: Argissolos, Vertissolos, Neossolos Litólicos and Luvisolos, the latter with a slightly larger area than the others. The predominant type of relief is gently undulating.

The vegetation is hyperxerophilous caatinga.

### **Espinharas River sub-basin**

The Espinharas River sub-basin, with an area of 2,883.37 km<sup>2</sup>, is located between parallels 6°41'18" and 7°21'51" south, and meridians 36°43'41" and 37°33'50", west of Greenwich. The towns within its territory are Areia de Baraúnas, Assunção, Cacimba de Areia, Cacimbas, Catingueira, Imaculada, Junco do Seridó, Mãe d'Água, Malta, Maturéia, Passagem, Patos, Paulista, Quixaba, Salgadinho, Santa Luzia, Santa Teresinha, São José de Espinharas, São José do Bonfim, São Mamede, Taperoá, Teixeira, Vista Serrana.

Its main river, the Rio Espinharas, is formed by the meeting of the Rios da Cruz and da Farinha, in the city of Patos. This river runs for 45 km until it meets the Piranhas River.

The Espinharas sub-basin has a compactness coefficient (KC) of 1.93 and a drainage density (Dd) of 1.16 km/km<sup>2</sup>.

This basin also has 14 dams, all of which have a maximum volume of more than 1 hm<sup>3</sup>. The most notable are the Capoeira dam, which can store up to 53.4 hm<sup>3</sup>, and the Farinha dam with 25.7 hm<sup>3</sup> of storage capacity.

Hydrological studies show that it is still possible to build dams if there are reservoirs.

This sub-basin is mainly occupied by Luvisolos (more than 60%) and, in second place, by Litholic Neosols, with insignificant occurrences of Regolithic Neosols and Cambissolos.

The dominant relief is of the gentle undulating type, with occurrences of the undulating form.

The hyperxerophilous caatinga vegetation predominates in practically the entire sub-basin area.

### **Piancó River sub-basin**

The Piancó River sub-basin is located in the southwest of the state of Paraíba, bordered to the north by the Middle and Upper reaches of the Piranhas River, to the south by the state of Pernambuco, to the east by the Espinharas River sub-basin and the state of Pernambuco, and to the west, with the state of Ceará and the region of the upper course of the Piranhas River, between parallels 6°43'52" and 7°50'28" south and meridians 37°26'56" and 38°42'56", west of Greenwich. The sub-basin covers an area of approximately 9,237.78 km<sup>2</sup>.

This sub-basin contains 37 municipalities, all or part of which fall within its territory: Água, Branca, Aguiar, Boa Ventura, Bonito de Santa Fé, Cajazeirinhas, Carrapateira, Catingueira, Conceição, Condado, Coremas, Curral Velho, Diamante, Emas, Ibiara, Igaracy, Imaculada, Itaporanga, Juru, Mãe d'Água, Manaíra, Nova Olinda, Olho d'Água, Pedra Branca, Piancó, Pombal, Princesa Isabel, Santa Inês, Santa Teresinha, Santana de Mangueira, Santana dos Garrotes, São Bentinho, São José da Lagoa Tapada, São José de Caiana, São José de Piranhas, São José de Princesa, Serra Grande and Tavares.

The main river in this sub-basin is the Piancó River, whose main tributaries are the Santana, Minador, Canoas, Maria and Verde streams.

Paraíba's largest reservoirs are located in the Piancó basin, the most important of which, due to their storage capacities, are the following: the Curema reservoir (744 hm<sup>3</sup>), the Mãe D'água reservoir (545 hm<sup>3</sup>) and the Saco reservoir (97 hm<sup>3</sup>).

The Piancó River basin has a shape factor of 0.21 and a compactness coefficient of 1.59, indicating that the basin is slightly rounded, relatively compact and regular, suggesting that it is not very prone to flooding. In addition to these parameters, the drainage density increases with the length of the drainage network and shows a value for the entire sub-basin of 1.52 km/km<sup>2</sup>, which suggests a drainage classification in the reasonable to medium range.

Soil runoff is favorable for the construction of water reservoirs.

The predominant soils in this sub-basin are stony, rocky Litholic Neosols (shallow soils), associated with representative areas of rock outcrops. Luvissoles and Argissolos are also present in less significant areas.

The dominant relief of the sub-basin is undulating to strongly undulating, with insignificant areas of gentle undulation.

The predominant vegetation is hyperxerophilous caatinga.

### **Upper Piranhas sub-basin**

The Alto Piranhas sub-basin, which covers an area of 2,566.57 km<sup>2</sup>, is located in the far west of the state of Paraíba, between 6°37'18" and 7°22'56" south latitude, and 37°48'11" and 38°41'14" longitude, west of Greenwich. It has 16 municipalities in its territory: Aparecida, Bonito de Santa Fé, Cajazeiras, Carrapateira, Coremas, Lagoa, Marizópolis, Monte Horebe, Nazarezinho, Pombal, São Domingos, São João do Rio do Peixe, São José da Lagoa Tapada, São José de Piranhas, Serra Grande and Sousa.

The main river in the Alto Piranhas sub-basin is the Piranhas River itself, which is 30 km long and has a gradient of 10.67 m/km. The river flows in a northeasterly direction

towards the state of Rio Grande do Norte, after encountering the stretch corresponding to the Middle Course of the Piranhas River. It receives contributions from watercourses that are not very dense and have intermittent regimes. On its right bank, the Cachoeira and Trapiá streams stand out. On the left bank, the Tamanduá stream flows. With regard to reservoirs, the Engenheiro Avidos reservoir stands out, storing up to 293.6 hm<sup>3</sup>.

Hydrological studies show that this sub-basin is also favorable for the construction of dams, as long as there are points available for damming.

The sub-basin is mainly occupied by Luvisolos and secondly by Argissolos. There are small occurrences of Vertisols and Litholic Neosols.

The predominant landform is gently undulating.

The type of vegetation that prevails in the area is caatinga, mainly hyperxerophilous.

### **Middle Piranhas sub-basin**

The Médio Piranhas sub-basin, which covers an area of 4,485.07 km<sup>2</sup>, is located in the northwest of the state of Paraíba, between the coordinates 6°1'38" and 7°0'90" south latitude and 37°09'25" and 38°01'44" longitude, west of Greenwich. The sub-basin has 22 municipalities in its territory, including Belém do Brejo do Cruz, Bom Sucesso, Brejo do Cruz, Brejo dos Santos, Cajazeirinhas, Catingueira, Catolé do Rocha, Condado, Jericó, Lagoa, Malta, Mato Grosso, Patos, Paulista, Pombal, Riacho dos Cavalos, Santa Cruz, São Bentinho, São Bento, São José de Espinharas, São José do Brejo do Cruz and Vista Serrana.

The Piranhas River, in its middle course, runs for 123 km and has a slope of 1.4 m/km, perennialized by the Curema-Mãe d'Água reservoir, and is the main tributary of the Piancó River. It receives contributions from other watercourses, which are not very dense and have intermittent regimes. Its main tributaries are the Caiçara, Baião, Escuro, Sabiá and Mato Grosso streams.

The basin has 9 built dams, the largest of which have a maximum volume: Baião, Engenheiro Arcoverde, Carneiro, Escondido, Riacho dos Cavalos, Santa Rosa and Tapera.

With regard to the drainage system, the Middle Piranhas sub-basin has a drainage density of 1.26 km/km<sup>2</sup>, indicating that it has drainage in the reasonable to medium range.

Hydrological studies indicate that this sub-basin is favorable for the construction of reservoirs.

The dominant soils are Luvisolos, followed by Argissolos. There are insignificant occurrences of Litholic Neosols. The dominant relief is gently undulating.

The predominant vegetation is hyperxerophilous caatinga.

### **Seridó River sub-basin**

The eastern sector of the Seridó sub-basin has a total area of 3,448.49 km<sup>2</sup>, with 1,474.56 km<sup>2</sup> belonging to the Western Seridó region and 1,973.93 km<sup>2</sup> to the Eastern Seridó. The sub-basin is located between the coordinates 6°16'57" and 6°59'33" south latitude, and 36°13'12" and 36°36'21" longitude, west of Greenwich. The western sector

of the sub-basin is located between latitude 6°42'63" and 7°03'56" south and longitude 36°43'48" and 37°15'16" west of Greenwich.

The Western Seridó sub-basin has 8 municipalities totally or partially within its territory, namely Areia de Baraúnas, Junco do Seridó, Quixaba, Santa Luzia, São José de Espinharas, São José do Sabugi, São Mamede and Várzea. The Eastern Seridó sub-basin has 11 municipalities: Baraúna, Cubati, Frei Martinho, Juazeirinho, Nova Palmeira, Olivedos, Pedra Lavrada, Picuí, São Vicente Do Seridó, Sossego and Tenório.

The main river in this sub-basin is the Seridó River, which rises to the west of the Borborema Plateau, in the vicinity of the Serra do Caldeiro, in Paraíba territory. Its main tributaries are the Picuí River and the Quinturaré and Vazantes streams in the Eastern Seridó region, the Sabuji River, as well as the Papagaio, Chafariz and Santa Maria streams in the Western Seridó region. A highlight is the Várzea Grande reservoir with a capacity of 21.5 hm<sup>3</sup>.

In terms of morphometric parameters, the hydrographic basins of these rivers have compactness coefficients equal to 1.62 (East) and 1.71 (West). With regard to the drainage system, the Seridó River sub-basin has drainage densities equal to 0.76 km/km<sup>2</sup> and 1.15 km/km<sup>2</sup>, for the east and west, respectively, meaning that both basins have drainage in the reasonable to average range.

Surface water runoff in soils is favorable to the construction of water reservoirs if there are satisfactory topographical conditions.

The dominant soils are lithic neosols, followed by luvisols. These soils occupy approximately 70 to 80% of the sub-basin.

The dominant reliefs are gently undulating and steeply undulating.

The vegetation in the area is hyperxerophilous caatinga.

### **Trairi River Basin**

The Trairi River basin is a federal watershed, with part of its area located in the state of Rio Grande do Norte. It lies between latitude 6°24'19" and 6°30'09" south and longitude 36°02'47" and 36°14'29" west, covering an area of 109.79 km<sup>2</sup>.

The Trairi River basin is almost entirely located in the state of Rio Grande do Norte. It lies in the mesoregion of Agreste Paraíba and the microregion of Curimataú Ocidental. The municipalities of Cuité, Nova Floresta and Picuí are part of the basin.

In the state of Paraíba, it is occupied by Latossolos, Luvisolos and Neossolos Litólicos.

It has flat, undulating and steeply undulating landforms, the most significant of which is flat.

As far as vegetation is concerned, there is a level playing field between the subcaducifolia forest and the sum of the areas of hypo- and hyperxerophilous caatinga.

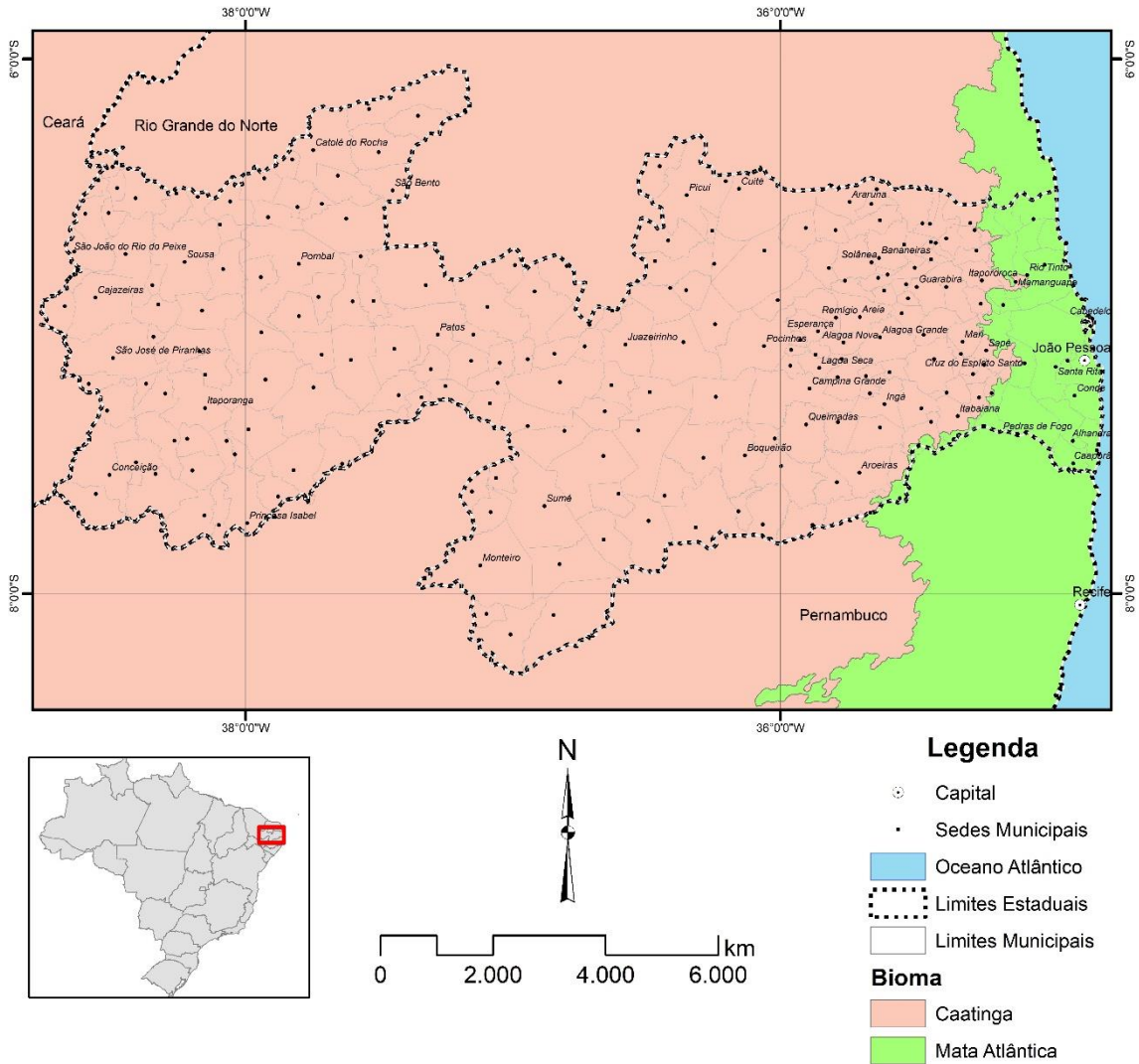
## **4.2 Biotic Environment**

Diagnostic information on the biotic environment of the Procace II area is presented below. The data catalogued comes from studies, mapping and statistical bases from available official sources.

### 4.2.1 Natural Habitats

As can be seen in the figure below, Paraíba has two biomes: the Atlantic Forest and the Caatinga, with the Caatinga biome predominating in the state, with the Atlantic Forest predominating only in the areas most influenced by the coastal strip.

#### 44 - Biomes - Proc case II



Source: MMA, 2024, Consultation

### Atlantic Forest

The Atlantic Rainforest formed a continuum of rainforests that stretched along the Atlantic coast in a band 120 to 160 km wide, from Rio Grande do Norte to Rio Grande do Sul (Giulietti & Forero 1990 *apud* Catharino 2006), with floristic and structural differences in different regions; these differences were linked to the climatic gradient, with populations of species adapted to the different climates.

The northeastern Atlantic Forest region covers the gently undulating areas between the Serra da Borborema and the Atlantic Ocean, occupying a large part of the Coastal Tablelands located in northeastern Brazil, from the state of Rio Grande do Norte to southern Bahia.

The few remnants of true Atlantic Forest, megathermic and hydrophilous, with a few tall trees carrying epiphytic species or lianas, these areas are called capões in the Northeast. On the ground there are arborescent ferns, isolated palms, mosses, bamboos, marantáceas, musáceas, cactáceas, bromeliáceas and other xerophytes. The remains of the primary forest are located in the central part of Bahia and on the slopes of the Serra do Araripe, Aba, Teixeira and Santa Luzia, in Paraíba (Luetzelburg, 1922).

In studies carried out in the Northeast, it was observed that the states of Rio Grande do Norte, Paraíba, Pernambuco and Alagoas had the highest levels of pressure on vegetation cover. They tended to be higher in the coastal regions, in the so-called Zona da Mata, where the Atlantic Forest predominated.

The Atlantic Forest Biome is subdivided into phytogeographic units, as follows:

### **Dense Ombrophilous Forest**

It is an evergreen forest, with a canopy made up of trees between 20 and 30 m tall. It is located in regions where there is no biologically dry period during the year (IBGE, 1992), in areas close to the ocean under the influence of the humid air masses that enter the continent from the sea and in mountainous elevations with physiognomic variations that allow it to be extremely rich and diverse (IBGE, 1992; Mata Atlântica, 2001).

### **Mixed Ombrophilous Forest**

Also known as the Araucaria Forest, it is characterized by a combination of Atlantic Forest in the middle and lower stratum of the forest, with the Paraná pine (*Araucaria angustifolia*) in the upper stratum, as well as trees 25 to 30 meters high and a large number of epiphytes. The regions where this phytophysiology occurs have an ombrophilous climate with a few months of low temperatures, and are mainly in the plateaus of the southern states of the country (Rio Grande do Sul, Santa Catarina and Paraná) and in the discontinuous massifs of São Paulo and Rio de Janeiro (Paranapiacaba, Mantiqueira and Bocaina mountains) (IBGE, 1992; Mata Atlântica, 2001).

### **Open Ombrophilous Forest**

It is characterized by transitional vegetation between the Amazon rainforest and extra-Amazon areas. This forest has four floristic facies that alter the ecological physiognomy of the Dense Ombrophilous Forest. In this physiognomy, the treetops are generally not so close together, which allows for more sunlight. There are palm trees, lianas, the sororoca or wild banana tree and bamboos. It is characterized by a short dry period, which lasts from two to three months, and an average temperature of over 22° (IBGE, 1992).

### **Semideciduous Seasonal Forest**

Also called Semideciduous Mesophytic Seasonal Forest by Rizzini (1963), it is a phytophysiology intrinsic to the Atlantic Forest biome, constituting a transitional formation between coastal hillside forests and inland non-forest formations (Mata Atlântica, 2001). It is a forest formation characterized by the presence of trees that lose their leaves (deciduous) during the winter, or dry season (Mata Atlântica, 2001). The percentage of deciduous individuals varies from 20 to 50% of the forest as a whole

(IBGE, 1992). This phenomenon of leaf fall has been attributed to factors such as water availability, low temperature and nutrient availability (Oliveira, 1997).

### **Seasonal deciduous forest**

It has large discontinuous areas located from north to south, between the Open Ombrophilous Forest and the Savannah (Cerrado); from east to west, between the Steppic Savannah (caatinga of the arid hinterland) and the Semideciduous Seasonal Forest (Subcaducifolia Tropical Forest); and finally, in the south, already in the subtropical area, in the valley of the River Uruguay, between the Mixed Ombrophilous Forest of the Southern Plateau and the steppe (IBGE, 1992). This vegetation is characterized by two well-demarcated climatic seasons, a rainy season followed by a long biologically dry period. It occurs in the form of forest disjunctions, are dominated by genera such as *Peltophorum*, *Anadenanthera* and *Apuleia*, and have the dominant macro or mesophanerophytic stratum predominantly deciduous, with more than 50% of the individuals stripped of foliage in the unfavorable period (IBGE, 1992).

### **Coastal vegetation**

Subdivided as follows:

#### ***Mangrove***

It is a wetland, defined as a "coastal ecosystem, a transition between the terrestrial and marine environments, characteristic of tropical and subtropical regions, subject to the tidal regime". It is necessary to distinguish between the mangrove, which is the ecosystem, with vegetation, animals and microorganisms interacting with the physical environment, and the mangrove, which are the plants that occupy this space. These plants, from different taxonomic groups, have in common the ability to survive in soils with brackish or salty water, low oxygen availability and an unconsolidated substrate.

In Brazil, mangroves are found on almost the entire Brazilian coast, from Oiapoque/AP to Laguna/SC, generally associated with low-energy coastlines or estuarine areas, lagoons, bays and inlets. In 2012, they occupied an area of 1,225,444 hectares on the Brazilian coast.

The conservation of mangroves throughout their entire length, including the apicuns, is also of social importance as they are considered nurseries for fishing resources and directly or indirectly support more than 1 million people. They also provide coastal protection against erosion and extreme weather events, regulate the climate and retain carbon dioxide, storing more carbon than tropical forests.<sup>21</sup>

Apicuns are sandy areas that feature exposed soil, usually because they are devoid of vegetation due to their high salinity. Apicuns, which occur in areas on the inner edge of mangroves, are transitional environments between hillside sediments and mangrove sediments (Araújo, et al, 2019).

It is worth noting that the apicum feature supports the mangrove fauna in the different phases of its biological cycles, in addition to various other functions that are essential for

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<sup>21</sup><https://www.gov.br/mma/pt-br/assuntos/biodiversidade-e-ecossistemas/ecossistemas/ecossistemas-costeiros-e-marinhos/manguezais>

maintaining the coastal zone, so any intervention in these environments will interrupt the flow of nutrients between features of the ecosystem itself (Ibama, 2005).

### **Restinga**

It is the set of plant communities, distributed in a mosaic, associated with recent coastal sandy deposits (Quaternary and Tertiary) and coastal rocky environments - also considered edaphic communities - as they depend more on the nature of the soil than on the climate, found in beach environments, sandy strands, dunes, depressions and transitions to adjacent environments, and may present, according to the predominant phytophysiology, a herbaceous, shrub and tree layer.

Corroborating this, according to CONAMA Resolution 07 of July 23, 1996, "restinga vegetation is understood to be the set of physiognomically distinct plant communities under marine and fluvial-marine influence. These communities, distributed in a mosaic, occur in areas of great ecological diversity and are considered edaphic communities because they depend more on the nature of the soil than on the climate."

Normally, restinga vegetation differs from the crystalline forest formations and the Coastal Tableland formations in its smaller size, less vigorous nature, as well as its physiognomy and floristic composition. It is a relatively sparse vegetation with trees around 10 to 12 meters high, thin trunks, generally low branching, sometimes crooked stems and irregular canopies, sometimes comprising open areas where vegetation known as restinga fields develops with a marked presence of grasses. It is related to the soil classes Quartzarenic Neosols and Spodosols.

The trees include *Schinus terebinthifolius Raddi* (aroeira-da-praia), *Anacardium occidentale L.* (cajueiro), *Tabebuia roseo-alba* (Riddley) Sandw. (*Ocotea sp.* (laurel), *Andira nitida Mart.* (angelim), *Manilkara salzmannii* (A.DC.) H. J. Lam. (maçaranduba) and *Hancornia speciosa Gomes* (mangabeira). The long-standing coconut groves with *Cocos nucifera L.* (coconut palm), planted or not, along with this plant formation have been devastated mainly for real estate purposes.

According to Zickel, et al (2021), these restinga areas, also known as sandy Tabuleiro, have an important biodiversity and variability. In their study, four areas were studied (Mamanguape, João Pessoa, Conde and Pedras de Fogo) and 82 species distributed in 29 families were recorded. Variations were found in total density, diversity, average height and diameter, total basal area and proportion of individuals with tillers, as well as differences in the distribution of height frequencies. It can be seen that the coastal tablelands varied in the diversity and spatial structure of the vegetation, despite sharing similar environmental conditions. The influence of surrounding areas, edaphic factors and different degrees of disturbance on the floristic composition may explain the heterogeneity found in the tabuleiros.



**Photo 26 - Restinga or tabule area of Rebio Guaribas**



Source: Consulting, 2024

## Caatinga

The Caatinga is an ecosystem that covers 11% of Brazil's territory and 70% of the Northeast region. This area includes the states of Ceará, Rio Grande do Norte, most of Paraíba and Pernambuco, southeastern Piauí, western Alagoas and Sergipe, central Bahia and part of northern Minas Gerais. With an area of 826,411km<sup>2</sup>, this biome is considered to be of biological importance, as it is the only one whose geographical occurrence is restricted to Brazil (Embrapa, 2021).

Caatinga is the type of vegetation that covers most of the area with a semi-arid climate in the northeast of Brazil. The xerophytic vegetation of the caatinga is essentially heterogeneous in terms of phytophysiognomy and structure, making it difficult to draw up classification schemes capable of satisfactorily covering the numerous types that occur there. According to (FERNANDES, 2000) it is more practical and accurate to consider basically two phytophysiognomies in the Biome: arboreal caatinga and shrubby caatinga. According to this author, detailed and careful descriptions should be left to each researcher, when the peculiarities of the sites studied so require.

The IBGE, on the other hand, exclusively uses the name Savannah-Sepic for Caatinga environments and considers the following vegetation subtypes: Forested Savannah-Sepic, Wooded Savannah-Sepic, Park Savannah-Sepic and Grassy Savannah-Sepic.

It should be noted that the predominant vegetation in the state of Paraíba is the steppe savannah, which covers approximately 90% of the territory.

It should be noted that the **caatinga**, an indigenous term used in literature and popular circles to describe the xerophytic vegetation that normally occurs in the semi-arid region, has various physiognomies. Tall trees, reaching 20 (twenty) meters, straight stems and an understory made up of smaller trees, shrubs and ephemeral subshrubs. The treetops touch, resulting in a forest-like appearance during the rainy season. The continuous canopy, the size and the closed understorey led to this community being called Caatinga Arbórea Densa, made up primarily of Braúna (*Schinopsis brasiliensis*) and Aroeira (*Astronium urundeuva*).

Another type of arboreal caatinga is made up of tall, isolated, broad-crowned individuals of the same height as the trees in the previous community; however, they form an open vegetation in which large spaces of bare soil or only herbaceous plants are found. The main species are: Angico-vermelho (*Anadenanthera macrocarpa*) and Aroeira (*Astronium urundeuva*). The physiognomy of this community is differentiated from the previous one by its low plant density, giving it the name of Open Arboreal Caatinga.

The degradation of the Arboreal Caatinga leads to the emergence of the Arbustive Caatinga. The most common species in shrubby Caatingas are: jurema (*Mimosa hostile*), catingueira (*Caesalpinia bracteosa*), sabiá (*Mimosa caesalpinifolia*), marmeleiro-preto (*Cróton sonderianus*), mandacaru (*Cereus jamacaru*) and others.

Because it has different ecosystems and associated plant types, ranging from shrubby vegetation to a Seasonal Forested Savannah (arboreal caatinga), there is great technical difficulty in classifying the different types of vegetation in the Caatinga, as well as the natural caatingas and the caatingas heavily altered by anthropogenic action (CASTELLETTI et al., 2003).

According to (IBGE, 2012), these subgroups have the following characteristics:

### **Forested Seasonal Savannah**

This subgroup is fundamentally structured in two strata: an upper stratum with a predominance of periodically deciduous nanophanerophytes, more or less thickened by thick trunks that are generally profusely gnarled and thorny or aculeate, and a lower grassy-woody stratum that is generally discontinuous and has little physiognomic expression;

### **Wooded Seasonal Savannah**

This subgroup is structured in two clear strata: an upper, sparse shrub layer, generally identical in characteristics to that of the Seasonal Forested Savannah, described above, and a lower, grassy-ligneous layer, also of significant phytophysiognomic importance;

### **Savannah-Sepic Park**

A sub-group with very typical physiognomic characteristics, with shrubs and small trees, generally of the same species, distributed fairly widely apart, as if they were planted. This formation subgroup generally covers small depressions topped by vertisols, which are flooded during the rainy season because they don't have good drainage. This subgroup is found in a small strip in the north of the state of Rio Grande do Norte, far from the areas in question in this study.

### **Seasonal Grassy Savannah**

This subgroup of formation, also known as the thorny field, has very typical floristic and physiognomic characteristics, with an extensive grassy carpet dotted with thorny dwarf woody plants.

#### **Vegetation distribution**

The state of Paraíba, located in the northeastern region of Brazil, has an area of 56,467.24 km<sup>2</sup> (IBGE, 2021). The current use and vegetation cover is characterized by defined forest formations, such as Caatinga Arbustiva Arbórea Aberta, Caatinga Arbustiva Arbórea Fechada, Caatinga Arbórea Fechada, Tabuleiro Costeiro, Mangues, Mata-úmida, Mata semidecidual, Mata Atlântica and Restinga (PARAÍBA, 2006).

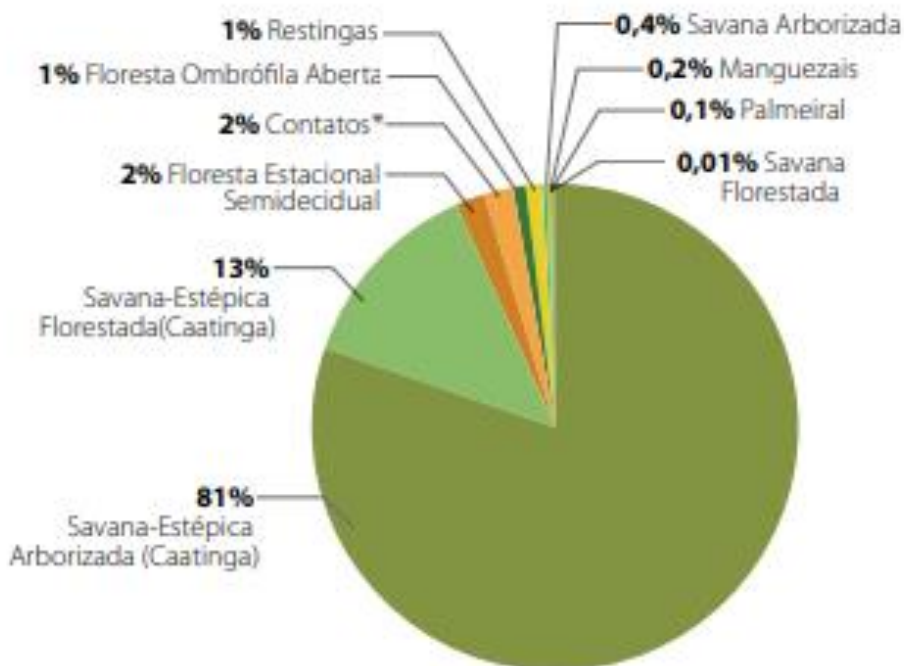
#### **Vegetation**

Paraíba's vegetation is very diverse, a reflection of its ecological richness, as it encompasses the Caatinga biome, predominantly, and the Atlantic Rainforest in its territory, and thus has a variety of species adapted to different climatic and environmental conditions.

The state of Paraíba has at least 11 types of vegetation as forests, according to information from the Brazilian Forestry Service (2019), with the Seasonal Savannah (Caatinga) being the predominant type, covering approximately 94% of the state's natural vegetation areas: Wooded and Forested Seasonal Savannah (Caatinga), Semideciduous Seasonal Forest, Open Ombrophilous Forest, Wooded and Forested Savannah, Mangrove Swamp, Palm Grove, Restingas, Planted Forests and Contacts, where more than one typology occurs. (SFB, 2019).

Paraíba's vegetation is shown in the following Figure and Table.

**Figure45 - Proportion of the area occupied by different types of natural vegetation in Paraíba.**



Note: **Contacts\*** refer to areas of ecological tension, in which undifferentiated communities are found, where the floras interpenetrate, constituting floristic transitions between two or more types of vegetation. In Paraíba, there are areas of contact between Savannah and Seasonal Forest and Seasonal Savannah and Seasonal Forest.

Source: Brazilian Forest Service - SFB, 2019

According to the Paraíba Forest Inventory (SFB, 2019), the largest proportions of its territory covered by natural vegetation are found in the Borborema and Sertão Paraibano mesoregions (over 50%). The largest absolute area of natural vegetation in the state is in the Sertão Paraibano region, with around 1.2 million hectares of vegetation, predominantly caatinga. On the state's coast, the Mata Paraibana is the region with the smallest area covered by natural vegetation when compared to the other regions, where only 19% of the territory is covered by vegetation, as can be seen in the table below. This region is home to the state's Atlantic Forest, with ombrophilous and seasonal forests, mangroves and sandbanks.

**Table 23 - Area (ha) and proportion of natural vegetation cover by mesoregion in the state of Paraíba.**

Mesoregion	Total area	Natural Vegetation Area	Proportion of Natural Vegetation Cover
Borborema	1.556.760,43	876.502,29	56%
Sertão Paraibano	2.274.036,42	1.205.029,41	53%
Agreste Paraibano	1.292.584,56	352.167,71	27%
Mata Paraibana	524.084,19	100.498,84	19%
<b>Paraíba</b>	<b>5.647.465,60</b>	<b>2.534.198,25</b>	<b>45%</b>

Source: Brazilian Forest Service - SFB, 2019



## Map 8 - Vegetation

#### 4.2.2 Modified Habitats

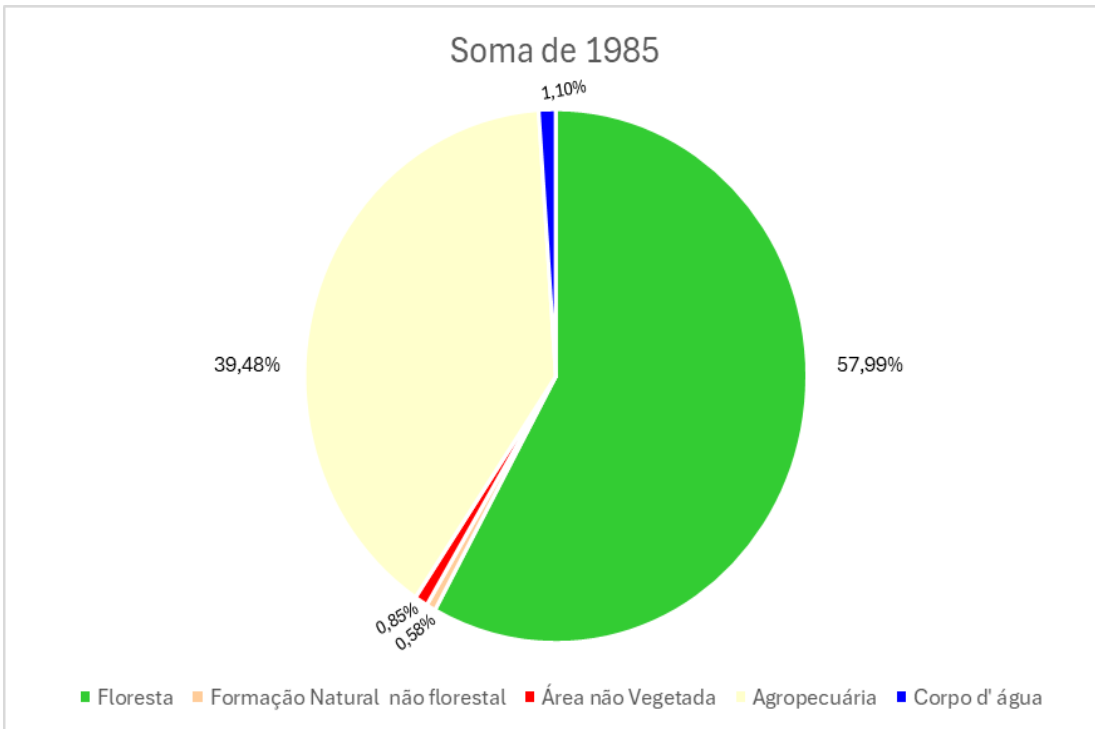
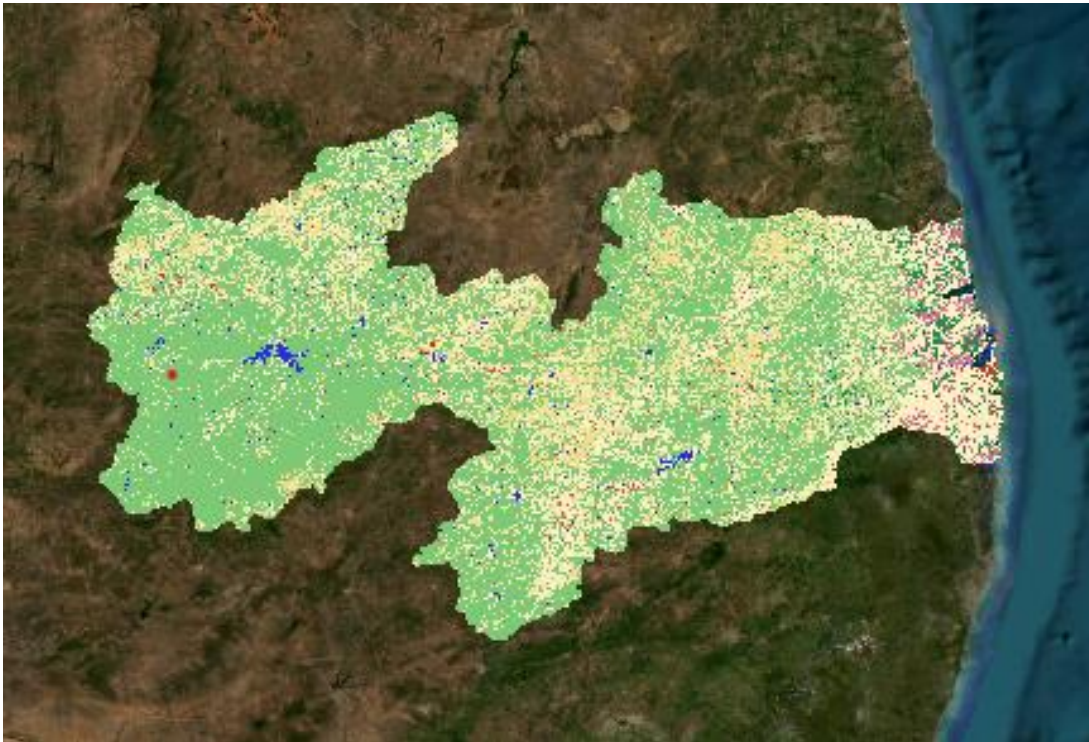
Based on the work carried out by MapBiomias<sup>22</sup>, the variation in natural vegetation cover in the project area was surveyed. The data used from the MapBiomias collections project is from 1985 to 2022. The total change in natural vegetation, considering forest and non-forest natural formation, was 3,307,523 ha in 1985 to 3,043,821 ha in 2022 - representing a reduction of 4.66 % in natural vegetation over the period.

Taking the variation in the main comparison classes (Natural vegetation vs. Agriculture), the change in use becomes more evident. In 1985, vegetation represented 57.99% of the area of the state of Paraíba, compared to 39.48% of agricultural activities. By 2022, natural vegetation coverage had reached 52.89%, compared to 43.72% for farming activities.

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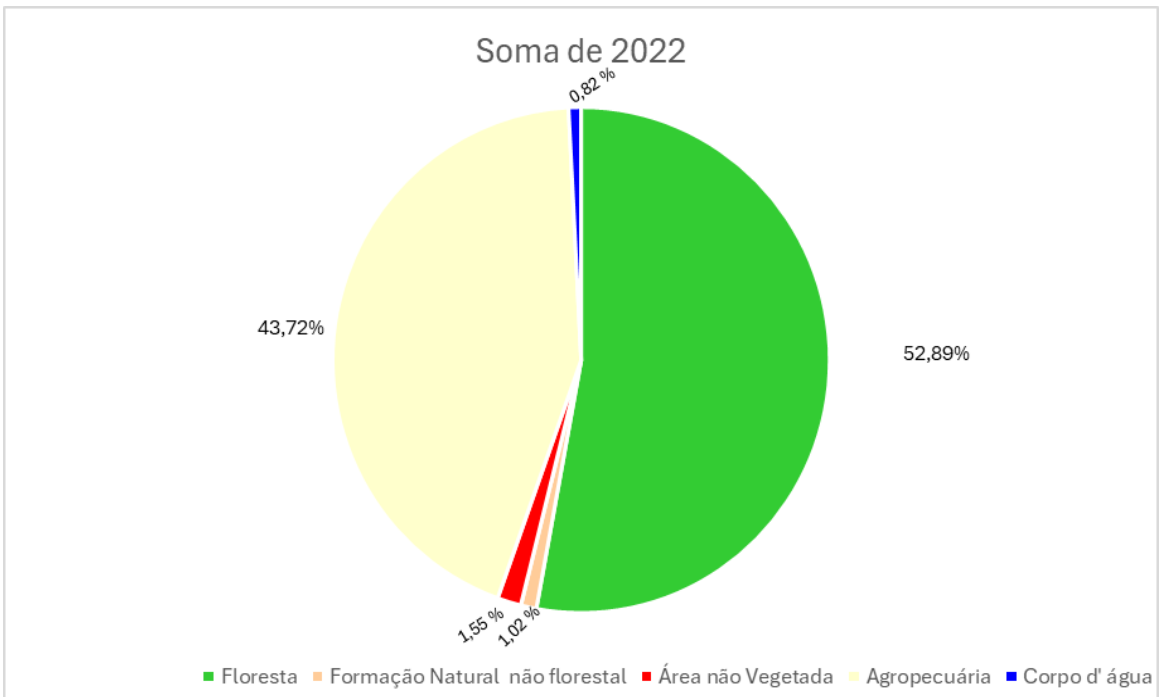
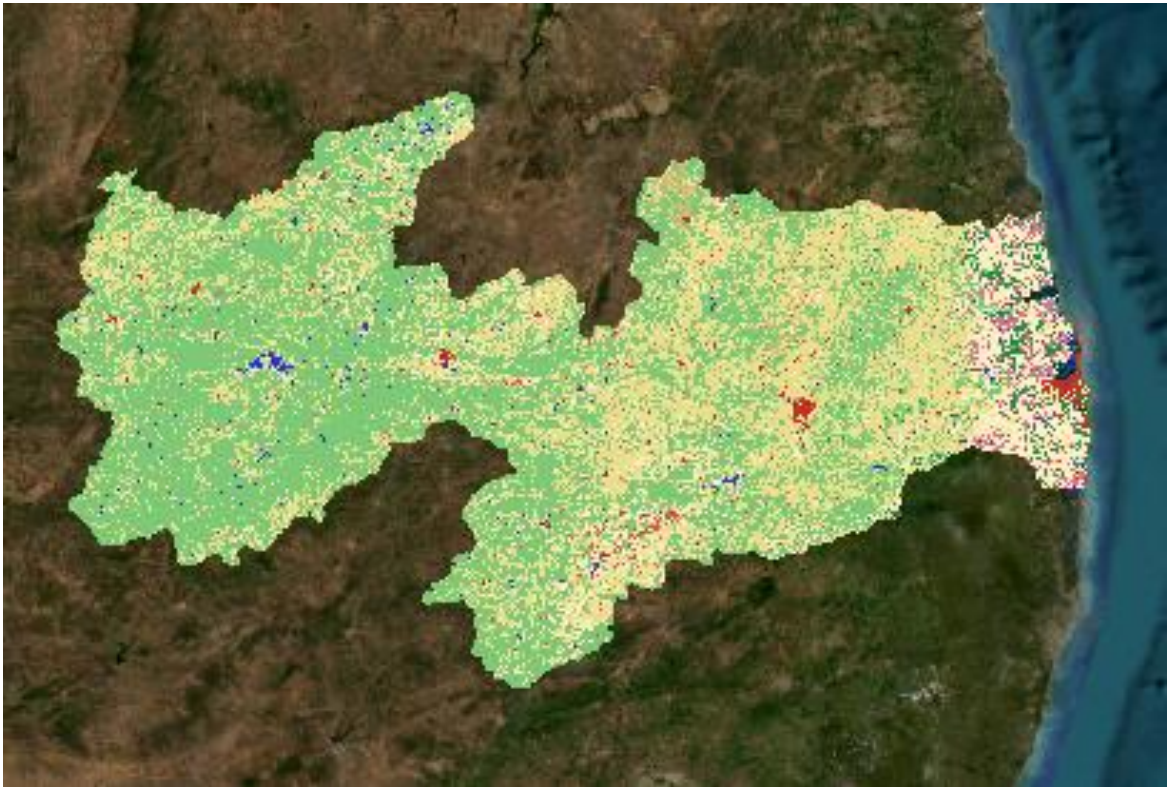
<sup>22</sup> <https://brasil.mapbiomas.org/colecoes-mapbiomas/> see about at: <https://brasil.mapbiomas.org/o-projeto/>

46 - Coverage in 1985



Source: Calculated from MapBiomas data (consultation in 2024).

47 - Coverage in 2022

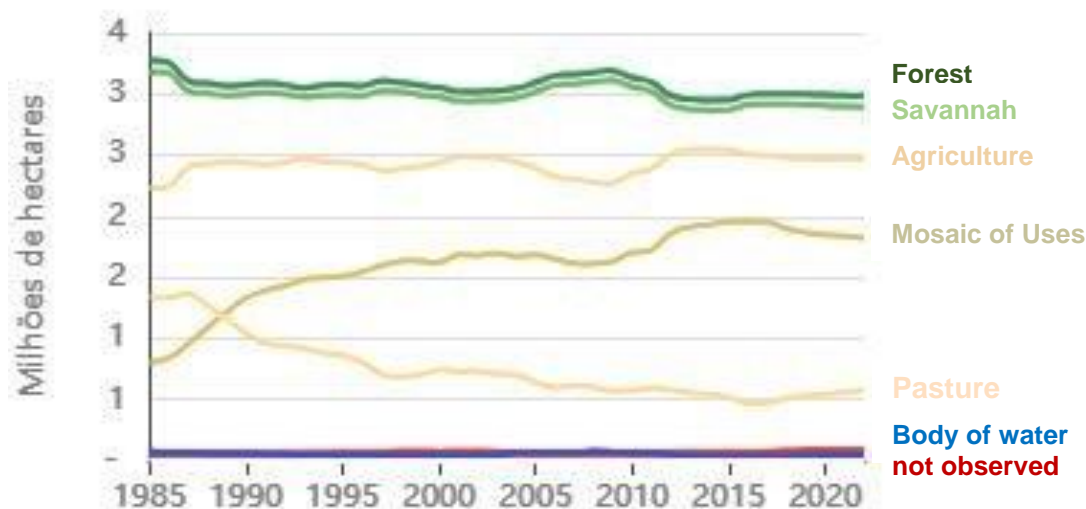


Source: Calculated from MapBiomass data (consultation in 2024).

It is important to note that, according to the figure below, there was a greater change in coverage (with vegetation being converted to anthropic uses) during the period from 1985 to 1995, after which the graph indicates stability in the region covered by the Project.



#### 48 - Variation in Coverage between 1985 and 2022



Source: Calculated from MapBiomas data (consultation in 2024).

When analyzing the coverage in the areas of the municipalities, it can be seen that the stability shown in the total area of Procace II is linked to the reduction of vegetation in some municipalities, but also to the expansion of the vegetation area in other municipalities, as can be seen in the following tables. Thus, while the municipality of Logradouro lost 62.81% of its vegetation between 2000 and 2022, the municipality of Algodão de Jandaíra saw its vegetation increase by 82%, which indicates that the vegetation in these places has been recomposed.

**Table 24 - Municipalities with vegetation loss greater than 20% in the Project area between 2000-2022**

Municipality	Natural formations		Amendment	%
	Ha in 2000	Ha in 2022		
Street	664	247	417	-62,81%
Mulungu	5.345	2.240	3.105	-58,09%
Cuité de Mamanguape	6.322	2.696	3.626	-57%
Caiçara	4.366	2.252	2.115	-48%
Two Roads	1.559	866	692	-44%
Caldas Brandão	2.366	1.334	1.032	-44%
Mari	6.613	3.762	2.851	-43,11%
Riachão do Poço	1.887	1.116	771	-40,84%
Sobrado	2.020	1.209	811	-40,14%
Guarabira	7.032	4.213	2.819	-40,09%
Juarez Távora	3.360	2.107	1.253	-37,30%
Itapororoca	9.076	5.919	3.157	-34,79%
Araçagi	8.909	5.925	2.984	-33%
Caraúbas	17.080	11.420	5.660	-33%
Gurinhém	13.659	9.152	4.507	-33,00%
Curral de Cima	4.094	2.776	1.318	-32%
Riachão	3.074	2.137	937	-30,48%

Municipality	Natural formations		Amendment	%
	Ha in 2000	Ha in 2022		
São José dos Ramos	3.119	2.169	950	-30,46%
Lagoa de Dentro	4.017	2.798	1.219	-30,35%
Sapé	10.102	7.047	3.055	-30,24%
Alagoa Grande	19.486	13.790	5.696	-29%
Alagoinha	6.359	4.549	1.810	-28%
Barra de Santana	20.047	14.385	5.661	-28%
Serra Redonda	2.734	1.971	763	-27,92%
Pilar	3.977	2.927	1.050	-26,40%
Alcantil	19.842	14.684	5.158	-26%
Congo	9.269	6.928	2.341	-25%
Ingá	11.997	9.003	2.994	-24,96%
Santa Cecília	12.672	9.864	2.807	-22,16%
Igaracy	15.722	12.280	3.441	-21,89%
Tacima	3.870	3.028	842	-21,76%
Cuitegi	2.810	2.200	610	-22%
Mogeiro	8.756	6.868	1.889	-21,57%
Araruna	8.552	6.743	1.809	-21%
Camalaú	26.298	21.143	5.154	-20%

Source: Calculated from MapBiomass data (consultation in 2024).

**Table 25 - Municipalities with a vegetation gain of more than 20% in the Project area between 2000-2022**

Municipality	Natural formations		Amendment	%
	Ha in 2000	Ha in 2022		
Cotton from Jandaíra	7.419	13.478	6.059	82%
Alhandra	1.707	3.041	1.334	78%
Juripiranga	84	148	64	76,38%
Saint André	2.851	4.862	2.011	70,54%
Puxinanã	576	981	405	70,33%
Stones of Fire	2.965	4.783	1.817	61,28%
Remígio	5.002	7.956	2.953	59,04%
Livramento	7.860	12.461	4.601	58,53%
Parari	3.440	5.424	1.984	57,65%
Count	3.062	4.773	1.711	56%
Taperoá	21.133	32.682	11.549	54,65%
Hope	2.511	3.840	1.328	53%
Salgado de São Félix	4.958	7.298	2.340	47,21%
Pitimbu	2.363	3.450	1.088	46,03%
Pocinhos	19.356	26.525	7.169	37,04%
Lagoa Seca	2.261	3.000	740	32,72%
Tavares	10.022	13.291	3.269	32,61%
Solânea	7.675	10.148	2.473	32,22%

Municipality	Natural formations		Amendment	%
	Ha in 2000	Ha in 2022		
Cacimba de Dentro	2.178	2.874	697	32%
Mounted	88	116	28	31,72%
Juazeirinho	14.726	19.326	4.600	31,23%
Salty	8.204	10.728	2.524	30,77%
Asunción	5.167	6.751	1.584	31%
Natuba	7.056	9.213	2.156	30,56%
Serra Branca	24.061	31.224	7.164	29,77%
São José dos Cordeiros	20.043	25.067	5.024	25,06%
Quixaba	7.652	9.545	1.892	24,73%
São José do Sabugi	5.480	6.835	1.355	24,72%
São Sebastião de Lagoa de Roça	1.028	1.256	228	22,21%
Macaw	2.796	3.384	588	21%
Cosseting	6.922	8.365	1.443	20,85%
New Palmeira	15.743	19.005	3.262	20,72%

Source: Calculated from MapBiomas data (consultation in 2024).

The following maps show the state's vegetation cover in the years 2000 and 2022



**Map 9 - Coverage 2000 - Area covered by Proc case II**



**Map 10 - Coverage 2022 - Area covered by Procasse II**

## Land Use

The classification by land cover and land use classes was based on the information presented in the **Characterization Notebook of the State of Paraíba** (2022), which follows the one adopted by the IBGE (2020), where it can be seen that most of the use is made up of grassland vegetation (33,020.88 Km<sup>2</sup> / 57.32%) and the smallest area is made up of wetlands (1.01 Km<sup>2</sup> / < 0.01%), as can be seen in the **Error! Reference source not found**.table below.

**Table 26 - Land cover and land use classes, Paraíba state.**

Class	Total (km ) <sup>2</sup>	% of territory
Artificial Area	518,01	0,9
Agricultural Area	1.716,31	2,98
Managed Pasture	1.126,27	1,96
Mosaic of Occupations in Forest Areas	2.714,81	4,71
Forestry	36,05	0,06
Forest vegetation	4.373,21	7,59
Country vegetation	33.020,88	57,32
Mosaic of Occupations in the Countryside	13.844,33	24,03
Continental water body	254,2	0,44
Wet Area	1,01	< 0,01

Source: Prepared with data from IBGE, 2020b apud Caderno de Caracterização da Paraíba 2022.

Below is a description of the use classes considered.

### **Artificial area**

Areas where non-agricultural anthropogenic surfaces predominate. These are areas structured by buildings and the road system, including metropolises, cities, towns, indigenous villages and quilombola communities, areas occupied by industrial and commercial complexes and buildings that may, in some cases, be located in peri-urban areas. Also included in this class are areas where the exploration or extraction of mineral substances takes place, through mining or quarrying.

### **Agricultural Area**

Area characterized by temporary, semi-perennial and permanent crops, irrigated or not, with the land used to produce food, fibres, fuel and other raw materials. It follows the parameters adopted in the IBGE's agricultural surveys and includes all cultivated areas, including those that are fallow or located on flooded land. It can be represented by heterogeneous agricultural zones or extensive areas of plantations. Includes aquaculture ponds.

### **Managed Pasture**

Areas used for grazing cattle and other animals, with cultivated herbaceous vegetation (brachiaria, ryegrass, etc.) or (natural) grassland vegetation, both of which are subject to

high-intensity anthropogenic interference. These interferences can include planting; clearing the land (clearing and plowing); eliminating weeds mechanically or chemically (applying herbicides); harrowing; liming; fertilizing; among others that de-characterize the natural cover.

### **Mosaic of Occupations in Forest Areas**

Area characterized by mixed occupation of agricultural land, pasture and/or forestry associated or not with forest remnants, in which it is not possible to individualize its components. It also includes areas with natural and man-made disturbances, mechanical or non-mechanical, which make it difficult to characterize the area.

### **Forestry**

Area characterized by forest plantations of exotic or native species as monocultures. It follows the parameters adopted in IBGE's plant extraction and forestry surveys.

### **Forest vegetation**

Area occupied by forests. Forests are considered to be tree formations over 5 meters in height, including areas of Dense Ombrophilous Forest, Open Ombrophilous Forest, Seasonal Forest and Mixed Ombrophilous Forest. It includes other features due to their size exceeding 5 m in height, such as the Forested Savannah, Forested Campinarana, Forested Seasonal Savannah, Mangroves and Buritizais, according to the Land Use Technical Manual (IBGE, 2013).

### **Wet Area**

Area characterized by natural herbaceous or shrub vegetation (10% or more cover), permanently or periodically flooded by fresh or brackish water. It includes marshes, swamps, wetlands, estuaries, among others. The flooding period must be at least 2 months per year. Shrub or tree vegetation may occur, as long as they occupy less than 10% of the total area.

### **Country vegetation**

Area characterized by grassland formations. Grasslands are understood to be the different categories of vegetation that are physiognomically quite different from forests, i.e. those characterized by a predominantly shrubby layer, sparsely distributed over a grassy-ligneous layer. This category includes savannas, steppes, steppe savannas, pioneer formations and ecological refuges. They are spread across different phytogeographic regions, comprising different primary typologies: plateau steppes, coastal rupestrian fields and coastal hydro-sandy fields (restinga), according to the Land Use Technical Manual (IBGE, 2013).

### **Mosaic of Occupations in the Countryside**

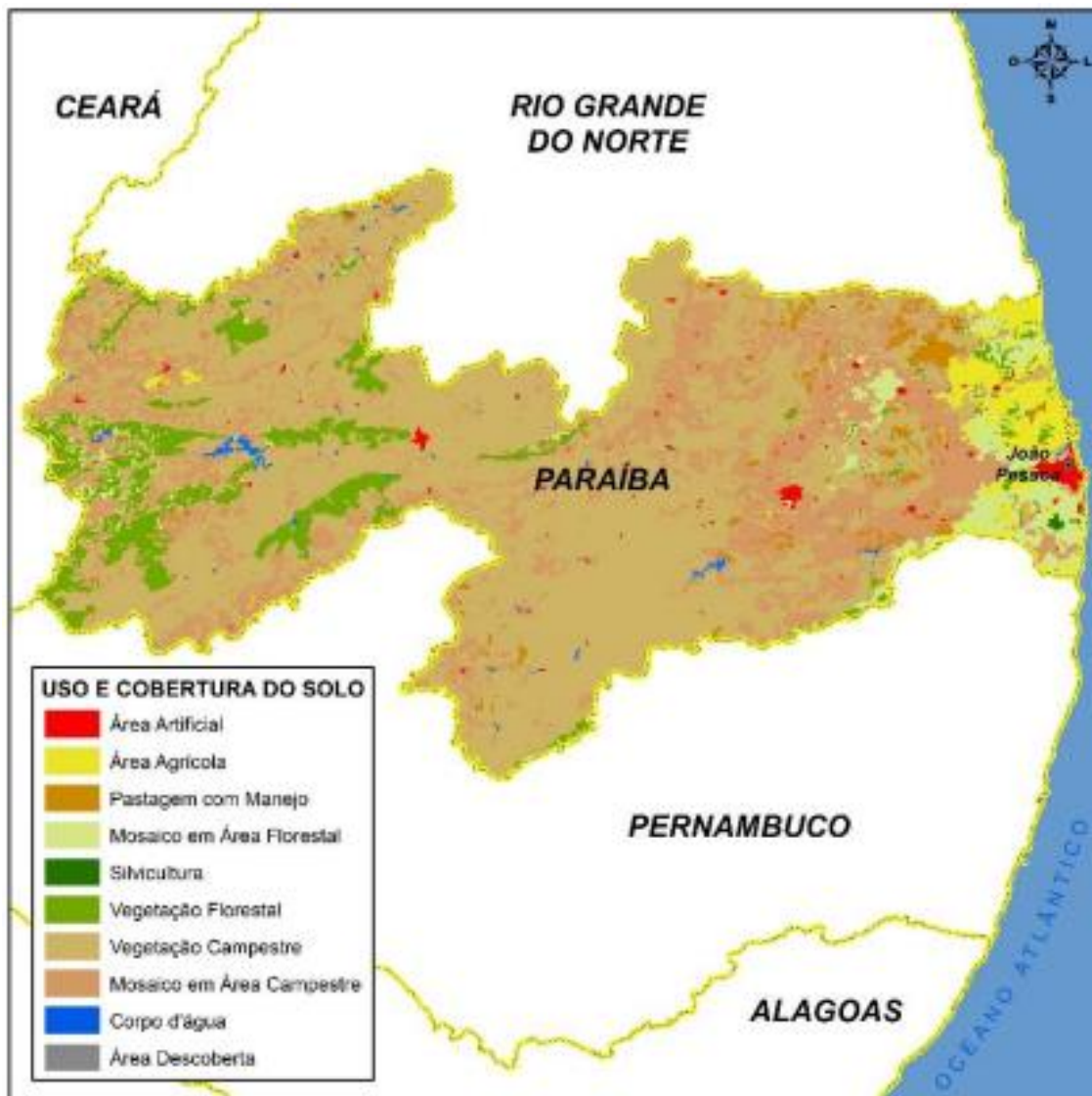
An area characterized by the mixed occupation of agriculture, pasture and/or forestry, whether or not associated with remnants of grassland, in which it is not possible to individualize its components. It also includes areas with natural and man-made

disturbances, mechanical or non-mechanical, which make it difficult to characterize the area.

**Continental water body**

It includes all inland waters, such as rivers, streams, canals and other linear bodies of water. It also includes naturally enclosed bodies of water (natural lakes) and artificial reservoirs (artificial water impoundments built for irrigation, flood control, water supply and power generation). It does not include aquaculture ponds.

**49 - Land use and cover in the state of Paraíba.**



Source: Prepared with data from IBGE, 2020b apud Caderno de Caracterização da Paraíba 2022.



## Ecosystem services highlighted in the Rural Territories

Paraíba is divided into 15 rural territories, which choose their priority demands, working on common policies between the municipalities in each territory, and forward them to the state government. The aim is for public policies for family farming to reach the rural population more effectively.

Some locations in the rural territories were visited in March 2024, such as the Borborema, Cariri, Brejo and Zona da Mata regions, and the information gathered will be presented below.

### **Ecoborborema Pole**

In the Borborema region, in the municipality of Remígio, approximately 150 km from the state capital, known as the Ecoborborema Pole, the importance of growing cotton and the advantages of growing it in consortium with other crops have been noted, with the idea of implementing SAFs to improve their resilience.

There is also the work of the seed guardians, who develop the protection of creole seeds, which are all-natural seeds used in times of water scarcity, with 20% of cotton production going to the seed bank to guarantee future crops that may suffer from pest or drought issues.

In the Queimadas Settlement, the Borborema Agroecology Network (RBA) has been producing agroecological cotton for 10 years. It is the region's first producer of colored cotton and sells to Veja/Vert, a French company that produces sustainable sneakers using cotton from agroecological family farming. Some producers have complained about the demand for cotton and its results, signaling that they want to stop producing it.

The Borborema Agroecology Network (RBA) is a Participatory Conformity Assessment Body (OPAC), an association of family farmers who work with organic/agroecological production, organized as a non-profit legal entity, founded mainly to organize and certify organic production areas (SILVA, 2015).

In this region of Paraíba, cotton was a very strong crop, decimated in the 1980s by the boll weevil. Many families even lost their seeds. In 2019, the network of farmer-experimenters and seed guardians decided to return to growing cotton in an agroecological way, without the use of poisons and promoting care for natural resources, such as the soil.

Biological ant control is done with manipueira according to the information gathered in the field. Manipueira is not only an excellent food supplement for livestock, but it can also be used to combat pests and diseases, control ants and insects and even make vinegar and soap. Mixed with castor oil, it can also be used to control ticks.

As an organic fertilizer, the dilution of manipueira depends on the crop and how it is applied, which can be either to the soil or to the foliage. For combating leaf-cutting ants, he recommends concentrated manipueira.

Photo 27 - Banner of Embrapa Cotton's Agroecology Center



Source: Consulting, 2024

Photo 28 - Cotton plantations in the Borborema region



Source: Consulting, 2024

**Photo 29 - Cotton harvest in the Borborema region**



Source: Consulting, 2024

In the Borborema region, in the same municipality as Remígio, there is also fruit production. In the AFS of the Camará quilombola community, which was set up in 2002, avocado, acerola, jaboticaba, jackfruit, orange, mango, passion fruit, seriguela and tangerine are being planted, and they are starting to plant bananas again because orange production has fallen a lot. They are also planting medicinal plants such as Chilean boldo, capim santo and pitanga. As for the Camará plant, they make empanada for food, which gave the community its name.

In the Chã de Jardim community in the municipality of Areia, fruit is also produced, but only during the harvest because they can't stock up. They grow caja, umbu, acerola, mango espada and passion fruit.

Agrovila Águas de Acauã, in the municipality of Itatuba, is experimenting with Agroecological Cotton consortiums for the families resettled after the Acauã dam burst, and is working with Creole seeds to avoid transgenics and contamination.

They also plant corn, beans, sweet potatoes, manioc, sugar cane, bananas, coconuts, pine cones, guavas, apple bananas, onions, lemons, passion fruit, all agroecological, most of which is for subsistence. The cotton is sold to Santa Luzia Decorações, which produces hammocks.

The problem with cotton is the weevil, but intercropping with other crops avoids this pest. The cotton bollworm is the insect with the highest incidence and the greatest potential for damage in this crop and biological control is being used more and more because it is more efficient and safer than chemical control.

**Photo 30 - Fruit production area in the Borborema region**



*Source: Consulting, 2024*

**Photo 31 - Fruit production area in the Borborema region**



*Source: Consulting, 2024*

## **Semiarid Region - Cariri**

In the semi-arid region, areas of Agroforestry Systems were visited, as well as seedling nurseries and places where various species occur.

### **Agroforestry system**

Factors such as pasture and soil degradation, inadequate animal management, low nutrient replenishment in the soil, the physical impediments of the soil and low technological investments, among other causes, can lead to a drop in productivity in conventional systems.

Agroforestry systems are an alternative for better coexistence with these adversities typical of the semi-arid region, and can make a significant contribution to reversing this scenario, with the strategy of using integrated production systems and, consequently, increasing the sustainability of these areas, especially with regard to soil degradation and the need for energy biomass with a view to conserving areas of native vegetation.

Planting fast-growing, multi-purpose tree species could be an alternative to reducing the pressure on the caatinga<sup>23</sup>.

Research carried out by Embrapa in partnership with the Confederation of Agriculture and Livestock of Brazil (CNA) with 26 species of forage in the nine states of the Northeast and in Minas Gerais prove the importance of diversifying the forage menu in the Brazilian semi-arid region.<sup>24</sup>

Research proves that this strategy guarantees resilience and productive capacity even during periods of drought, increasing productivity

Regardless of the size of the property, species adapted to the heterogeneous conditions of local realities improve the quality of animal feed, strengthening livestock farming in the semi-arid region.

During the fieldwork carried out in March 2024, two SAF areas were visited, one in the Semi-Arid Region, in the municipality of Camalau - PB, called SAF Forage in APP at Sítio Vegas, this being an experiment by Prof. Ezequiel Sóstenes Bezerra Farias Sóstenes Bezerra Farias from the University of Campina Grande, which began in 2017/2018. At this site, an experimental SAF area, the production of Palma (*Agave sisalana*) was used to recover the soil, a species that is widely used in the semi-arid region, resistant to drought and also used as food for livestock.

Planting takes place on contour lines in degraded soils in abandoned areas near the river. The thorn palm (*Opuntia dillenii*) has also been used to contain the erosion process.

According to research carried out at the National Semi-Arid Institute (Insa), thorn palm plantations can be transformed into green dams since the plants store a high level of water. However, the most important result of the research is the ability of the soil to

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<sup>23</sup> [Agroforestry systems for the Brazilian semi-arid region. - Embrapa Portal](#)

<sup>24</sup> [Diversification of forage crops in the semi-arid region increases productivity and resilience to drought - Embrapa Portal](#)

recover from degraded areas, even those subjected to severe stages of desertification<sup>25</sup>

Soil recovery is therefore carried out by planting exotic species, but as the SAF evolves, these species are replaced by other native species.

The Algaroba *Prosopis juliflora*, considered an invasive species, was already present in the area before the project began, and this species was not removed from the area in order to observe its behavior and invasive potential over time. Agave (*Agave sisalana*) was also managed to recover the soil in order to control and use it. Despite the use of exotic species in the SAF, the results show that the greater the diversity of species, the more difficult it is to observe the presence of invasive species, as well as the rapid recovery of the soil in the management of species used specifically for this purpose.

**Photo 32 - Species such as agave and palm used in soil recovery for AFS implementation**



Source: Consulting, 2024

The experiment carried out in the same semi-arid region, in the municipality of Sumé - PB, where the seedling nursery set up in mid-2009 by Prof. Aleksandra Vieira of the Federal University of Campina Grande is located, was an experiment with active management and natural recovery with native caatinga species with the aim of ecological restoration of the area. The experiment shows that there is a lower incidence of invasive species when there is greater diversity in the natural ecosystem.

It should be noted that the aim of the project is research, with a focus on ecosystem conservation and the recovery of degraded areas.

<sup>25</sup> <https://crbio08.gov.br/noticias/biologia-em-pauta/pesquisa-do-insa-revela-potencial-da-palma-de-espinhos-na-recuperacao-de-areas-degradadas/>

**Photo 33 - Plaque of the Experimental Area for Studies in the Ecology and Dynamics of the Caatinga**



Source: Consulting, 2024

**Photo 34 - Panoramic view of the nursery area**



Source: Consulting, 2024

In the same municipality, a *nursery of native caatinga species* was visited, with the aim of improving technology to lower costs and increase efficiency for a future seed bank.

More than 100 species of trees are planted in this nursery, such as the ingá, which is used to recover the riparian forest, the craibeira, which is important for recovering the APP, the mulungu and the baraúna. The umbu leaf, which is edible, and the highly medicinal cumarú are also used.

### Invasive alien species

Invasive alien species represent one of the greatest threats to the environment, with huge impacts and damage to biodiversity and natural ecosystems, affecting the provision of environmental services, health, the economy, as well as the conservation of genetic and natural heritage.

Invasive species, due to their ability to take the place of and exclude native species, either directly or through competition for resources, can transform the structure and composition of ecosystems, homogenizing environments and destroying peculiar characteristics of local and regional biodiversity<sup>26</sup>.

The algaroba (*Prosopis juliflora*) is a tree species native to the arid and semi-arid regions of North and Central America and northern South America. It has a high susceptibility to occurrence in the Caatinga and a medium probability in adjacent formations, especially in Seasonal Forests (Fabricante, 2013).

It is a species that is highly resistant to dry environments and has a high reproductive capacity. It is commonly found near bodies of water, where it is able to establish dense populations and compete with and locally extinguish native species in the Caatinga. In addition, this species has a high capacity for capturing water from the soil, reducing the soil's water resources for other native Caatinga species. Despite this, Algaroba is a plant much appreciated by the population due to its use for wood, animal fodder, living fences, among others, which could further facilitate its invasion process in the Caatinga.

In some of the areas visited, the presence of exotic species such as Algaroba can be seen in the Semiarid region of Paraíba, in the municipality of Camalau.

In the places visited where it occurs, according to the interviewees, despite being exotic, the algaroba feeds the animals and helps to preserve native species and when there is balance in the ecosystem it doesn't invade the spaces.

The animals feed on algaroba and fertilize the land with their droppings. They fence it off with algaroba to prevent animals from entering the APP.

### Mandacaru

The semi-arid region of northeastern Brazil is home to a number of cacti that are of great importance to the region's fauna and flora. Among these, the mandacaru facheiro (*Pilosocereus pachycladus*) stands out.

The facheiro, facheiro-azul or mandacaru-de-facho (*Pilosocereus pachycladus*) is a plant of the genus *Pilosocereus* and of the cactaceae family. It is endemic to the northeast of Brazil. It grows up to ten meters high with dark green branches and plenty

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<sup>26</sup> [Invasive Alien Species - Ministry of the Environment and Climate Change \(www.gov.br\)](http://www.gov.br)



of thorns. It occurs in the caatingas of the states of Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia (Lima, 1996).

It is a xerophyte used for ornamental purposes, whose lateral shoots, shaped like "arms", create ornamental effects. It predominates in the shrubby caatinga and in the higher regions (mountain ranges). It is used by small farmers as a food supply for their animals.

This species was observed in the semi-arid region of Paraíba in the municipality of Camalau.

## **Bees**

In the caatinga mountains, there is a production center for native stingless bees, especially the jandaíra (*Melipona interrupta*), or manduri). The jandaíra is a species of the genus *Melipona* and family Apidae and is a social bee from northern Brazil. The species is black with yellow stripes on the abdomen and produces clear, aromatic honey. There are 243 species of stingless bees kept in Brazil, of which the Jandaíra ranks 3rd (Hiara Menezes, in: Rádio Brasil de Fato, 2022. Podcast: Mel do Bem<sup>27</sup> ).

The urucu bee, a common name for several larger species of social bees from the meliponidae subfamily, which generally measure more than 10 mm in length, is more present on the coast and has economic potential for the production of propolis.

There are other native species in Paraíba, such as the cupira (*Partamona cupira*), but they still need more study. These bees are more sensitive to environmental changes and may suffer from competition from species such as the *Apis mellifera* bee, as they are more aggressive and have the potential to disperse their colonies more widely.

According to information from producers and researchers, honey from native bees offers high quality, medicinal properties and high potential for commercial exploitation, although it is more difficult to work economically with these species when compared to *Apis mellifera*.

## **Zona da Mata and the coast of Paraíba**

In the Zona da Mata region of Paraíba, which encompasses the Matas Sul and Mata Norte, fruit production is particularly noteworthy, especially mangaba.

Paraíba's production of mangaba was the highest in Brazil in 2020, according to the survey Production of Vegetable Extraction and Forestry (PEVS) by the Brazilian Institute of Geography and Statistics (IBGE). The survey provides information on the exploitation of natural plant resources, as well as forests planted for commercial purposes.

The mangabeira (*Hancornia speciosa* Gomes) is a fruit species with a wide distribution, occurring in the Tabuleiros Costeiros, Baixada Litorânea and Cerrados of Brazil. In the Northeast, it plays an important economic, social and cultural role for the region's coastal populations. The production of mangaba comes almost entirely from extractivism, practiced by traditional populations made up mostly of women, who call themselves mangaba pickers.

A visit to Aldeia Forte in Baía da Traição revealed mangaba agro-extractivist forests, a prominent activity in the state, which is Brazil's largest producer, but which still needs to be boosted. There are a lot of middlemen, but if they manage to benefit there is a lot of

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<sup>27</sup> Available at: <https://www.brasildefato.com.br/2022/11/11/conheca-a-jandaira-a-pequena-abelha-nordestina-com-mel-diferenciado-e-amiga-do-semiarido>

potential. There is no cultivation by extraction in the forest and with deforestation the resource disappears.

On a visit to the community of Aldeia Estiva Velha, in the municipality of Rio Tinto, the Potiguara also collect mangaba, which is distributed through the Piabuçu Agroindustrial Cooperative - Frutiaçu, where they work with family farming.

In the municipality of Pitimbu, on the state's southern coast, there are 13 settlements and 883 family farming properties, with more than 1,500 families and more than 2,000 registered rural dwellers. With production of 500 tons of products for the government with more than 14 diversified products, including pumpkin, avocado, pineapple, acerola, banana, sweet potato, cashew, green bean, yam, cashew, soursop, cassava, papaya, mango, mangaba and passion fruit.

**Photo 35 - Mangaba production in Baía da Traição**



Source: Consulting, 2024

In the same municipality of Pitimbu, on the south coast of the state, there is the Association of Shellfish gatherers of the Acaú Community in the Acaú - Goiana Extractive Reserve.

The shellfish gatherers practice the artisanal collection of shellfish (*Anomalocardia brasiliensis*). All the local shellfish gatherers are currently beneficiaries of the Association of Shellfish Gatherers of Acaú (AMA), and are part of a current socio-economic context in which they influence the development and generation of income in the territory in which they live.

It was the shellfish gatherers who asked for the creation of the Resex, which is federal and covers four communities in Pernambuco and two in Paraíba. The leaders took part in the Conservation Unit's Management Plan and have councillors who take part in its management.

Photo 36 - Basket with shellfish at RESEX Açau



Source: Consulting, 2024

Invasive alien species

Of particular concern in coastal areas is the incidence of invasive exotic fauna: African snails (*Achatina fulica*) and lionfish (*Pterois volitans*), which are usually brought in by boats traveling along the coast.

The lionfish, a species considered dangerous and without predators, has been spreading throughout the Brazilian sea. It is an aggressive predator of other fish and marine invertebrates and can eat 20 fish in up to half an hour, as well as being a venomous animal with poisonous spines.

**Photo 37 - African snail (*Achatina fulica*)**



Source: Gutemberg Brito. Available at <https://www.ioc.fiocruz.br/noticias/caramujo-africano-quais-os-reais-riscos-para-populacao> Accessed June 2024

**Photo 38 - Lionfish (*Pterois volitans*)**



Source: <https://www.seamester.com/blog/lionfish-out-of-sight-out-of-mind/> Accessed June 2024

### 4.2.3 Critical Habitats

According to paragraph 16 of ESPS 6, part of the IDB's Environmental and Social Framework, Critical habitats are areas of high importance or value for biodiversity, including:

- habitat of significant importance for critically endangered, endangered, vulnerable or near threatened species;<sup>28</sup>
- habitat of significant importance for endemic and/or restricted-range species;
- habitat that supports globally significant concentrations of migratory species and/or congregational species;
- highly threatened and/or unique ecosystems;
- areas associated with the main evolutionary processes;<sup>29</sup>
- areas that are legally protected or internationally recognized as having high biodiversity value.

In line with the guidelines of the IDB's Environmental and Social Policy Framework, paragraph 16 of ESPS 6 states that critical habitats are areas with high biodiversity values. It is important to note that the term "area" refers to a demarcated and mapped two-dimensional unit, similar to the concept of Key Biodiversity Areas (KBA) or legally defined protected areas in this sense, as these are broadly inclusive cartographic entities and management areas, not specific patches of habitat. Although the definitions of modified and natural habitats refer to "areas", for the purposes of ESPS 6, these areas are generally smaller units of land or water that can be mapped at the scale of a project's site plan. Critical habitat is identified and delineated at scales that are ecologically relevant to the biodiversity values and processes that designate it, typically, but not always, at terrestrial landscape, seascape or ecosystem scales that are specific to a site. Furthermore, species and ecological processes are generally not restricted to a narrowly defined type of habitat. Therefore, most critical habitats will contain several different habitat types and units, usually with areas of modified and natural habitat.

However, most potential critical habitat has not been identified or mapped. The use of online screening tools is not a substitute for a more complete assessment of the presence of critical habitat in a project's area of influence. GIS-based online approaches to identifying biodiversity values that may designate critical habitat do not provide complete information on all categories of these values. For example, there are few highly

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28 As listed in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. The determination of critical habitat based on other listings is as follows: (i) if the species is listed nationally/regionally as threatened or critically endangered, in countries that have adhered to the IUCN guidelines, the determination of critical habitat will be made on a project by project basis in consultation with competent professionals; and (ii) in cases where the categorizations of nationally or regionally listed species do not correspond well to those of the IUCN (for example, some countries list species as generally "protected" or "restricted"), an assessment will be carried out to determine the justification and purpose of the listing. In this case, the critical habitat determination will be based on this assessment.

29 This can include reserves that meet the criteria of IUCN Protected Area Management Category I to VI; World Heritage Sites designated by natural or mixed criteria, areas protected by the RAMSAR Convention on wetlands; World Biosphere Reserve core areas; areas on the UN Lists of National Parks and Protected Areas; sites listed in the World Database of Key Biodiversity Areas; and other sites that meet the requirements of the IUCN Global Standards for the Identification of Key Biodiversity Areas 2016.

threatened or unique ecosystems that are mapped, and many Ramsar sites are not mapped in a comprehensive geographical database.

Thus, the analysis can identify critical habitats, even if they are not listed in official databases or are well known, and there is often a need for appropriate *on-site* screening.

You should therefore evaluate the planned area of allocation from the point of view of meeting some of the requirements listed in this item.

Analysis of Possible Critical Habitats According to the descriptions below, various qualities of areas with important value for biodiversity in Paraíba have been identified, however, we can point to two areas with critical habitat characteristics in the state, which will not necessarily receive investments from the Project and which, if producer families in the surrounding area benefit from the investments, possible adverse influences should be assessed in order to apply measures to avoid impacts on these sites.

These areas are consolidated in the conservation units Rebio Guaribas (Full Protection) and Arie Manguezais Da Foz Do Rio Mamanguape (Sustainable Use). These two areas, as well as being legally protected conservation units, also overlap the Mamanguape KBA and include several species of endangered Brazilian fauna. As such, these two areas consolidate Critical Habitats, as can be seen in the table below<sup>30</sup>.

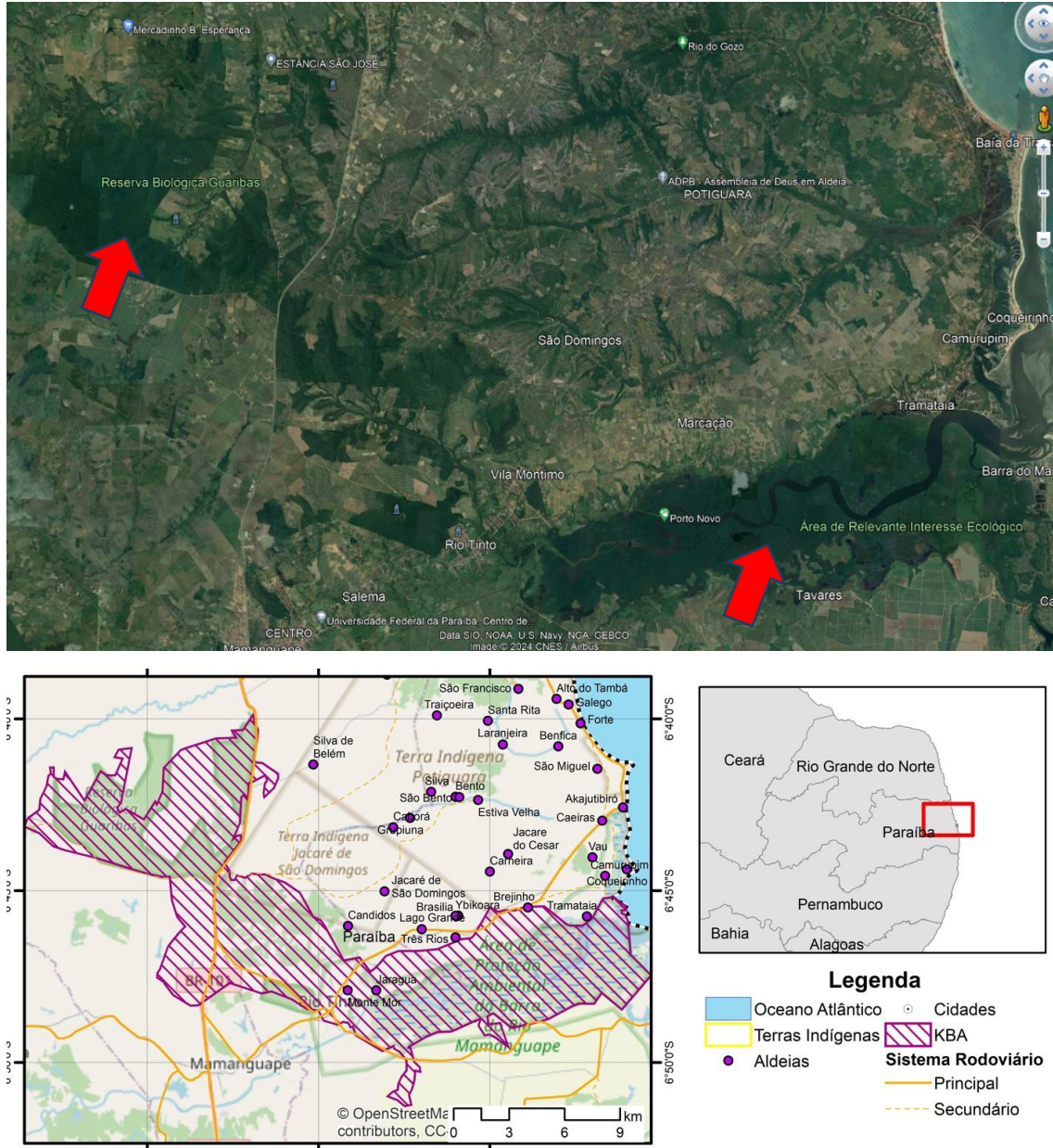
**Table 27 - Consolidation of critical habitat identification arguments**

Criteria	Identification feature
habitat of significant importance for critically endangered, endangered, vulnerable or near threatened species;	<i>Trichechus manatus</i> , <i>Touit surdus</i> , <i>Myrmeciza ruficauda</i> , <i>Picumnus fulvescens</i> , <i>M. ruficauda</i> and <i>Xipholena atropurpurea</i> , <i>Iodopleura pipra</i> , <i>Alouatta guiba clansans</i> (White-winged Macaque), <i>Alouatta guiba clans</i> (White-winged Macaque), <i>Xipholena atropurpurea</i> (White-winged Macaque), <i>Iodopleura pipra</i> (White-winged Macaque) <i>ruficauda</i> and <i>Xipholena atropurpurea</i> (white-winged anambee), <i>Iodopleura pipra</i> (little anambee), <i>Alouatta guariba clamitans</i> (Guariba monkey); <i>Euphractus sexcinctus</i> (armadillo).
habitat of significant importance for endemic and/or restricted-range species;	-
habitat that supports globally significant concentrations of migratory species and/or congregational species;	<i>Picumnus fulvescens</i> (Tawny Piculet), <i>Crypturellus noctivagus</i> (Yellow-legged Tinamou), <i>Touit surdus</i> (Golden-tailed Parrot), <i>Carduelis yarrellii</i> (Yellow-faced Siskin), <i>Xipholena atropurpurea</i> (White-winged Cotinga), <i>Myrmeciza ruficauda</i> / (Scallop Anthill)
highly threatened and/or unique ecosystems;	-
areas associated with the main evolutionary processes;	-
areas that are legally protected or internationally recognized as having high biodiversity value.	Biological Reserve, Area of Ecological Interest, KBA, native formations of the Atlantic Forest and mangroves.

<sup>30</sup> It should be reiterated that the recognition of these critical habitats presented in this section does not necessarily mean that Procasa II will act or influence these habitats.

The following figure shows the location of these areas potentially considered to be Critical Habitat.

**Figure 50 - Location of the critical habitats mentioned in the satellite image.**



Source: Google Earth Pro. Consulting, 2024

### Endangered species

The surveys of threatened species in the state of Paraíba are presented below.

## Flora

The state of Paraíba does not have an official list of endangered species, so a search was made in studies of the region to come up with an estimated number of endangered species in the state.

According to CNCFlora, 34 species have been recorded in categories of extinction risk assessment in Paraíba. Of these species, three are also on the Official National List of Endangered Species defined by the MMA. They are: *Erythroxylum pauferrense* (oak guard) defined as an endangered species, and *Apuleia leiocarpa* (jitaí) and *Cedrela fissilis* (cedar), both defined as vulnerable species.

The cumaru-de-cheiro (*Amburana cearensis*), on the other hand, is classified as "Near Threatened" on the international list; and as "Near Threatened" on the national list and "Threatened" on the international list.

The cumaru-de-cheiro (*Amburana cearensis*), from the Fabaceae family, is a tree with a potential height of around 20m. It is distributed throughout various South American biomes: Atlantic Forest, Cerrado, Caatinga, Chaco and the Lower Andes. It occurs in seasonal phytogeographies: semi-deciduous forest, deciduous forest, dwarf cloud forest and semi-arid forest areas. Its wood has international trade value. Despite its wide distribution, it has been considered almost threatened on a national scale due to its use and studies indicating the suppression of subpopulations. Therefore, the species could be categorized as "Vulnerable" if there is no reduction in the population reduction caused by logging (CNCFLORA, 2024).

Paraíba is home to the following species recorded in the National Forest Inventory: *Astronium fraxinifolium* (sete-cascas), *Myracrodruon urundeuva* (aroeira), *Schinopsis brasiliensis* (braúna), *Hymenaea courbaril* L. (jatobá), *Handroanthus impetiginosus* (pau d'arco-roxo), *Amburana cearenses* (cumaru) and *Bowdichia virgilioides* (sucupira), all of which are of high economic importance due to the commercial use of their wood.



**Table 28 - Endangered native species in Paraíba**

Familia	Espécie	Nome popular	Categorias de ameaça
Anacardiaceae	<i>Astronium fraxinifolium</i> Schott	sete-cascas	Menos preocupante
Anacardiaceae	<i>Myracrodruon urundeuva</i> Allemão	aroeira	Menos preocupante
Anacardiaceae	<i>Schinopsis brasiliensis</i> Engl.	braúna	Menos preocupante
Annonaceae	<i>Annona leptopetala</i> (R.E.Fr.) H.Rainer	araticum	Menos preocupante
Apocynaceae	<i>Aspidosperma spruceanum</i> Benth. ex Müll. Arg.	amargoso	Menos preocupante
Bignoniaceae	<i>Handroanthus impetiginosus</i> (Mart. ex DC.) Mattos	pau-d'arco-roxo	Quase ameaçada
Chrysobalanaceae	<i>Hirtella racemosa</i> Lam.		Menos preocupante
Convolvulaceae	<i>Evolvulus filipes</i> Mart.		Menos preocupante
Elaeocarpaceae	<i>Sloanea garckeana</i> K.Schum.		Menos preocupante
Erythroxylaceae	<i>Erythroxylum paufferrense</i> Plowman*	guarda-orvalho	Em perigo*
Euphorbiaceae	<i>Manihot carthagenensis</i> (Jacq.) Müll.Arg.		Menos preocupante
Fabaceae	<i>Abarema cochliacarpus</i> (Gomes) Barneby & J.W.Grimes	barbatimão	Menos preocupante
Fabaceae	<i>Abarema filamentosa</i> (Benth.) Pittier		Menos preocupante
Fabaceae	<i>Amburana cearensis</i> (Allemão) A.C.Sm.	cumaru	Quase ameaçada
Fabaceae	<i>Apuleia leiocarpa</i> (Vogel) J.F.Macbr.*	jitaí	Vulnerável*
Fabaceae	<i>Bowdichia virgilioides</i> Kunth	sucupira	Quase ameaçada
Fabaceae	<i>Centrosema sagittatum</i> (Humb. & Bonpl. ex Willd.) Brandegee		Menos preocupante
Fabaceae	<i>Hymenaea courbaril</i> L.	jatobá	Menos preocupante
Fabaceae	<i>Mimosa caesalpinifolia</i> Benth.	Sabiá	Menos preocupante
Fabaceae	<i>Pterogyne nitens</i> Tul.	madeira-nova	Menos preocupante
Malvaceae	<i>Pseudobombax marginatum</i> (A.St.-Hil. Juss. & Cambess.) A.Robyns		Menos preocupante
Meliaceae	<i>Cedrela fissilis</i> Vell.*	cedro	Vulnerável*
Meliaceae	<i>Trichilia ramalhoi</i> Rizzini		Quase ameaçada
Myrtaceae	<i>Campomanesia aromatica</i> (Aubl.) Griseb.	guabirola-de-quina	Menos preocupante
Myrtaceae	<i>Eugenia excelsa</i> O.Berg		Menos preocupante
Myrtaceae	<i>Myrcia guianensis</i> (Aubl.) DC.	batinga-pequena	Menos preocupante
Nyctaginaceae	<i>Guapira hirsuta</i> (Choisy) Lundell		Menos preocupante
Nyctaginaceae	<i>Guapira obtusata</i> (Jacq.) Little		Menos preocupante
Orchidaceae	<i>Malaxis excavata</i> (Lindl.) Kuntze		Menos preocupante
Portulacaceae	<i>Portulaca halimoides</i> L.	beldroega	Menos preocupante
Rubiaceae	<i>Genipa americana</i> L.	jenipapo	Menos preocupante
Sapotaceae	<i>Pradosia lactescens</i> (Vell.) Radlk.	buranhém	Menos preocupante
Sapotaceae	<i>Sideroxylon obtusifolium</i> (Roem. & Schult.) T.D.Penn.	quixabeira	Menos preocupante
Selaginellaceae	<i>Selaginella convoluta</i> (Arn.) Spring		Menos preocupante

\*Espécies ameaçadas de extinção conforme Lista Nacional Oficial de Espécies da Flora Ameaçadas de Extinção. Portaria MMA nº 443, de 17 de dezembro de 2014.

Apart from endangered species, in the state of Paraíba there is specific legislation for native species with restrictions on cutting, State Law No. 9.857 - OF JULY 6, 2012, which provides for the use and protection of vegetation in the Caatinga Biome and makes other provisions. Article 7 of this law stands out:

Art. 7" The following native species located in the Caatinga Biome in the state of Paraíba and those defined in the Normative

Decision of the Environmental Protection Council of the State of Paraíba (COPAM) are hereby declared to be subject to felling and exploitation restrictions, based on a floristic and phytosociological inventory that considers, as a minimum and jointly, the parameters of frequency and density and their respective values:

- I - *Anadenanthera colubrina* (Vel1.) Brenan - Angico;
- II - *Sideroxylon obtusifolium* (Roem & Schult) T.D.Penll. - Quixabeira;
- III - *Ceiba glaziovii* (Kuntze) K. Schum. - Barriguda;
- IV - *Comruiphora leptophloeos* (Marl.) B. Gillett - Imburana de cambão;
- V - *Handrourthus impetiginosus* (Marl. ex De.) Mattos - Pau O'arco roxo; Pau ferro; Craibeira
- VI - *Myracrodruon urundeuva* (German) -Aroeira;
- VII - *Libidibia ferrea* (Marl. ex Tul.) L.R Queiroz;
- VIII - *Tabebuia aurea* (Silva Manso) S. Moore;
- IX - *Schinopsis brasiliensis* (Engl.) - Barauna;
- X - *Amburana cearensis* (Ducke) - Cumaru.

## **Fauna**

Brazil officially has 1,173 endangered species, 34 of which occur in the state of Paraíba. The number seems small, but according to experts, the lack of a specific list of the state's fauna makes it difficult to know all the threatened or endangered species in Paraíba.<sup>31</sup>

The state of Paraíba does not have a State List of Endangered Fauna Species, so a search was made in studies of the region to come up with an estimated number of endangered species in the state.

The fauna of the Caatinga is represented by diverse groups rich in endemism. Like the plants, the animals have adapted to the conditions of the region by developing nocturnal habits, migratory behavior and physiological processes such as estivation, a type of "hibernation" in hot environments. Few studies have been carried out on the region's wildlife. Those that have been carried out are aimed at identifying and quantifying specific groups or those related to ecological processes, such as pollination and dispersal (Portal Embrapa, 2021).

Despite being identified as an important area of bird endemism in South America, the Caatinga has always been a neglected environment in terms of studies (PACHECO, 2004). Sampling of the biome's ornithofauna only began in the 19th century on the initiative of foreigners (PACHECO, 2003). Over the years, the number and quality of research has increased, but not enough when compared to the others. Currently, research, both ornithological and on the Biome as a whole, tends to be concentrated near large urban centers, research centers and easily accessible locations (PACHECO, 2003; TABARELLI; VICENTE, 2003).

The most recent compilations on the richness of birds in the Caatinga indicate a number of species varying between 348 and 510, depending on the different inclusion criteria used (SILVA *et al.*, 2003; MAJOR *et al.*, 2004; PACHECO, 2004). All of these were

<sup>31</sup> [State of Paraíba has 34 endangered species \(naturezaeconservacao.eco.br\)](http://naturezaeconservacao.eco.br)

important efforts to gain knowledge of the birds that occur in this biome, which complement other initiatives for the conservation of birds in this region, such as the establishment of priority areas for conservation (PACHECO *et al.*, 2004; FARIAS *et al.*, 2005). Despite these efforts, there are still many gaps in knowledge about the distribution of birds in this ecosystem and only a small number of sites are protected by the system of protected areas (TABARELLI; SILVA, 2004).

Birds are the most representative, with around 510 species of birds, 20 of which are already on the endangered list, including the hyacinth macaw (*Cyanopsitta spixii*) and the Leary macaw (*Anodorhynchus leari*), as a result of wildlife traffic. Mammals are represented by around 150 species. However, it is believed that this number will be much higher when studies of rodents and bats are intensified. Some of their representatives are already on the list of endangered species. Felines are among the top of this list due to hunting, which has been reducing their population and that of the animals that are part of their diet. The herpetofauna is represented by 47 species of amphibians and 47 of snakes. The lizards, with 44 species, stand out due to the large number of endemic species found, especially in the São Francisco River Dunes - BA. Some exhibit interesting behavior, such as frogs, which can remain buried and without eating during the dry season (aestivation). Studies carried out in the Ouricuri-PE region have shown cases of distinct stands related to the dry and wet seasons, which has made it possible to establish a typology for each season.

Paraíba is one of the Brazilian states in which most of the Conservation Units do not have any endangered species. According to the Federal Atlas of Endangered Brazilian Fauna in Federal Protected Areas (2011), 15 endangered species were found in the state's protected areas, as shown in the table below.

**Table 29 - Endangered species in PAs in Paraíba.**

Federal PAs	Species	Common Name	Source
Mamanguape River Bar APA	<i>Trichechus mantus</i>	Marine manatees	MACHADO <i>et al.</i> , 2008
Guaribas Biological Reserve	<i>Conopophaga lineata cearae</i>	Sabiazinha(CE; Chupadente; Cuspidor-do-nordeste	MACHADO <i>et al.</i> , 2008
	<i>Conopophaga melanops nigrifrons</i>	Mask tooth sucker	MACHADO <i>et al.</i> , 2008
	<i>Hemitriccus mirandae</i>	Mary of the North-East	MACHADO <i>et al.</i> , 2008
	<i>Iodopleura pipra leucopygia</i>	Wildcat; Macambira cat; Pintadinho; Mumuninha; Maracajá; Maracajá cat	MACHADO <i>et al.</i> , 2008
	<i>Leucopternis lacernuratus</i>	Sparrowhawk; Little Sparrowhawk	MACHADO <i>et al.</i> , 2008
	<i>Momotus momota marcgraviana</i>	Udu-de-coroa- azul do nordeste; Figudo (AL), Udu (PE)	MACHADO <i>et al.</i> , 2008
	<i>Myrmeciza ruficauda</i>	Red-tailed anthill	MACHADO <i>et al.</i> , 2008
	<i>Odontophorus capueira plumbeicollis</i>	Uru-do-nordeste; Piruinha (AL)	MACHADO <i>et al.</i> , 2008

<i>Penelope superciliaris alagoensis</i>	Alligator	MACHADO et al., 2008
<i>Picumnus exilis pernambucensis</i>	Golden Dwarf Woodpecker; Pernambuco Dwarf Woodpecker	MACHADO et al., 2008
<i>Platyrinchus mystaceus niveigularis</i>	Northeastern duckling; Little flat-billed duckling (PE)	MACHADO et al., 2008
<i>Xenops minutus alagoanus</i>	Beak-turned-smooth	MACHADO et al., 2008
<i>Xipholena atropurpurea</i>	White-winged anambee	MACHADO et al., 2008

Source: Federal Atlas of Endangered Brazilian Fauna in Federal Conservation Units (2011)

**Table 30 - Endangered species of Brazilian fauna occurring in the state of Paraíba**

Nome Científico	Nome Popular
<b>Felidae</b>	
<i>Leopardus pardalis mitis</i> (Cuvier, 1820)	Jaguaritica
<i>Leopardus tigrinus</i> (Schreber, 1775)	Gato-do-mato
<i>Puma concolor greeni</i> (Nelson & Goldman, 1931)	Onça-vermelha, suçuarana, onça-parda, puma
<b>Cetacea</b>	
<i>Balaenoptera borealis</i> Lesson, 1828	Baleia-sei, baleia espadarte
<i>Balaenoptera musculus</i> (Linnaeus, 1758)	Baleia-azul
<i>Balaenoptera physalus</i> (Linnaeus, 1758)	Baleia-fin
<i>Megaptera novaeangliae</i> (Borowski, 1781)	Baleia-jubarte, jubarte
<i>Physeter macrocephalus</i> Linnaeus, 1758	Cachalote
<b>Sirenia</b>	
<i>Trichechus manatus</i> Linnaeus, 1758	Peixe-boi-marinho
<b>Aves</b>	
<i>Leucopternis lacernulata</i> (Temminck, 1827)	Gavião-pombo-pequeno
<i>Penelope jacucaca</i> Spix, 1825	Jacucaca
<i>Penelope superciliaris alagoensis</i> Nardelli, 1993	Jacu-de-alagoas
<i>Odontophorus capueira plumbeicollis</i> Cory, 1915	Uru-do-nordeste
<i>Thalasseus maximus</i> (Boddaert, 1783)	Trinta-réis-real
<i>Momotus momota marcgraviana</i> Pinto & Camargo, 1961	Udu-de-coroa-azul-do-nordeste
<i>Picumnus exilis pernambucensis</i> Zimmer, 1947	Pica-pau-anão-dourado
<i>Conopophaga lineata cearae</i> (Cory, 1916)	Cuspidor-do-nordeste
<i>Conopophaga melanops nigrifrons</i> Pinto, 1954	Chupa-dente-de-máscara
<i>Iodopleura pipra leucopygia</i> Salvin, 1885	Anambezinho, anambé-de-crista
<i>Procnias averano averano</i> (Hermann, 1783)	Araponga-de-barbela
<i>Xipholena atropurpurea</i> (Wied, 1820)	Anambé-de-asa-branca
<i>Xiphocolaptes falcirostris</i> (Spix, 1824)	Arapaçu-do-nordeste
<i>Xiphorhynchus fuscus atlanticus</i> (Cory, 1916)	Arapaçu-de-garganta-amarela-do-nordeste
<i>Tangara fastuosa</i> (Lesson, 1831)	Pintor-verdadeiro
<i>Xanthopsar flavus</i> (Gmelin, 1788)	Veste-amarela
<i>Carduelis yarrellii</i> Audubon, 1839	Pintassilgo-baiano

<b>Aves</b>	
<i>Automolus leucophthalmus lammi</i> Zimmer, 1947	Barraqueiro-do-nordeste
<i>Xenops minutus alagoanus</i> Pinto, 1954	Bico-virado-liso
<i>Schiffornis turdinus intermedius</i> Pinto, 1954	Flautim-marrom
<i>Myrmeciza ruficauda</i> (Wied, 1831)	Formigueiro-de-cauda-ruiva
<i>Hemitriccus mirandae</i> (Sneathlaga, 1925)	Maria-do-nordeste
<i>Platyrinchus mystaceus niveigularis</i> Pinto, 1954	Patinho-do-nordeste
<b>Coleoptera</b>	
<i>Megasoma gyas rumbucheri</i> Fischer, 1968	Besouro-de-chifre
<b>Lepidoptera</b>	
<i>Grasseia menelaus eberti</i> (Weber, 1963)	Borboleta
<i>Pessonnia epistrophus nikolajewna</i> (Weber, 1951)	Borboleta

Source: MMA Normative Instruction 003, of May 26, 2003

## Legally Protected Areas

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The following table shows the data on the conservation units identified: 16 federal units, 17 state units and 6 municipal units. With regard to the group, 11 areas are in the Full Protection group and 23 are in the Sustainable Use group. It is important to note that in the case of RPPNs, all are considered to be sustainable use.

**Table 31 - Legally Protected Areas**

Seq.	Name	Creation	Sphere	Group	Category	Area (ha)	IUCN
1	APA BARRA DO RIO MAMANGUAPE	Decree 924 of 10-09-1993	Federal	Sustainable Use	Environmental Protection Area	14.918,6	V
2	MAMANGUAPE RIVER MOUTH MANGROVE ARIE	Decree 91.890 of 05-11-1985	Federal	Sustainable Use	Area of Relevant Ecological Interest	5.769,55	IV
3	CABEDELLO SANDBANK FN	Decree S/N of 02-06-2004	Federal	Sustainable Use	Forest	114,62	VI
4	RB GUARIBAS	Decree 98884 of 25-01-1990	Federal	Comprehensive Protection	Biological Reserve	4.051,68	Ia
5	RED SAND SEABED	Decree 21.263 of 28-08-2000	State	Comprehensive Protection	Park	230,89	II
6	ONÇAS APA	Decree 22880 of 25-03-2002	State	Sustainable Use	Environmental Protection Area	31.907,08	V
7	TAMBABA APA	Decree 22882 of 25-03-2002	State	Sustainable Use	Environmental Protection Area	11.399,97	V
8	PE MATA DO PAU FERRO	Decree 26098 of 04-08-2005	State	Comprehensive Protection	Park	607,07	II
9	CARIRI APA	Decree 25083 of 08-06-2004	State	Sustainable Use	Environmental Protection Area	15.747,04	V
10	MN DINOSAUR VALLEY	Decree 23.832 of 27-12-2002	State	Comprehensive Protection	Natural Monument	39,83	III
11	RESEX ACAÚ-GOIANA	Decree S/N of 26-09-2007	Federal	Sustainable Use	Extractive Reserve	6.676,78	VI
12	CAMARATUBA RIVER BAR ARIE	Complementary Law 001/98 of 02-04-1998	Municipal	Sustainable Use	Area of Relevant Ecological Interest	167,5	IV
13	APA RONCADOR	Decree 27.204 of 06-06-2006	State	Sustainable Use	Environmental Protection Area	6.069,01	V
14	GOIAMUNDUBA ARIE	Decree 23833 of 27-12-2002	State	Sustainable Use	Area of Relevant Ecological Interest	64,74	IV
15	EE DO PAU BRASIL	Decree 22881 of 25-03-2002	State	Comprehensive Protection	Ecological Station	90,92	Ia

Seq.	Name	Creation	Sphere	Group	Category	Area (ha)	IUCN
16	PE PICO DO JABRE	Decree 14.834 of 19-10-1992	State	Comprehensive Protection	Park	851,25	II
17	PE OF THE POET AND REPENTISTA JUVENAL DE OLIVEIRA	Decree 25322 of 09-09-2004	State	Comprehensive Protection	Park	261,31	II
18	RVS MATA DO BURQUINHO	Decree No. 35.195 of 23-07-2014	State	Comprehensive Protection	Wildlife Refuge	512,81	III
19	SÃO PEDRO AND SÃO PAULO ARCHIPELAGO APA	Decree 9313 of 19-03-2018	Federal	Sustainable Use	Environmental Protection Area	38.456.487,24	V
20	MN OF THE SÃO PEDRO AND SÃO PAULO ARCHIPELAGO	Decree 9313 of 19-03-2018	Federal	Comprehensive Protection	Natural Monument	4.720.024,47	III
21	PE DAS TRILHAS	Decree 37.653 of 15-09-2017	State	Comprehensive Protection	Park	578,44	II
22	PNM DO CUIÁ - CUIÁ PARK	Decree No. 7.517 of 17-04-2012	Municipal	Comprehensive Protection	Park	43,16	II
23	RPPN ARMIL	Ordinance 195 of 12-03-2018	Federal	Sustainable Use	Private Natural Heritage Reserve	5,1	IV
24	RPPN ENGENHO GARGAÚ	Ordinance 064/94-N of 14-06-1994	Federal	Sustainable Use	Private Natural Heritage Reserve	1.036,03	IV
25	RPPN FAZENDA ALMAS	Order 1343/1990 of 01-08-1990	Federal	Sustainable Use	Private Natural Heritage Reserve	3.448,51	IV
26	RPPN FAZENDA SANTA CLARA	Order 1344/1990 of 01-08-1990	Federal	Sustainable Use	Private Natural Heritage Reserve	737,52	IV
27	RPPN FAZENDA PEDRA D'AGUA	Ordinance 60 of 15-07-1999	Federal	Sustainable Use	Private Natural Heritage Reserve	166,73	IV
28	MAJOR BADÚ LOUREIRO RPPN	Order 109/2001 of 03-09-2001	Federal	Sustainable Use	Private Natural Heritage Reserve	183,64	IV
29	TAMANDUÁ FARM RPPN	Order 110/98-N of 30-07-1998	Federal	Sustainable Use	Private Natural Heritage Reserve	618,02	IV
30	RPPN FAZENDA PACATUBA	Order 110-N/1995 of 28-12-1995	Federal	Sustainable Use	Private Natural Heritage Reserve	261	IV



Seq.	Name	Creation	Sphere	Group	Category	Area (ha)	IUCN
31	RPPN FAZENDA VÁRZEA	Order 11/98-N of 22-01-1998	Federal	Sustainable Use	Private Natural Heritage Reserve	383,12	IV
32	APA BURNT SHIPWRECK	Decree 38.931 of 28-12-2018	State	Sustainable Use	Environmental Protection Area	42.266,09	V
33	PNM OF CABEDELO	Decree No. 12/2003 of 16-04-2003	Municipal	Comprehensive Protection	Park	49,08	II
34	SERRA DO TEIXEIRA NP	Decree no. 11.552 of 05-06-2023	Federal	Comprehensive Protection	Park	61.095,94	II

Ministry of the Environment (2024, consultation: <https://dados.gov.br/dados/conjuntos-dados/unidadesdeconservacao>)



## Map 11 - Conservation Units

In Paraíba, there are currently Conservation Units protecting natural landscapes in the territory's two biomes - the Atlantic Forest and the Caatinga - as well as others in the marine ecosystem.

Various activities can be carried out in these protected territories, such as environmental education, scientific research, ecotourism and sustainable extraction of renewable natural resources.

Important natural heritage is preserved in the Conservation Units, such as endangered biodiversity, like the pau-brasil (*Paubrasilia echinata*), with an important population preserved in the Ecological Station of the same name, which has one of the most important germplasm banks of this species in the country. In addition, there are endemic birds (Mata do Pau-Ferro State Park), cave paintings (APA das Onças) and ichnofossils from the Cretaceous period (Vale dos Dinossauros Natural Monument), which are also protected in UCs.

An important role of Conservation Units is to preserve and encourage the maintenance of the traditional knowledge of human populations within the socio-environmental context that surrounds them. In the buffer zone of the Areia Vermelha Marine State Park (PEMAV), the project known as the Community Integration Project, supported by GEF-Mar and signed by a Cooperation Agreement between the state of Paraíba and the Ministry of the Environment, supports the women of the fishermen's colony in the municipality of Cabedelo, with activities such as handicrafts produced by the shellfish gatherers of the Renascer community.

*"Knowing in order to conserve"* is an affirmative maxim that guides the management of Conservation Units. Through popular participation, scientific dissemination and the experience of these spaces, we can believe in a future in which ecosystems will be perpetuated for future generations.

It is important to note that full protection units have a buffer zone around them, the radius of this zone and any impacts that cannot occur in this area are defined in each unit's Management Plan. Therefore, in the case of areas of destination and origin that are close to full protection conservation units, this documentation should be consulted and, if necessary, the unit's administration.

In the case of sustainable use units, interaction can occur. Some units are quite extensive and encompass public and private properties, including urban areas and entire municipalities. These units can be used, and there may be rules governing occupation, based on impacts that are not permitted.

## KBA sites

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Two KBA<sup>32</sup> sites were identified in the Procasse II area, as shown in the table below:

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32 Key Biodiversity Areas Partnership (2024) Key Biodiversity Areas factsheet: Jaguaquara. Extracted from the World Database of Key Biodiversity Areas. Developed by the Key Biodiversity Areas Partnership: BirdLife International, IUCN, American Bird Conservancy, Amphibian Survival Alliance, Conservation International, Critical Ecosystem Partnership Fund, Global Environment Facility, Re:wild, NatureServe, Rainforest Trust, Royal Society for the Protection of Birds, World Wildlife Fund and Wildlife Conservation Society. Downloaded from <http://www.keybiodiversityareas.org/> on 08/04/2024.

**Table 32 - KBAs identified in the study area**

Seq	Name	Year	KBA area (ha)	% of Area Protected	KBA criteria
1	<b>Pau-Ferro Forest</b>	2006	13783		TBD Global/Regional'
2	<b>Mamanguape</b>	2006	16656	74,9	TBD Global/Regional'

Source: <https://www.keybiodiversityareas.org/>, 2024 (consultation).

Below are details of the areas, with a summary of threats, reasons for qualifying as KBA and biodiversity elements, followed by a map showing the location of the KBA Sites.

### **Pau Ferro Forest**

The Mata do Pau-Ferro State Park is an ecological heritage site in Paraíba, located in the municipality of Areia, occupying around 600 hectares of the Vaca Brava site. Its climate is typical of the Paraíba wetlands, with an average temperature of 22°C and relative humidity of around 85%. It has great plant and animal biodiversity, as it is a remnant of the Atlantic Forest in the Northeast. Its hydrography is mainly represented by the Vaca Brava dam, a reservoir that supplies some municipalities in the Brejo Paraibano micro-region<sup>33</sup>

It is of economic importance to the Chã de Jardim community, which earns money by developing rural tourism activities in the park for visitors. It is also used as a source of research for scientific papers and educational activities.

### **Summary of threats to biodiversity**

The Pau-Ferro forest used to belong to the Atlantic forest, but due to the growing influence of man, the area was constantly cleared and occupied for agricultural activities to produce sugar cane. Only in 1937 was the area acquired by the state of Paraíba, expropriating it from the sugar mills. In 1992, by decree 14.842, the area became an ecological reserve and was administered by the Superintendence of Environmental Administration (SUDEMA).

Through Decree No. 26.098 of August 4, 2005, the Paraíba government classified the ecological reserve as a state park. The Pau-Ferro forest represents 1% of the highland swamp forest and has great biodiversity, being recognized by national and international institutions as a conservation area for endangered species, as it has endemic species, such as BirdLife International and SAVE Brasil, institutions focused on bird conservation. It is also a conservation area for tributaries of the Mamanguape River basin, the Vaca Brava dam.

### **Justification for qualifying as KBA**

This site qualifies as a Key Biodiversity Area of international importance because it meets one or more criteria and thresholds previously established for the identification of sites of importance for biodiversity (including Important Bird and Biodiversity Areas, Zero Extinction Alliance Sites and Key Biodiversity Areas).

<sup>33</sup> Pau-ferro Forest - Federal University of Paraíba Francisco Tancredo Torres Sector Library (ufpb.br)

**Table 33 - Biodiversity elements that trigger the KBA qualification criteria**

Taxonomic Group	Scientific Name	Common Name	IUCN Category	KBA criteria
Birds	<i>Hemitriccus mirandae</i>	Puffed-breasted tyrant	VU	A1, B1a (2023)
Birds	<i>Tangara fastuosa</i>	Seven-color tanager	VU	A1, B1a (2023)

Source: <https://www.keybiodiversityareas.org/site/factsheet/20118>, 2024 (consultation).

### **Mamanguape**

Formed by remnants of lowland forest, mangroves, cerrados ("tabuleiros") and restingas along the Quandu and Mamanguape rivers, this area is located on the northern coast of Paraíba, a few kilometers north of the Jacuípe Forest (PB02) and about 35 km south of the Estrela Forest (RN02). The climate is hot and humid, with abundant rainfall due to the influence of the trade winds that blow constantly from the southeast. The forests in the region are of the seasonal semi-deciduous type and, for the most part, have already been selectively cut or are secondary. The largest remnants are in the Guaribas Biological Reserve, which is made up of three disjointed areas corresponding to forest fragments measuring 3,016, 673 and 338 ha. The adjacent mangroves are home to the manatee (*Trichechus manatus*), an aquatic mammal threatened with extinction.

### **Summary of threats to biodiversity**

Little information has been released on the current avifauna of Mamanguape. A survey carried out between 1989 and 1994 indicated the occurrence of 175 species in R.B. Guaribas, while a rapid ecological assessment of this conservation unit, conducted in 2002, resulted in the recording of 140 species, including the endangered *Touit surdus* (yellow-tailed apuim), *Myrmeciza ruficauda* (red-tailed antbird) and *Picumnus fulvescens* (dwarf cinnamon woodpecker). Mamanguape seems to be the northern limit of distribution for a number of birds endemic to the Atlantic Rainforest, including the endangered *M. ruficauda* and *Xipholena atropurpurea* (white-winged anambee) and the almost endangered *Iodopleura pipra* (little anambee).

In addition to the bird species mentioned, it is also important to point out other species that justify the presence of the conservation units contained in the territory defined for this KBA. These species are: Guariba monkey (*Alouatta guariba clamitans*), the species that represents the Rebio Guaribas CU; Tatupeba (*Euphractus sexcinctus*); Manatee (*Trichechus manatus*);

**Photo 39 - Guariba monkey (*Alouatta guariba clamitans*)**



Source: <https://www.ufrgs.br/faunadigitalrs/mamiferos/ordem-primates/familia-atelidae/bugio-ruivo-alouatta-guariba-clamitans/> Accessed June 2024

**Photo 40 - Tatupeba (*Euphractus sexcinctus*)**



Source: <https://www.suapesquisa.com/mundoanimal/tatupeba.htm/> Accessed June 2024

**Photo 41 - Manatee (*Trichechus manatus*)**



Source: <https://vivaopeixeboimarinho.org/> Accessed June 2024

### Justification for qualifying as KBA

This site qualifies as a Key Biodiversity Area of international importance because it meets one or more criteria and thresholds previously established for the identification of sites of importance for biodiversity (including Important Bird and Biodiversity Areas, Zero Extinction Alliance Sites and Key Biodiversity Areas).

**Table 34 - Biodiversity elements that trigger the KBA qualification criteria**

Taxonomic Group	Scientific Name	Common Name	IUCN Category	KBA criteria
Birds	<i>Picumnus fulvescens</i>	Tawny Piculet	NT	A1, B1a (2023)
Birds	<i>Crypturellus noctivagus</i>	Tinamou with yellow legs	NT	A1, B1a (2023)
Birds	<i>Touit surdus</i>	Golden-tailed parrot	VU	A1, B1a (2023)
Birds	<i>Carduelis yarrellii</i>	Yellow-faced Siskin	VU	A1, B1a (2023)
Birds	<i>Xipholena atropurpurea</i>	White-winged coot	EN	A1, B1a (2023)
Birds	<i>Myrmeciza ruficauda</i>	Scallop anthill	EN	A1, B1a (2023)

Source: <https://www.keybiodiversityareas.org/site/factsheet/20121>, 2024 (consultation).



**Map 12 - KBA sites**



## Ramsar sites

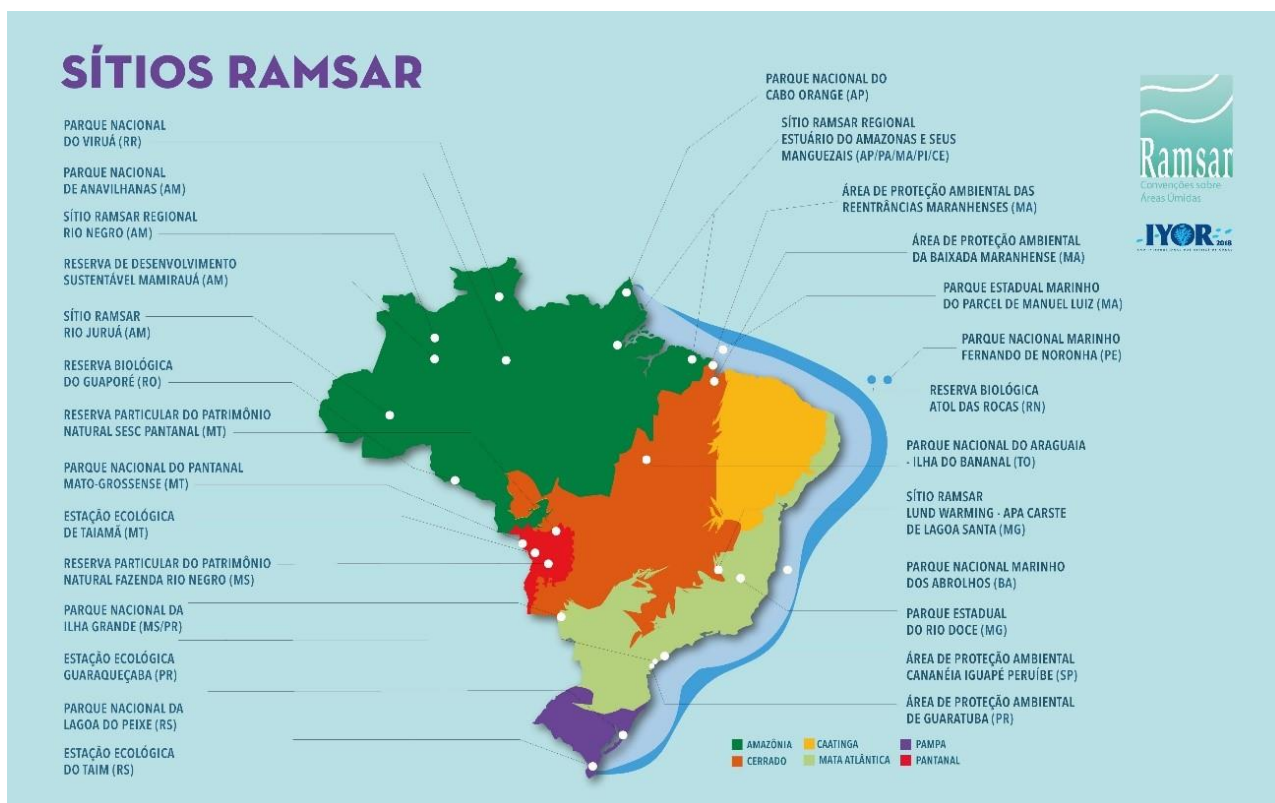
According to the Ministry of the Environment, until 2017 Brazil adopted the guideline for nominating wetlands to be included on the Ramsar List that these areas should correspond to protected areas, which favors the adoption of the necessary measures to implement the country's commitments to the Convention. As of 2018, a new concept has been developed with the aim of creating Ramsar Sites at a regional level, including protected areas and other wetlands of international importance.

Since joining the Ramsar Convention, Brazil has promoted the inclusion of twenty-four conservation units and three Regional Ramsar Sites, bringing the total to 27 Sites on the Ramsar List. The inclusion of these areas on the Ramsar List allows Brazil to obtain support for research, access international funds to finance projects and create a favorable scenario for international cooperation.

In return, Brazil has made a commitment to maintain its ecological characteristics - the elements of biodiversity, as well as the processes that maintain them - and must give priority to their consolidation over other protected areas, as even provided for in the National Strategic Plan for Protected Areas (PNAP), approved by Decree No. 5.758/06.

As shown in the figure below, there are still no Ramsar sites in the Project area.

**Figure51 - Ramsar sites in Brazil**



Source: MMA, 2024 (consultation).

## IUCN Sites

Thirty-four mapped units were identified from the IUCN System of Protected Area Management Categories:

Category **Ia**: 2 areas;

Category **II**: 8 areas;

Category **III**: 3 areas;

Category **IV**: 12 areas;

Category **V**: 7 areas;

Category **VI**: 2 areas;

Below is a brief description of each Category:

- **Category Ia** - Strict nature reserve: these are strictly protected areas designed to protect biodiversity and possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure the protection of conservation values. These protected areas can serve as indispensable reference areas for scientific research and monitoring.
- **Category II** - National Park: protected areas are large natural or near-natural areas set aside to protect large-scale ecological processes, together with the complement of species and ecosystems characteristic of the area, which also provide a base for environmentally and culturally compatible spiritual, scientific, educational, recreational and cultural activities. visitor opportunities.
- **Category III** - Monument or Natural Feature: these are set aside to protect a specific natural monument, which can be a landform, a seamount, an underwater cave, a geological feature such as a cave or even a living feature such as an ancient woodland. They are usually quite small protected areas and often have a high value for visitors.
- **Category IV** - Habitat/Species Management Area: aims to protect specific species or habitats and management reflects this priority. Many category IV protected areas will require regular and active interventions to respond to the needs of specific species or to maintain habitats, but this is not a requirement of the category.
- **Category V** - Protected Landscape/Marine: Protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and landscape value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.
- **Category VI** - Protected Area with Sustainable Use of Natural Resources: Protected areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in natural conditions, where a portion is under sustainable natural resource management and low-level, non-industrial use of natural resources compatible with nature conservation is seen as one of the area's main objectives.

The following figure shows the areas described.



## Map 13 - IUCN Categorization

### 4.3 Socio-economic environment

The following is diagnostic information on the socio-economic environment of the Procasa II area. The data catalogued comes from studies, mapping and statistical bases from available official sources.

#### 4.3.1 Urban Network and Hierarchy between Cities

This section discusses the formation of the urban network of the state of Paraíba and the municipalities in the project area. This study identifies the network of cities as playing a fundamental role in structuring and organizing the geographical space of the region under analysis. The urban centers of a given region have a set of interdependent relationships between them and, depending on their hierarchical status, can also establish relationships with urban centers in other regions.

In general terms, this chapter was based on the analysis presented in the study **Regions of Influence of Cities - 2018**, published by the IBGE (2018).

This study was carried out by the Brazilian Institute of Geography and Statistics - IBGE (2018), addressing the Region of Influence of Cities, made for planning, creates socioeconomic indicators and interdependence between cities in terms of products, services, commerce, health and education facilities, transportation, etc. Issues such as community vulnerabilities are not assessed.

The study of the interrelationships between urban centers is justified by the need to understand the dynamics of interactions, the flow of population in search of products, services and employment, and their distribution in geographical space.

The methodology used to study the city system provides for a hierarchical organization of urban centers. In this way, each city has different areas of influence, depending on the scope of the goods and services offered there, as opposed to other centers. In this sense, some goods and services produced and offered by urban centers can have a national, regional or local reach. The wider and more varied the range of goods and services offered to the population, the higher the hierarchical level reached by the urban center and the greater its area of influence.

Overall, there is a tendency for the population to be concentrated in large cities with more central functions, which are largely state capitals. On the other hand, urban centers that only produce the goods and services sought by the local population to satisfy their daily needs have a smaller area of influence and are positioned at lower hierarchical levels.

The analysis is based on two types of classification that are interrelated: the functional hierarchy between cities and the polarization between urban centers and between land management centers.

#### Functional Hierarchy

In the study of the functional hierarchy, or hierarchy of urban centers (following the categories adopted in the previous version of Regic, *Regions of Influence of Cities - 2007*), the cities were classified into five major levels, in turn subdivided into sub-levels, namely:

### **Metropolis:**

These are the 15 main urban centers in the country, characterized by their large size and strong relationships with each other, as well as generally having an extensive area of direct influence. All of the country's existing cities are directly influenced by one or more metropolises at the same time.

The region of influence of these centralities is wide and covers the entire territorial extension of the country, with areas of overlap in certain contacts. Metropolises are subdivided into three levels:

- **Large National Metropolis** - the Population Arrangement<sup>34</sup> of São Paulo/SP alone occupies the position of the largest urban hierarchy in the country;
- **National Metropolis** - the Population Arrangements of Brasília/DF and Rio de Janeiro/RJ occupy the second hierarchical position, also with a strong national presence;
- **Metropolis** - the Population Arrangements of Belém/PA, Belo Horizonte/MG, Campinas/SP, Curitiba/PR, Florianópolis/SC, Fortaleza/CE, Goiânia/GO, Porto Alegre/RS, Recife/PE, Salvador/BA, Vitória/ES and the Municipality of Manaus (AM) are the 12 Cities identified as Metropolises. They are made up of nine capitals that have been classified as 1 in terms of centrality of territorial management, plus Belém (PA), Campinas (SP) and Manaus (AM), which, although they are in class 2, have a significant population of more than 2 million inhabitants. Campinas (SP) is the only city that is not a state capital to be classified as a metropolis.

In Regic's 2007 study, there were 12 main urban centers in this category, including the Population Arrangements of Campinas/SP, Florianópolis/SC and Vitória/ES.

### **Regional Capitals:**

These are the urban centers with a high concentration of management activities, but with a smaller reach in terms of region of influence compared to the Metropolises. In all, 97 cities were classified as Regional Capitals throughout the country, with three subdivisions:

- **Regional Capital A** - made up of 9 Cities, generally State Capitals of the Northeast and Center-West Regions, with the exception of the Population Arrangement of Ribeirão Preto/SP. Their populations are close to each other, ranging from 800,000 to 1.4 million inhabitants in 2018. They are all directly related to metropolises;
- **Regional Capital B** - brings together 24 cities, generally reference centers in the interior of the states, except for the state capitals Palmas/TO and Porto Velho (RO). They are characterized by having an average of 530,000 inhabitants, with only the São José dos Campos/SP Population Arrangement having a higher population level (1.6 million inhabitants in 2018). They are numerous in the Southern Region, where 10 of the 24 Regional Capitals in this category are located;
- **Regional Capital C** - has 64 Cities, including three State Capitals: the Municipalities of Boa Vista (RR), Rio Branco (AC) and the Population Arrangement of Macapá/AP,

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<sup>34</sup> Population Arrangements are territorial cutouts established by a study published by the IBGE in 2016, which consist of groupings of two or more municipalities.

all belonging to the Northern Region. The other cities are mainly in the Southeast, where 30 of the 64 Regional Capitals C are located. The national average population of the cities in this category was 300,000 inhabitants in 2018, the highest being in the Southeast (360,000) and the lowest in the South (200,000).

In the previous 2007 version of Regic, 70 urban centers were included at this level, 11 cities classified as Regional Capital A, 20 as Regional Capital B, and 39 as Regional Capital C.

### **Sub-Regional Centers:**

At this third hierarchical level, the 352 cities have less complex management activities (all are level 3 in the territorial management classification), with smaller areas of influence than the Regional Capitals. They are also smaller cities, with a national average of 85,000 inhabitants, larger in the Southeast (100,000) and smaller in the South and Midwest (75,000). This level is divided into two groups:

- **Sub-Regional Center A** - made up of 96 cities in the Southeast, South and Northeast regions, with an average population of 120,000 inhabitants;
- **Sub-Regional Center B** - made up of 256 cities with a large share from the Southeast and Northeast regions, with a national average of 70,000 inhabitants, higher in the Southeast (85,000) and lower in the South (55,000).

Compared to the previous 2007 version of Regic, this level comprised 169 urban centers, 85 cities classified as Sub-Regional Center A and 79 as Sub-Regional Center B.

### **Zone centers:**

The cities classified at the fourth level of the urban hierarchy are characterized by lower levels of management activities, polarizing a smaller number of neighbouring cities due to the direct attraction of the population by commerce and services based on proximity relationships. There are 398 cities with an average population of 30,000 inhabitants, subdivided into two groups:

- **Zone A Center** - made up of 147 cities with around 40,000 people, more populous in the North Region (average of 60,000 inhabitants) and less populous in the South and Central-West Regions (both with an average of just over 30,000 people). In terms of land management, most of them were classified at levels 3 and 4;
- **Zone B Centers** - this sub-level has 251 cities, all of which are classified at territorial management levels 4 and 5. They are smaller in population than the Zone A Centers (average of less than 25,000 inhabitants), also more populous in the North Region (35,000 on average) and less populous in the South Region (where they have 15,000 inhabitants). Zone B centers are more numerous in the Northeast, where 100 of the 251 cities in this classification are located.

In Regic's 2007 study, 556 cities fell into this category, 192 as Zone A centers and 364 as Zone B centers.

### **Local Centers:**

The last hierarchical level is defined by cities that exert influence restricted to their own territorial limits, and may attract some residents from other cities for specific issues, but

are not the main destination for any other city. At the same time, Local Centers have a low degree of centrality in their business and public management activities, generally having other higher-ranking urban centers as a reference point for their population's daily shopping and service activities, as well as access to government activities and business dynamics. They make up the majority of the country's cities, totaling 4,037 urban centers, as opposed to the 4,473 cities that were part of this level in the 2007 Regic study.

### **Regions of influence - (State of Paraíba)**

The Population Arrangement of João Pessoa, made up of the municipalities that make up the Metropolitan Region (João Pessoa, Bayeux, Cabedelo, Conde, Lucena and Santa Rita), occupies 1st place in Paraíba's hierarchy of influence, being classified by the IBGE's Regic study as Regional Capital A. Almost all of the state's municipalities are part of this urban network, made up of different regions of influence which, in some way, command business and public management activities or are responsible for supplying goods and services (PORTAL CORREIO, 2020).

João Pessoa's relationship of influence with other cities extends beyond the state borders, reaching some municipalities in the neighboring states of Ceará, Rio Grande do Norte and Pernambuco. With the capital of Pernambuco, Recife (classified by Regic as a metropolis), the connection is mainly due to territorial management relations, which include the link established by branches and headquarters of companies, as well as between decentralized public institutions (PORTAL CORREIO, 2020).

However, according to Regic 2018, some cities in Paraíba are not linked to the João Pessoa PA, such as Conceição, located in the west of Paraíba. This city, which polarizes the local centers of Ibiara and Santa Inês, is linked, along with these two municipalities, to the Juazeiro do Norte Population Arrangement in Ceará. Another example is the urban center of Princesa Isabel, which is polarized exclusively by Serra Talhada, in Pernambuco (PORTAL CORREIO, 2020).

In turn, over 11 years, the Patos Population Arrangement has grown in influence in the state, compared to the 2007 survey. According to Regic, in that year Campina Grande polarized practically the entire region to the west of the city. However, in 2018, there was a significant change, with the Patos AP emerging and taking over from the Campina Grande Population Arrangement in much of the western region of the state (PORTAL CORREIO, 2020).

In addition to Campina Grande, which was downgraded from Regional Capital B to Regional Capital C, 10 other cities also lost their influence and hierarchical position in the state, such as Itabaiana, Sousa and the Guarabira Population Arrangement (PORTAL CORREIO, 2020).

On the other hand, the IBGE study points out that eight cities have not only become more influential, but have also increased their centrality in the state: São Bento, São José de Piranhas, Conceição, Picuí, Brejo do Cruz and Serra Branca, along with the Solânea-Bananeiras and Cuité-Nova Floresta Population Arrangements (PORTAL CORREIO, 2020).

According to the study carried out, the urban network tends to be relatively stable over time, undergoing subtle or slow changes that can be attributed to various factors, such as the dynamics or major economic projects, historical trends, changes in transportation and mobility infrastructure and migration issues. In the state of Paraíba, around 90% of

the cities had no change in hierarchy during the period analyzed, which indicates stability in the state's urban network (PORTAL CORREIO, 2020).

According to Regic 2018, Paraíba had the 6th shortest average distance in Brazil, in a straight line, for the population to access goods and services. According to the survey, the average distance traveled by the population is 82 km, matching the result obtained in Ceará, both of which occupy 6th place in the national ranking (PORTAL CORREIO, 2020).

The average number of trips to buy clothes and shoes, furniture and electronics, as well as for low-complexity health care and cultural activities were low in the state. According to the survey, this indicates that some points spread across the interior of the state are able to meet the demands of the cities (PORTAL CORREIO, 2020).

When it comes to traveling to sporting events or practicing these activities, Paraíba stands out for having the shortest distance in the country, at just 32 km, well below the average for the Northeast (61 km) and Brazil (73 km) (PORTAL CORREIO, 2020).

However, when it comes to highly complex health services and access to airports, the average increases significantly, both with an average distance of 158 km, which points to a greater concentration of these services in the capital of Paraíba (PORTAL CORREIO, 2020).

In addition, some cities in Paraíba stood out in the IBGE survey for being much more attractive in some areas than they were in general, such as the population areas of Patos and Cajazeiras, which had high Attraction Indices in terms of higher education (PORTAL CORREIO, 2020).

The following table shows the main characteristics of the João Pessoa PA urban network, which comprises 209 cities, with the following standing out in the functional hierarchy:

- **Regional Capital C:** AP Campina Grande;
- **Sub-Regional Centers A:** AP Patos and Cajazeiras;
- **Sub-Regional Centers B:** AP Guarabira and Sousa;
- **Zone A centers:** AP Mamanguape - Rio Tinto, Itaporanga, Pombal and São Bento;
- **Zone B centers:** AP Cuité - Nova Floresta, AP Solânea - Bananeiras, Brejo do Cruz, Catolé do Rocha, Monteiro, Piancó, Picuí, Santa Luzia, São José de Piranhas, Serra Branca, Sumé and Uiraúna.



**Table 35 - Size of the second-level network (João Pessoa PA - Regional Capital A) in the state of Paraíba - 2018**

Features	João Pessoa PA's region of influence	Participation of the João Pessoa PA region of influence in Brazil	Headquarters (AP João Pessoa)	AP João Pessoa's participation in its region of influence
Population (2018)	4.049.563	1,9	1.136.627	28,1
Area (km ) <sup>2</sup>	56.645	0,7	1.259	2,2
Population density (inhabitants/km <sup>2</sup> )	71,5	291,8	902,8	1.263,2
Cities	209	4,3	1	0,5
GDP 2016 (1,000 R\$)	59.737.614	1,0	25.392.824	42,5
Value added services (except public administration)	25.111.577	0,8	12.541.280	49,9
Value added industry	8.328.797	0,7	4.395.704	52,8
Agricultural value added	2.244.160	0,7	162.488	7,2
Added value public administration	17.732.316	1,9	4.967.731	28,0
Taxes	6.320.768	0,7	3.325.620	52,6
GDP per capita (R\$)	14.752	49,1	22.341	151,4

Source: IBGE - Regions of Influence of Cities 2018.

The following figures show the region of influence of the João Pessoa Population Arrangement and its external connections with the other metropolises.

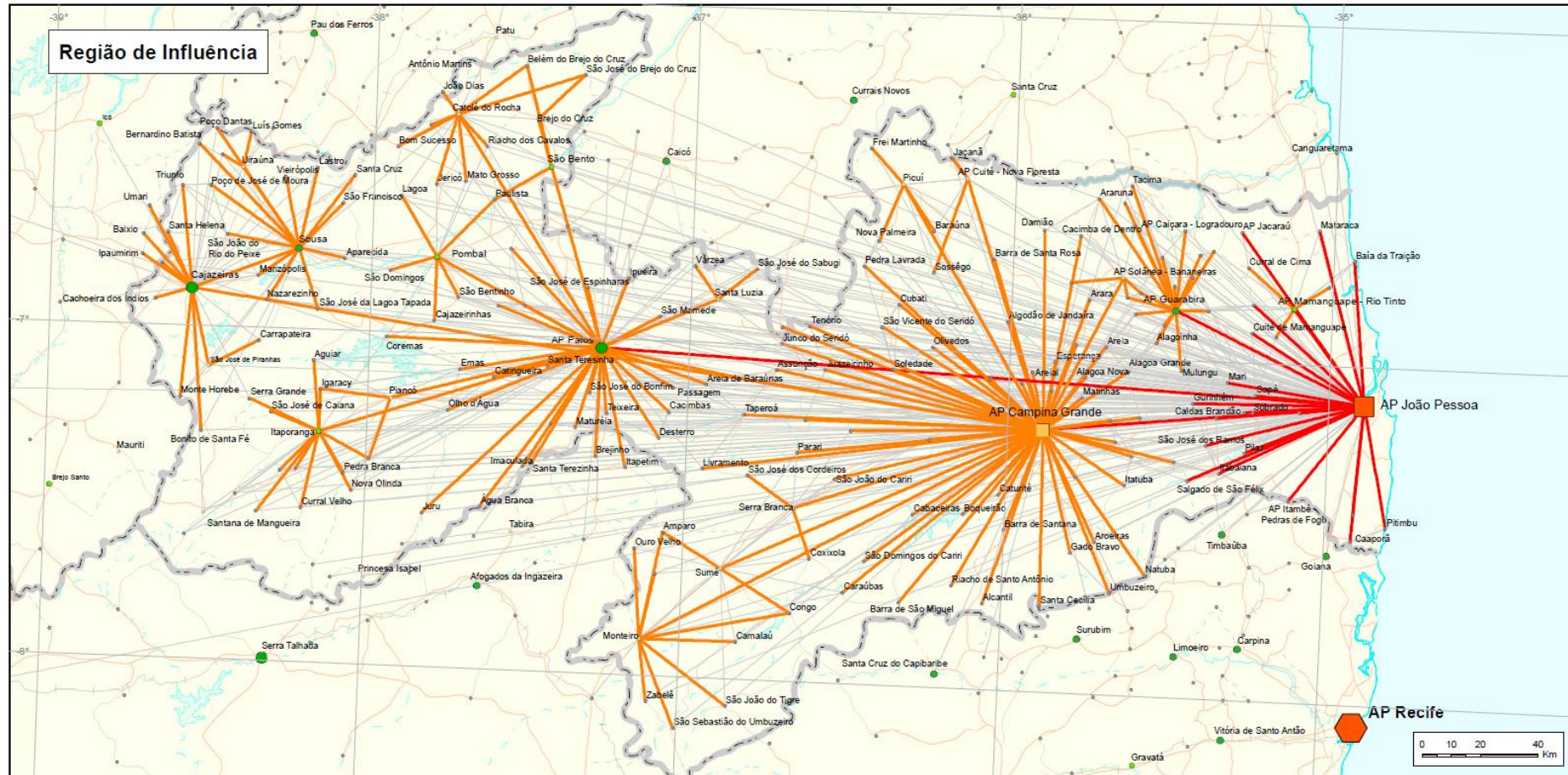
The figure representing the Region of Influence shows the structure of the network, indicating direct connections to the main center (red) and connections mediated by a secondary center (orange). The same figure shows the hierarchies of the centers belonging to the network and those adjacent to it. Also shown, in gray, are the connections related to the search for goods and services by the centers that occupy a lower level in the hierarchy.

52 - Figure legend



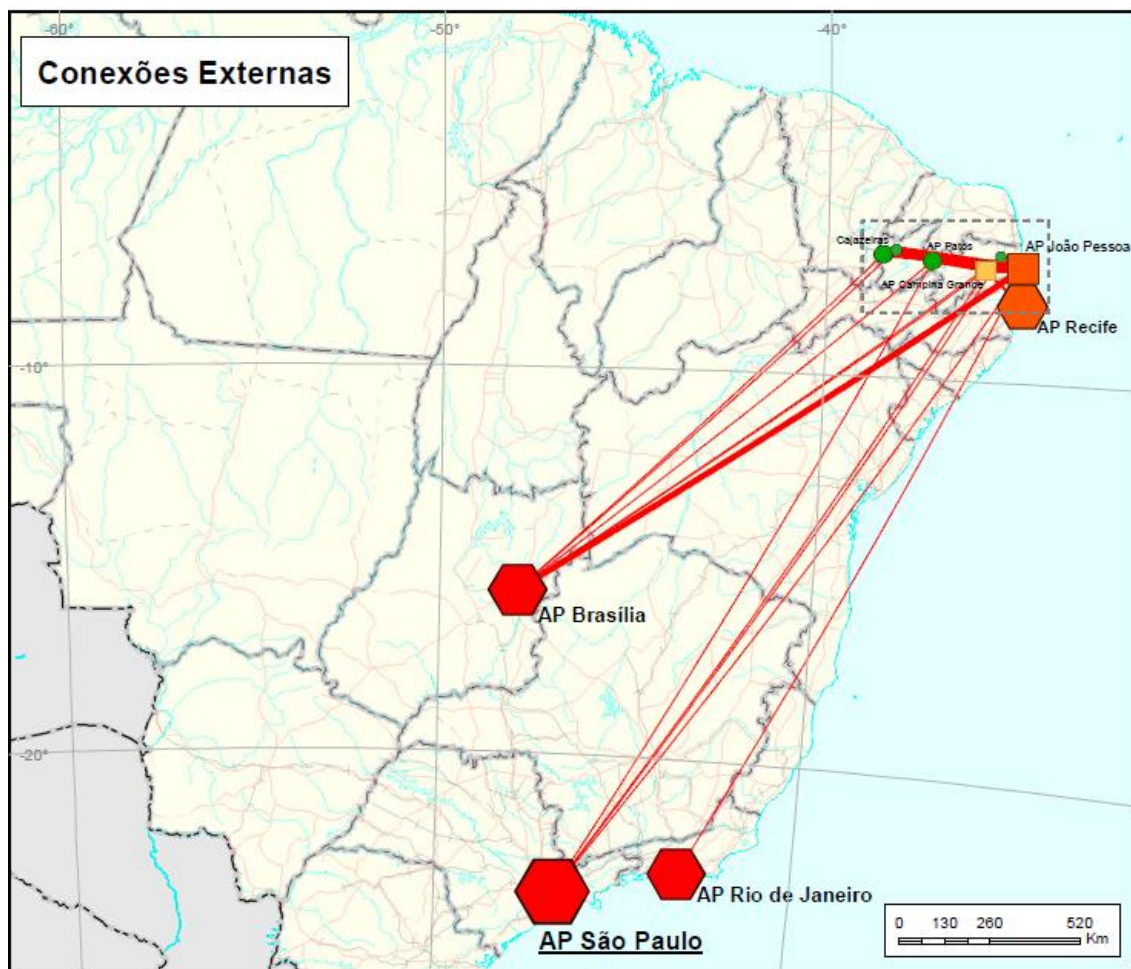
Source: IBGE - Regions of Influence of Cities 2018.

### 53 - Population Arrangement of João Pessoa/PB - Regional Capital A (2A) - (Region of Influence)



Source: IBGE - Regions of Influence of Cities 2018.

## 54 - Population Arrangement of João Pessoa/PB - Regional Capital A (2A) - (External Connections)



Source: IBGE - Regions of Influence of Cities 2018.

Among the cities in the state of Paraíba with a centrality defined by displacements by specific theme, the following stand out:

- AP Patos, for trips to buy furniture and electronics, occupying 27th place in the national ranking;
- AP Campina Grande, Cajazeiras and AP Patos, for commuting to higher education, ranked 9th, 13th and 18th, respectively, in the national ranking;
- AP João Pessoa (15th), for trips to highly complex health services.

### 4.3.2 Demographic Profile

The project area covers 223 municipalities in the state of Paraíba, with an area of 56.467.242 km<sup>2</sup>, located in the Northeast of the country, which are part of fifteen Rural Territories (Alto Sertão, Borborema, Brejo, Cariri, Curimataú, Mata Norte, Mata Sul, Médio Piranhas, Médio Sertão, Piemont da Borborema, Serra do Teixeira, Vale de Piancó, Vale do Maringá, Vale do Paraíba and Vale do Piranhas) and fifteen Geoadministrative Regions (Cajazeiras, Campina Grande, Catolé do Rocha, Cuité, Guarabira, Itabaiana, Itaporanga, João Pessoa, Mamanguape, Monteiro, Patos, Pombal, Princesa Isabel, Solânea and Sousa).

Below is a brief demographic profile of each of the Rural Territories in the state of Paraíba.

**Table 36 - Demographic Profile of the Rural Territories of the State of Paraíba**

Rural Territory	Area (Census 2022, IBGE)	Population (Census 2022, IBGE)	Population density (Census 2022, IBGE)	Demographic distribution (2010 Census, IBGE)	
				Urban	Rural
<b>Alto Sertão</b>	3,419.48 km <sup>2</sup>	173,175 inhabitants	50.64 inhabitants/km <sup>2</sup>	61,1%	38,9%
<b>Borborema</b>	10,333.59 km <sup>2</sup>	875,917 inhabitants	84.76 inhabitants/km <sup>2</sup>	72,3%	27,7%
<b>Brejo</b>	1,033.29 km <sup>2</sup>	132,447 inhabitants	128.18 inhabitants/km <sup>2</sup>	72,3%	27,7%
<b>Cariri</b>	7,626.61 km <sup>2</sup>	113,901 inhabitants	14.93 inhabitants/km <sup>2</sup>	61,3%	38,7%
<b>Curimataú</b>	3,742.93 km <sup>2</sup>	100,622 inhabitants	26.88 inhabitants/km <sup>2</sup>	61,7%	38,3%
<b>North Mata</b>	2,044.89 km <sup>2</sup>	160,566 inhabitants	78.52 inhabitants/km <sup>2</sup>	61,2%	38,8%
<b>Mata Sul</b>	2,485.93 km <sup>2</sup>	1,335,829 inhabitants	537.36 inhabitants/km <sup>2</sup>	93,4%	6,6%
<b>Middle Piranhas</b>	2,859.34 km <sup>2</sup>	113,431 inhabitants	39.67 inhabitants/km <sup>2</sup>	71,0%	29,0%
<b>Middle Hinterland</b>	5,769.80 km <sup>2</sup>	217,262 inhabitants	37.66 inhabitants/km <sup>2</sup>	78,2%	21,8%
<b>Piemont da Borborema</b>	2,222.53 km <sup>2</sup>	169,348 inhabitants	76.20 inhabitants/km <sup>2</sup>	57,8%	42,2%
<b>Serra do Teixeira</b>	2,072.69 km <sup>2</sup>	78,026 inhabitants	37.64 inhabitants/km <sup>2</sup>	51,1%	48,9%
<b>Piancó Valley</b>	5,557.73 km <sup>2</sup>	141,772 inhabitants	25.51 inhabitants/km <sup>2</sup>	63,0%	37,0%
<b>Maringá Valley</b>	2,626.68 km <sup>2</sup>	68,476 inhabitants	26.07 inhabitants/km <sup>2</sup>	65,2%	34,8%
<b>Paraíba Valley</b>	2,492.00 km <sup>2</sup>	180,552 inhabitants	72.45 inhabitants/km <sup>2</sup>	61,4%	38,6%
<b>Piranhas Valley</b>	2,179.76 km <sup>2</sup>	113,363 inhabitants	52.00 inhabitants/km <sup>2</sup>	66,0%	34,0%
<b>State of Paraíba</b>	<b>56,467.242 km<sup>2</sup></b>	<b>3,974,687 inhabitants</b>	<b>70.39 inhabitants/km<sup>2</sup></b>	<b>75,37%</b>	<b>24,63%</b>

Source: IBGE - Demographic Censuses 2010 and 2022.

### **TR Alto Sertão**

The Alto Sertão Rural Territory is located in the Cajazeiras Geo-administrative Region, occupying an area of 3,419.48 km<sup>2</sup> (IBGE, 2022), which corresponds to 6.06% of the state's territory. According to the IBGE Demographic Census of 2022, the Alto Sertão RT had 173,175 inhabitants that year, which represents a population density of 50.64 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 61.1% were located in urban areas and 38.9% in rural areas (IBGE, 2010).

The TR Alto Sertão is administratively made up of 15 municipalities: Bernardino Batista, Bom Jesus, Bonito de Santa Fé, Cachoeira dos Índios, Cajazeiras, Carrapateira, Joca Claudino, Monte Horebe, Poço Dantas, Poço de José de Moura, Santa Helena, São João do Rio do Peixe, São José de Piranhas, Triunfo and Uiraúna.

### **RT Borborema**

The Borborema Rural Territory is located in the Geoadministrative Region of Campina Grande, occupying an area of 10,333.59 km<sup>2</sup> (IBGE, 2022), which corresponds to 18.30% of the state's territory. According to the IBGE Demographic Census of 2022, TR Borborema had 875,917 inhabitants that year, which represents a population density of 84.76 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 72.3% were located in urban areas and 27.7% in rural areas (IBGE, 2010).

TR Borborema is administratively made up of 38 municipalities: Alagoa Grande, Alagoa Nova, Alcantil, Algodão de Jandaíra, Areia, Areial, Aroeiras, Assunção, Barra de Santana, Barra de São Miguel, Boa Vista, Boqueirão, Cabaceiras, Campina Grande, Caturité, Esperança, Fagundes, Gado Bravo, Juazeirinho, Lagoa Seca, Livramento, Massaranduba, Matinhas, Montadas, Natuba, Olivedos, Pocinhos, Puxinanã, Queimadas, Remígio, Riacho de Santo Antônio, Santa Cecília, São Domingos do Cariri, São Sebastião de Lagoa de Roça, Soledade, Taperoá, Tenório and Umbuzeiro.

### **RT Brejo**

The Brejo Rural Territory is located in the Geoadministrative Region of Guarabira, occupying an area of 1,033.29 km<sup>2</sup> (IBGE, 2022), which corresponds to 1.83% of the state's territory. According to the IBGE Demographic Census of 2022, TR Brejo had 132,447 inhabitants that year, which represents a population density of 128.18 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 72.3% were located in urban areas and 27.7% in rural areas (IBGE, 2010).

The Brejo RT is administratively made up of 11 municipalities: Alagoinha, Araçagi, Cuitegi, Duas Estradas, Guarabira, Mulungu, Pilõezinhos, Pirpirituba, Riachão, Serra da Raiz and Sertãozinho.

### **RT Cariri**

The Cariri Rural Territory is located in the Geoadministrative Region of Monteiro, occupying an area of 7,626.61 km<sup>2</sup> (IBGE, 2022), which corresponds to 13.51% of the state's territory. According to the IBGE Demographic Census of 2022, TR Cariri had 113,901 inhabitants that year, which represents a population density of 14.93 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 61.3% were located in urban areas and 38.7% in rural areas (IBGE, 2010).

TR Cariri is administratively made up of 18 municipalities: Amparo, Camalaú, Caraúbas, Congo, Coxixola, Gurjão, Monteiro, Ouro Velho, Parari, Prata, Santo André, São João do Cariri, São João do Tigre, São José dos Cordeiros, São Sebastião do Umbuzeiro, Serra Branca, Sumé and Zabelê.

### **RT Curimataú**

The Curimataú Rural Territory is located in the Geo-administrative Region of Cuité, occupying an area of 3,742.93 km<sup>2</sup> (IBGE, 2022), which corresponds to 6.63% of the state's territory. According to the IBGE Demographic Census of 2022, TR Curimataú had 100,622 inhabitants that year, which represents a population density of 26.88 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 61.7% were located in urban areas and 38.3% in rural areas (IBGE, 2010).

TR Curimataú is administratively made up of 11 municipalities: Baraúna, Barra de Santa Rosa, Cubati, Cuité, Frei Martinho, Nova Floresta, Nova Palmeira, Pedra Lavrada, Picuí, São Vicente do Seridó and Sossêgo.

### **RT Mata Norte**

The Mata Norte Rural Territory is located in the Mamanguape Geo-administrative Region, occupying an area of 2,044.89 km<sup>2</sup> (IBGE, 2022), which corresponds to 3.62% of the state's territory. According to the IBGE Demographic Census of 2022, the Mata Norte RT had 160,566 inhabitants that year, which represents a population density of 78.52 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 61.2% were located in urban areas and 38.8% in rural areas (IBGE, 2010).

The Mata Norte RT is administratively made up of 12 municipalities: Baía da Traição, Capim, Cuité de Mamanguape, Curral de Cima, Itapororoca, Jacaraú, Lagoa de Dentro, Mamanguape, Marcação, Mataraca, Pedro Régis and Rio Tinto.

### **RT Mata Sul**

The Mata Sul Rural Territory is located in the João Pessoa Geo-administrative Region, occupying an area of 2,485.93 km<sup>2</sup> (IBGE, 2022), which corresponds to 4.40% of the state's territory. According to the IBGE Demographic Census of 2022, the Mata Sul RT had 1,335,829 inhabitants that year, which represents a population density of 537.36 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 93.4% were located in urban areas and only 6.6% in rural areas (IBGE, 2010).

The Mata Sul RT is administratively made up of 14 municipalities: Alhandra, Bayeux, Caaporã, Cabedelo, Conde, Cruz do Espírito Santo, João Pessoa, Lucena, Mari, Pitimbu, Riachão do Poço, Santa Rita, Sapé and Sobrado.

### **RT Middle Piranhas**

The Médio Piranhas Rural Territory is located in the Catolé do Rocha Geoadministrative Region, occupying an area of 2,859.34 km<sup>2</sup> (IBGE, 2022), which corresponds to 5.06% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Médio Piranhas had 113,431 inhabitants that year, which represents a population density of 39.67 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 71.0% were located in urban areas and only 29.9% in rural areas (IBGE, 2010).

The TR Médio Piranhas is administratively made up of 10 municipalities: Belém do Brejo do Cruz, Bom Sucesso, Brejo do Cruz, Brejo dos Santos, Catolé do Rocha, Jericó, Mato Grosso, Riacho dos Cavalos, São Bento and São José do Brejo do Cruz.

### **RT Middle Hinterland**

The Médio Sertão Rural Territory is located in the Patos Geo-administrative Region, occupying an area of 5,769.80 km<sup>2</sup> (IBGE, 2022), which corresponds to 10.22% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Médio Sertão had 217,262 inhabitants that year, which represents a population density of 37.66 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 78.2% were located in urban areas and only 21.8% in rural areas (IBGE, 2010).

The TR Médio Sertão is administratively made up of 22 municipalities: Areia de Baraúnas, Cacimba de Areia, Cacimbas, Catingueira, Desterro, Emas, Junco do Seridó, Mãe d'Água, Malta, Maturéia, Passagem, Patos, Quixaba, Salgadinho, Santa Luzia, Santa Teresinha, São José de Espinharas, São José do Bonfim, São José do Sabugi, São Mamede, Teixeira and Várzea.

### **RT Piemont da Borborema**

The Piemont da Borborema Rural Territory is located in the Solânea Geoadministrative Region, occupying an area of 2,222.53 km<sup>2</sup> (IBGE, 2022), which corresponds to 3.94% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Piemont da Borborema had 169,348 inhabitants that year, which represents a demographic density of 76.20 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 57.8% were located in urban areas and 42.2% in rural areas (IBGE, 2010).

The TR Piemont da Borborema is administratively made up of 15 municipalities: Arara, Araruna, Bananeiras, Belém, Borborema, Cacimba de Dentro, Caiçara, Casserengue, Damião, Dona Inês, Logradouro, Pilões, Serraria, Solânea and Tacima.

### **TRT Serra do Teixeira**

The Serra do Teixeira Rural Territory is located in the Geoadministrative Region of Princesa Isabel, occupying an area of 2,072.69 km<sup>2</sup> (IBGE, 2022), which corresponds to 3.67% of the state's territory. According to the IBGE Demographic Census of 2022, the Serra do Teixeira RT had 78,026 inhabitants that year, which represents a population density of 37.64 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 51.1% were located in urban areas and 48.9% in rural areas (IBGE, 2010).

The Serra do Teixeira RT is administratively made up of 7 municipalities: Água Branca, Imaculada, Juru, Manaíra, Princesa Isabel, São José de Princesa and Tavares.

### **RT Vale de Piancó**

The Vale de Piancó Rural Territory is located in the Geoadministrative Region of Itaporanga, occupying an area of 5,557.73 km<sup>2</sup> (IBGE, 2022), which corresponds to 9.84% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Vale de Piancó had 141,772 inhabitants that year, which represents a population density of 25.51 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 63.0% were located in urban areas and 37.0% in rural areas (IBGE, 2010).

The TR Vale de Piancó is administratively made up of 18 municipalities: Aguiar, Boa Ventura, Conceição, Coremas, Curral Velho, Diamante, Ibiara, Igaracy, Itaporanga, Nova Olinda, Olho d'Água, Pedra Branca, Piancó, Santa Inês, Santana de Mangueira, Santana dos Garrotes, São José de Caiana and Serra Grande.



### **RT Maringá Valley**

The Vale do Maringá Rural Territory is located in the Pombal Geo-administrative Region, occupying an area of 2,626.68 km<sup>2</sup> (IBGE, 2022), which corresponds to 4.65% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Vale do Maringá had 68,476 inhabitants that year, which represents a population density of 26.07 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 65.2% were located in urban areas and 34.8% in rural areas (IBGE, 2010).

The TR Vale do Maringá is administratively made up of 8 municipalities: Cajazeirinhas, Condado, Lagoa, Paulista, Pombal, São Bentinho, São Domingos and Vista Serrana.

### **RT Paraíba Valley**

The Vale do Paraíba Rural Territory is located in the Itabaiana Geo-administrative Region, occupying an area of 2,492.00 km<sup>2</sup> (IBGE, 2022), which corresponds to 4.41% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Vale do Paraíba had 180,552 inhabitants that year, which represents a population density of 72.45 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 61.4% were located in urban areas and 38.8% in rural areas (IBGE, 2010).

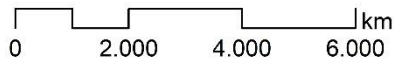
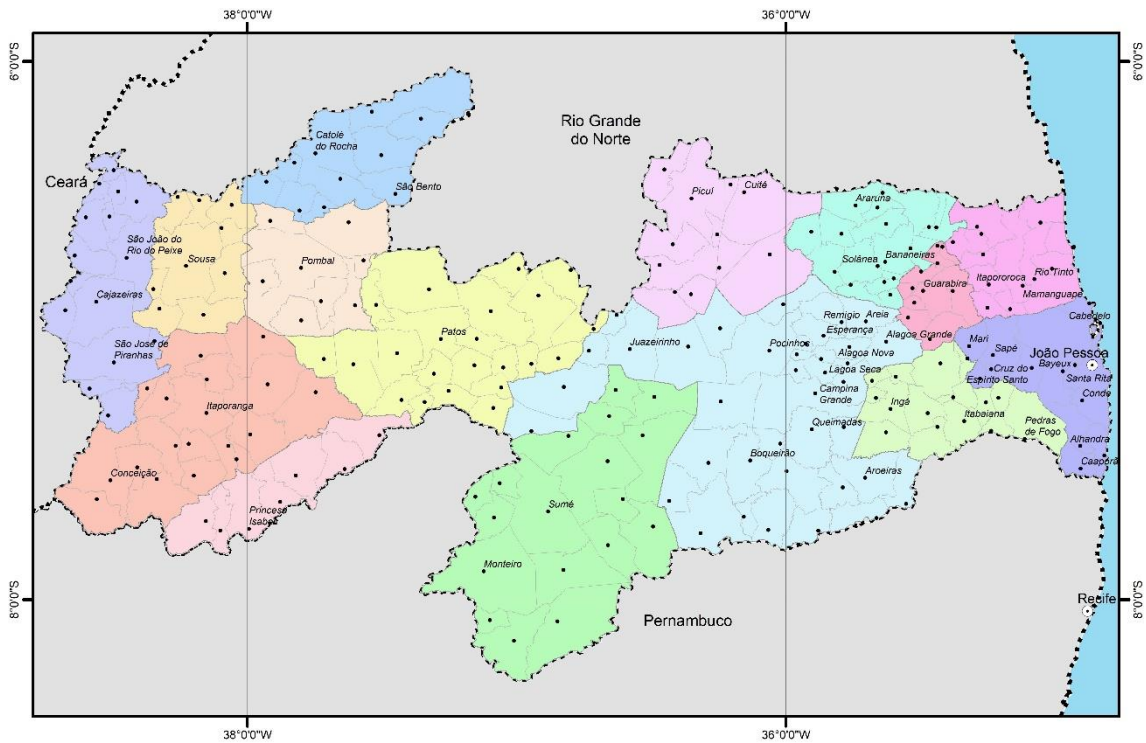
The TR Vale do Paraíba is administratively made up of 15 municipalities: Caldas Brandão, Gurinhém, Ingá, Itabaiana, Itatuba, Juarez Távora, Juripiranga, Mogeiro, Pedras de Fogo, Pilar, Riachão do Bacamarte, Salgado de São Félix, São José dos Ramos, São Miguel de Taipu and Serra Redonda.

### **RT Piranhas Valley**

The Vale do Piranhas Rural Territory is located in the Geoadministrative Region of Sousa, occupying an area of 2,492.00 km<sup>2</sup> (IBGE, 2022), which corresponds to 3.86% of the state's territory. According to the IBGE Demographic Census of 2022, the TR Vale do Piranhas had 113,363 inhabitants that year, which represents a population density of 52.00 inhabitants/km<sup>2</sup>. In 2010, of the total number of inhabitants, 66% were located in urban areas and 34% in rural areas (IBGE, 2010).

The TR Vale do Piranhas is administratively made up of 9 municipalities: Aparecida, Lastro, Marizópolis, Nazarezinho, Santa Cruz, São Francisco, São José da Lagoa Tapada, Sousa and Vieirópolis.

### 55 - Paraíba's Rural Territories



#### Legenda

- Sedes Municipais
- Limites Municipais
- - - Limites Estaduais
- Oceano Atlântico

#### Territórios Rurais


Front: State of Paraíba, 2024

## Population Distribution and Growth

Analysis of the degree of urbanization not only measures the process of urbanization in a given area, but also makes it possible to support planning processes and an understanding of the network of social services and urban infrastructure.

In the following sub-items we can see the distribution and growth of the population in the project area over a given period for the state as a whole and by Rural Territory.

### State of Paraíba

In the period 2000-2010, the population of the state of Paraíba had a geometric growth rate<sup>35</sup> of 0.90% p.a., rising from 3,443,825 inhabitants in 2000 to 3,766,528 in 2010. The urbanization rate<sup>36</sup> grew significantly over the same period, from 71.06% in 2000 to 75.37% in 2010.

In the last decade, between 2010 and 2022, Paraíba showed a growth rate of 0.55% p.a., reaching 3,974,687 inhabitants, according to data from the latest IBGE Demographic Census.

Paraíba is therefore basically an urban state, meaning that a large part of its population lives in urban areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the state of Paraíba.

**Table 37 -Population by Household Status - Paraíba - 2000, 2010 and 2022**

State of Paraíba	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	3.443.825	3.766.528	3.974.687	0,90%	0,45%
<b>Urban:</b>	2.447.212	2.838.678	N/A	1,49%	-
<b>Rural:</b>	996.613	927.850	N/A	-0,71%	-
<b>Urbanization rate:</b>	71,06%	75,37%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

<sup>35</sup> Geometric average annual population growth rate: Percentage of the average annual increase in the resident population in a given geographical area during the period in question. Population growth estimates are made using the geometric method. In technical terms, to obtain the growth rate (r), 1 is subtracted from the nth root of the quotient between the final population (Pt) and the population at the start of the period considered (P0), and the result is multiplied by 100, with "n" being equal to the number of years in the period.

$$r = \left[ \left( \sqrt[n]{\frac{P_t}{P_0}} \right) - 1 \right] \times 100$$

<sup>36</sup> Urbanization rate: Percentage of the population in urban areas in relation to the total population.

## **RT Alto Sertão**

In the period 2000-2010, the population of the Alto Sertão RT had a geometric growth rate of 0.67% p.a., rising from 157,169 inhabitants in 2000 to 167,971 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.25% p.a.). In 2022, the territory had 173,175 inhabitants, which represents 4.4% of the state's population in the same year, with Cajazeiras being the municipality with the largest population (63,239 inhabitants). São José de Piranhas, São João do Rio do Peixe, Uiraúna and Bonito de Santa Fé had populations of between 10,000 and 20,000 inhabitants, while ten other municipalities had populations of less than 10,000 inhabitants, the smallest of which was in Bom Jesus: 2,286 inhabitants.

In terms of population growth between 2000-2010, two municipalities had negative rates, the lowest of which was in Santa Helena (-1.38% p.a.). On the other hand, 13 municipalities had positive growth rates, especially Cachoeira dos Índios (2.00% p.a.), Bernardino Batista (1.85% p.a.) and Bonito de Santa Fé (1.59% p.a.).

Between 2010-2022, the municipalities of the Alto Sertão RT grew at a slower rate than in the previous decade, with seven municipalities experiencing negative rates, the most significant being Bernardino Batista (-1.08%). In turn, the municipalities of Bonito de Santa Fé (0.44%), Bom Jesus (0.41%) and Cachoeira dos Índios (0.35%) experienced the highest growth rates over the same period.

When analyzing the household situation of the population living in the Alto Sertão RT, 61.11% lived in urban areas and 38.89% in rural areas in 2010. In comparison, in the state as a whole, a large part of the population lived in urban areas in the same year (75.37%) and only 24.63% in rural areas. It should be noted that, in 2000, just under half of the population of the Alto Sertão RT lived in rural areas (45.14%), with a low urbanization rate (54.86%).

Among the municipalities of the TR Alto Sertão, it can be seen that Cajazeiras, Carrapateira, Uiraúna, Bonito de Santa Fé, São José de Piranhas and Monte Horebe are basically urban municipalities, i.e. most of their populations live in urban areas, while in the other municipalities most of their populations live in rural areas and in Santa Helena its population is divided between the two areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Alto Sertão RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 38 - Population by Household Status - TR Alto Sertão - 2000, 2010 and 2022**

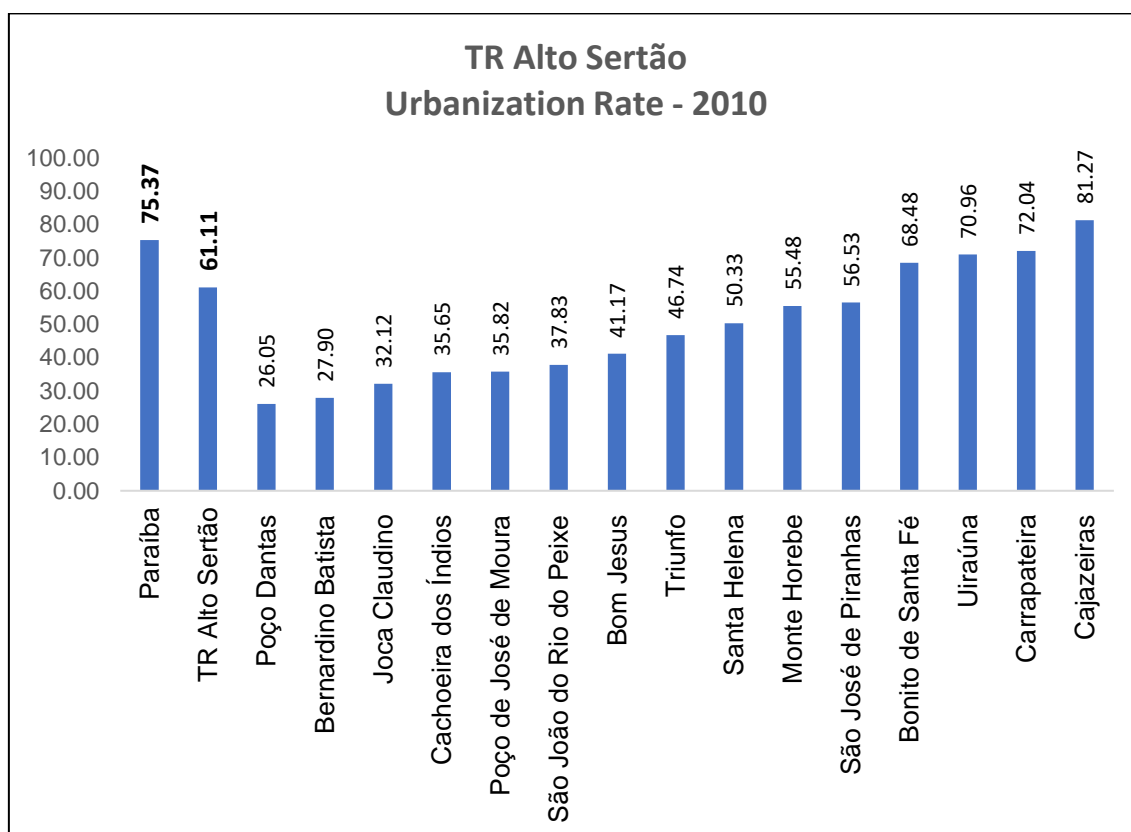
TR Alto Sertão	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	157.169	167.971	173.175	0,67%	0,25%
<b>Urban:</b>	86.224	102.645	N/A	1,76%	-
<b>Rural:</b>	70.945	65.326	N/A	-0,82%	-
<b>Urbanization rate:</b>	54,86%	61,11%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

**56 - Urbanization Rate - Paraíba, TR Alto Sertão and TR Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.

**RT Borborema**

The Borborema RT has the largest number of municipalities in the state of Paraíba: 38. In the period from 2000 to 2010, it showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.72% p.a., indicating a lower behavior than that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.46% p.a.). In 2022, the territory had 875,917 inhabitants, representing 22.0% of the state's population in the same year, with Campina Grande having the largest population (419,379 inhabitants). Queimadas and Esperança had populations of between 30,000 and 50,000 inhabitants, while 15 municipalities had populations of between 10,000 and 30,000 inhabitants and the rest had fewer than 10,000 inhabitants, the smallest of which was in Riacho de Santo Antônio: 1,955 inhabitants.

In terms of population growth between 2000-2010, six municipalities had negative rates, the lowest of which was in Areia (-0.92% p.a.). On the other hand, the rest of the municipalities had positive growth rates, especially Riacho de Santo Antônio (2.59% p.a.), Montadas (2.32% p.a.) and Boa Vista (2.25% p.a.).

Between 2010 and 2022, the municipalities of TR Borborema grew at a slower rate than in the previous decade, with eleven municipalities experiencing negative rates, the most significant being Natuba (-1.38%). In turn, the municipalities of Algodão de Jandaíra (1.86%), Assunção (1.38%) and Montadas (1.28%) experienced the highest growth rates over the same period.

When we analyze the household situation of the population living in TR Borborema, we can see that most of them were located in urban areas (72.26%) in 2010, below the state average, which in the same year had an urbanization rate of 75.37%.

Among the municipalities in TR Borborema, it can be seen that just over half of the population lived in urban areas, with Campina Grande and Assunção standing out, with urbanization rates of 95.33% and 80.81%, respectively. On the other hand, Barra de Santana (8.91%), Gado Bravo (10.84) and Matinhas (15.78%) had the lowest rates in the same year, with most of their inhabitants living in rural areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Borborema RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 39 - Population by Household Status - TR Borborema - 2000, 2010 and 2022**

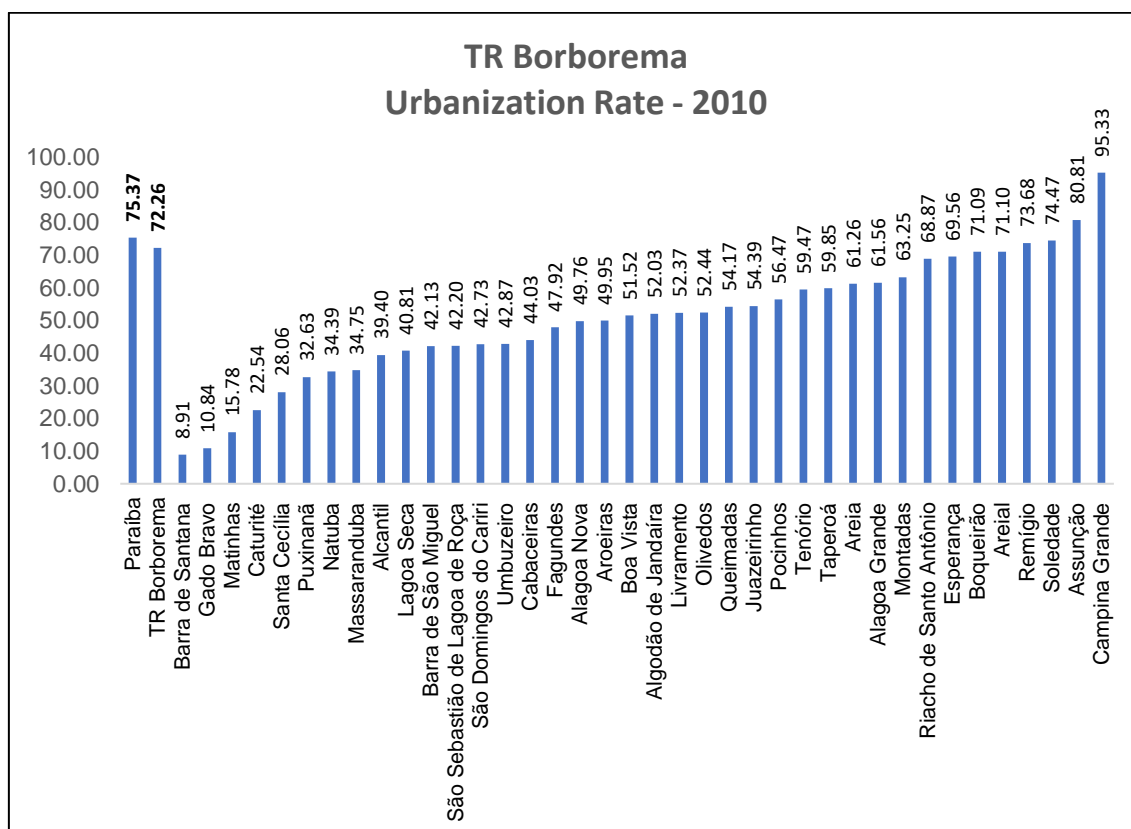
TR Borborema	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	771.650	828.725	875.917	0,72%	0,46%
<b>Urban:</b>	529.261	598.862	N/A	1,24%	-
<b>Rural:</b>	242.389	229.863	N/A	-0,53%	-
<b>Urbanization rate:</b>	68,59%	72,26%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

## 57 - Urbanization Rate - Paraíba, TR Borborema and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### RT Brejo

In the period 2000-2010, the population of the Brejo RT had a geometric growth rate of 0.42% p.a., rising from 126,972 inhabitants in 2000 to 132,468 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, the Brejo RT kept its resident population practically stable, with a geometric growth rate of practically zero (0.00% p.a.). In 2022, the territory had 132,447 inhabitants, representing 3.3% of the state's population in the same year, with Guarabira having the largest population (57,484 inhabitants). The rest of the municipalities had populations of less than 20,000 inhabitants, the smallest of which was in Riachão: 2,927 inhabitants.

In terms of population growth between 2000-2010, five municipalities had negative rates, the lowest of which was in Serra da Raiz (-0.70% p.a.). On the other hand, the rest of the municipalities had positive growth rates, especially Sertãozinho (2.47% p.a.), Riachão (1.58% p.a.) and Alagoinha (1.38% p.a.).

Between 2010-2022, the municipalities of the Brejo RT grew at a slower rate than in the previous decade, with seven municipalities experiencing negative rates, the most significant being Riachão (-0.91%). On the other hand, the municipalities of Sertãozinho (1.17%), Guarabira (0.32%) and Pilõesinhos (0.28%) experienced the highest growth rates over the same period.

When we analyze the household situation of the population living in the Brejo RT, we can see that most of them were located in urban areas (72.32%) in 2010, below the state average, which in the same year had an urbanization rate of 75.37%.

Among the municipalities in the Brejo RT, it can be seen that practically all of them lived in urban areas, with Guarabira and Cuitegi standing out, with urbanization rates of 88.49% and 81.41%, respectively. Only the population of two municipalities, Araçagi (39.50) and Mulungu (47.90), lived mostly in rural areas in the same year.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Brejo RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 40 - Population by Household Status - TR Brejo - 2000, 2010 and 2022**

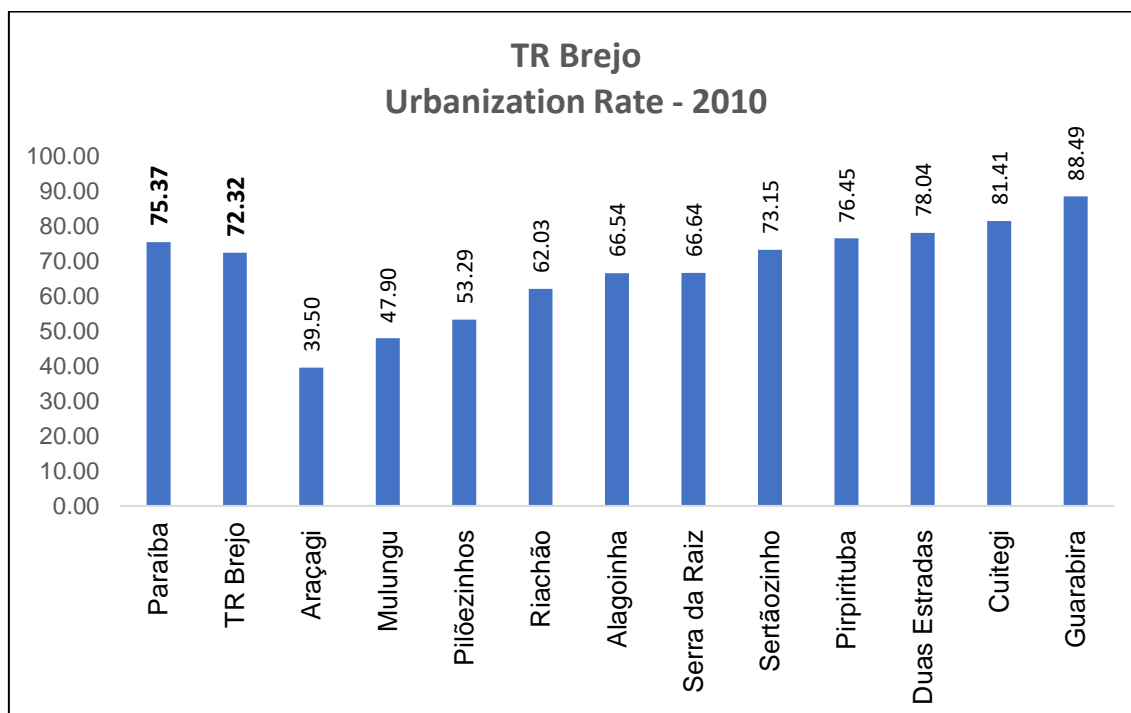
TR Brejo	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	126.972	132.468	132.447	0,42%	0,00%
<b>Urban:</b>	86.199	95.798	N/A	1,06%	-
<b>Rural:</b>	40.773	36.670	N/A	-1,06%	-
<b>Urbanization rate:</b>	67,89%	72,32%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

**58 - Urbanization Rate - Paraíba, RT Brejo and RT Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.



## **RT Cariri**

In the period 2000-2010, the population of the Cariri RT had a geometric growth rate of 0.64% p.a., rising from 103,165 inhabitants in 2000 to 109,949 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.29% p.a.). In 2022, the territory had 113,901 inhabitants, representing 2.9% of the state's population in the same year, with Monteiro having the largest population (32,277 inhabitants). Sumé and Serra Branca also stood out, with more than 10,000 residents each, while the rest of the municipalities had populations of less than 10,000, the smallest being Parari: 1,720 inhabitants.

In terms of population growth between 2000-2010, five municipalities showed negative rates, the highest being Parari (-1.34% p.a.) and the lowest São João do Tigre (-0.19% p.a.). The rest of the municipalities showed a positive rate, with Coxixola, Caraúbas and Gurjão standing out, with geometric growth rates of 2.22%, 1.38% and 1.25%, respectively.

Between 2010 and 2022, the municipalities of TR Cariri grew at a slower rate than in the previous decade, with five municipalities reaching negative rates, the most significant being São José dos Cordeiros (-1.29%). On the other hand, the municipalities of Parari (2.65%), Zabelê (0.59%) and Amparo (0.56%) experienced the highest growth rates over the same period.

When analyzing the household situation of the population living in TR Cariri, of the 18 municipalities in the territory, only five had a predominance of the population living in the rural stratum in 2010: Santo André (with only 32.79% of the population living in urban areas), São João do Tigre (34.78%), Caraúbas (38.91%), São José dos Cordeiros (41.23%) and Coxixola (44.16%). The highest urban proportions were found in Sumé and Zabelê, with 76.19% and 70.94%, respectively, of the population living in this stratum. The other municipalities had an urbanization rate of between 50.00% and 70.00%.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Cariri RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

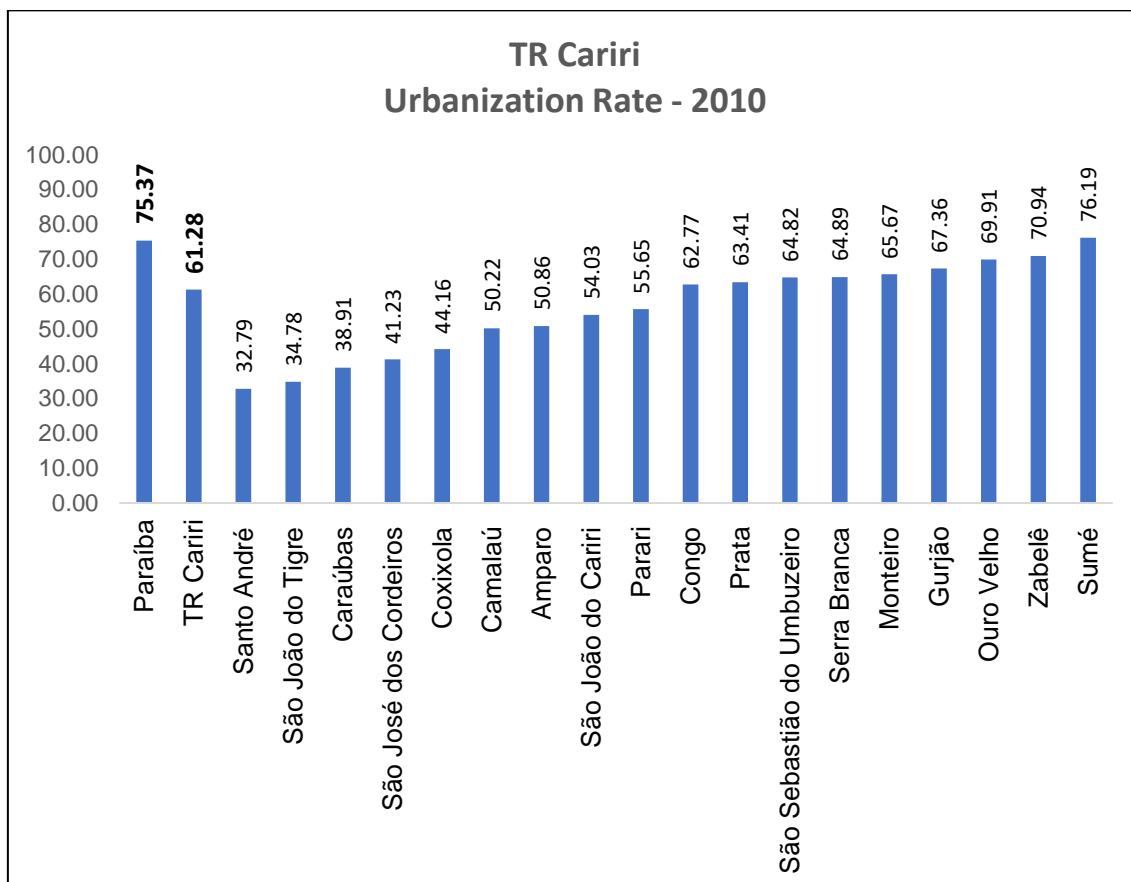
**Table 41 - Population by Household Status - TR Cariri - 2000, 2010 and 2022**

TR Cariri	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	103.165	109.949	113.901	0,64%	0,29%
<b>Urban:</b>	56.607	67.376	N/A	1,76%	-
<b>Rural:</b>	46.558	42.573	N/A	-0,89%	-
<b>Urbanization rate:</b>	54,87%	61,28%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.  
N/A: Not available.

### 59 - Urbanization Rate - Paraíba, TR Cariri and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### RT Curimataú

Between 2000 and 2010, TR Curimataú showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.75% p.a., indicating a lower behavior than that seen in Paraíba for the same period, where a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, the population of TR Curimataú decreased slightly, reaching a negative geometric growth rate of -0.13% per year. In 2022, the territory had 100,622 inhabitants, which represents 2.5% of the state's population in the same year, with Cuité having the largest population (19,719). Picuí, Barra de Santa Rosa and São Vicente do Seridó also stood out, with more than 10,000 residents. The rest of the municipalities had fewer than 10,000 inhabitants, with Frei Martinho and Sossêgo standing out as having the smallest populations in the state (2,846 and 3,345 residents, respectively).

In terms of population growth between 2000-2010, all the municipalities in the CA showed positive rates, the highest being Baraúna (2.91%), Nova Palmeira (2.01%) and Sossêgo (2.01%), and the lowest Cuité (0.02%) and Frei Martinho (0.03%).

Between 2010-2022, the municipalities of the Curimataú RT grew at a slower rate than in the previous decade, with six municipalities experiencing negative rates, the most

significant being Barra de Santa Rosa (-0.77%). On the other hand, the municipalities of Baraúna (1.01%), Cubati (0.83%) and Sossêgo (0.45%) experienced the highest growth rates over the same period.

When analyzing the household situation of the population living in TR Curimataú, of the 11 municipalities in the territory, only three had a predominance of the population living in the rural stratum in 2010: Pedra Lavrada (with only 41.14% of the population living in urban areas), São Vicente do Seridó (44.94%) and Sossêgo (49.92%). The highest urban proportions were found in Baraúna and Nova Floresta, with 75.52% and 74.93%, respectively, of the population living in this stratum. The other municipalities had an urbanization rate of between 50.00% and 70.00%.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Curimataú RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 42 - Population by Household Status - TR Curimataú - 2000, 2010 and 2022**

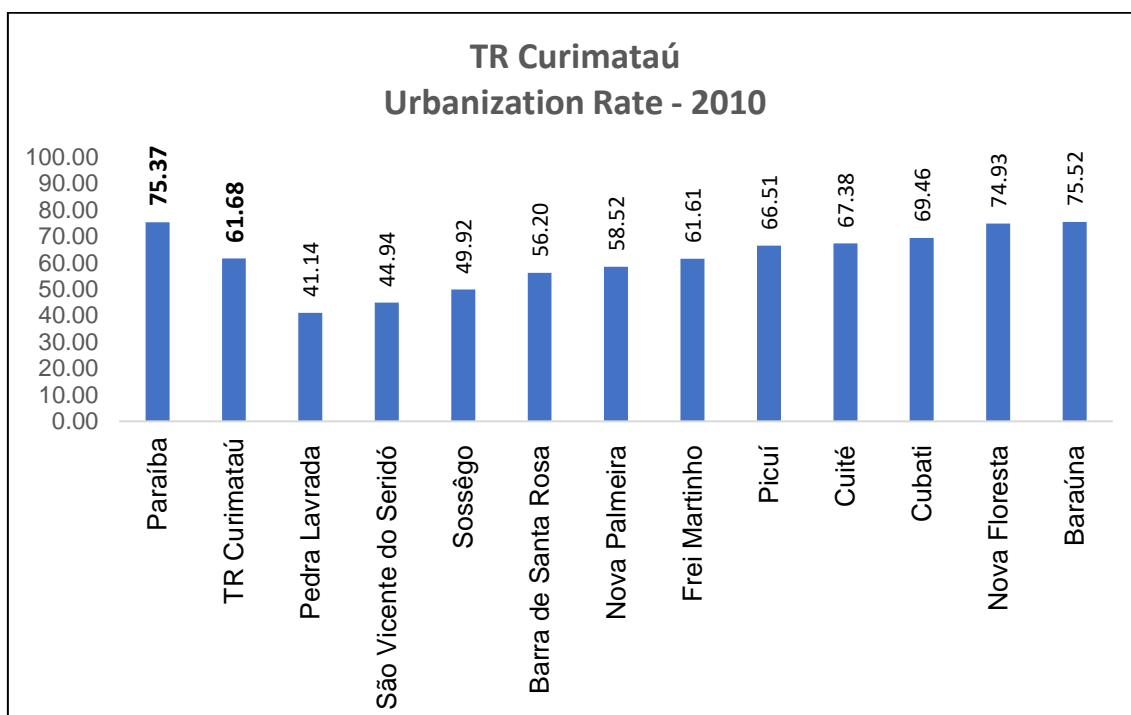
TR Curimataú	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	94.764	102.144	100.622	0,75%	-0,13%
<b>Urban:</b>	54.603	62.999	N/A	1,44%	-
<b>Rural:</b>	40.161	39.145	N/A	-0,26%	-
<b>Urbanization rate:</b>	57,62%	61,68%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

## 60 - Urbanization Rate - Paraíba, TR Curimataú and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### **RT Mata Norte**

In the period from 2000 to 2010, the Mata Norte RT showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.97% p.a., indicating a behavior greater than that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.60% p.a.). In 2022, the territory had 160,566 inhabitants, representing 4.0% of the state's population in the same year, with Mamanguape having the largest population (44,599 inhabitants). Rio Tinto, Itapororoca and Jacaraú also stood out, with more than 10,000 residents each, while the rest of the municipalities had populations of less than 10,000 inhabitants, the smallest of which was in Curral de Cima: 5,254 inhabitants.

With regard to population growth, between 2000-2010, two municipalities showed negative rates, the highest being Curral de Cima (-0.22% p.a.) and the lowest Jacaraú (-0.12% p.a.). The rest of the municipalities showed a positive rate, especially Mataraca, Capim and Baía da Traição, with geometric growth rates of 3.02%, 2.97% and 2.14%, respectively.

Between 2010-2022, the municipalities of the Mata Norte RT grew at a slower rate than in the previous decade, but only Pedro Régis saw a small reduction in its population, reaching a geometric growth rate of practically zero (0.00% p.a.). On the other hand, the municipalities of Capim (1.84%), Marcação (1.41%) and Baía da Traição (1.18%) experienced the highest growth rates in the same period.

When we look at the household situation of the population living in the Mata Norte RT, we can see that most of them were located in urban areas (61.21%) in 2010, below the state average, which in the same year had an urbanization rate of 75.37%.

Among the municipalities in the Mata Norte RT, it can be seen that Mataraca, Mamanguape, Capim, Itapororoca, Jacaraú and Rio Tinto are basically urban municipalities, i.e. most of their populations live in urban areas, while in the other municipalities most of their populations live in rural areas (with Curral de Cima standing out with an urbanization rate of just 9.08%) and in Lagoa de Dentro its population is divided between the two areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Mata Norte RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 43 - Population by Household Status - TR Mata Norte - 2000, 2010 and 2022**

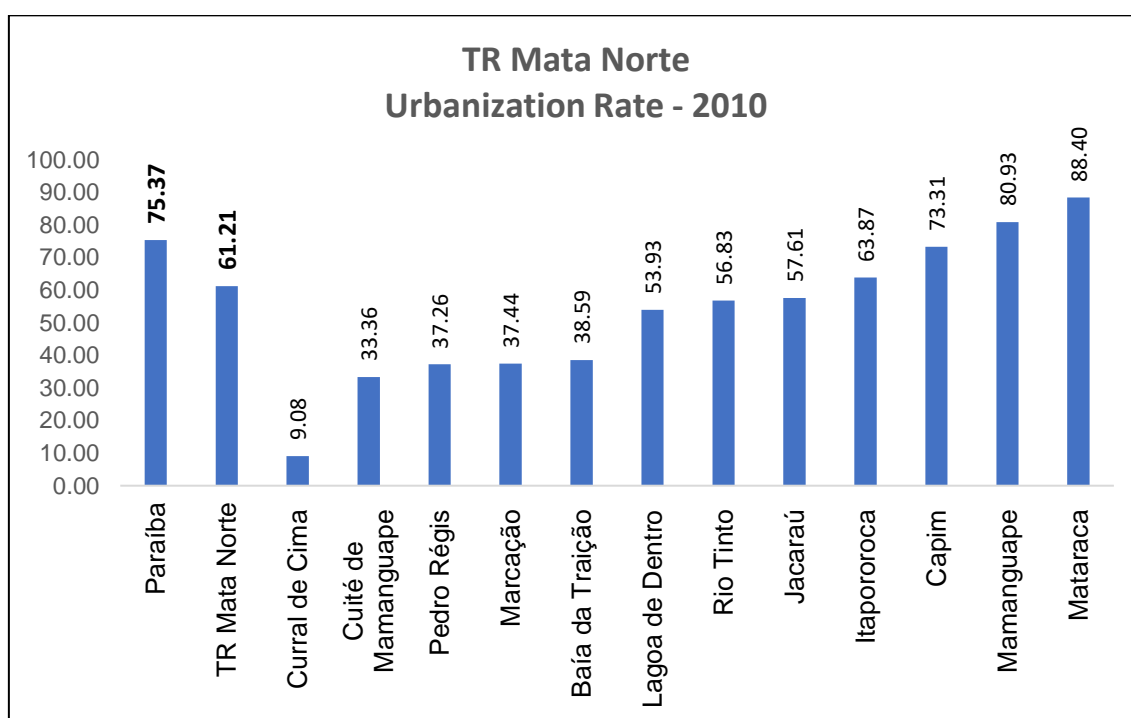
TR Mata Norte	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	135.615	149.393	160.566	0,97%	0,60%
<b>Urban:</b>	80.435	91.439	N/A	1,29%	-
<b>Rural:</b>	55.180	57.954	N/A	0,49%	-
<b>Urbanization rate:</b>	59,31%	61,21%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

**61 - Urbanization Rate - Paraíba, TR Mata Norte and TR Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.

### **RT Mata Sul**

In the period from 2000 to 2010, the Mata Sul RT showed a positive variation in the number of inhabitants, with a geometric growth rate of 1.63% p.a., indicating a behavior greater than that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.97% p.a.). In 2022, the territory had 1,335,829 inhabitants, representing 33.6% of the state's population in the same year, with João Pessoa having the largest population (833,932 inhabitants). Santa Rita, Bayeux, Cabedelo and Sapé also stood out, with more than 50,000 residents each, while the rest of the municipalities had populations of less than 30,000 inhabitants, the smallest of which was in Riachão do Poço: 4,738 inhabitants.

In terms of population growth between 2000-2010, all the municipalities in the region showed positive rates, the highest being Cabedelo (3.07%), Conde (2.69%) and Pitimbu (2.03%), and the lowest Mari (0.25%) and Santa Rita (0.38%).

Between 2010-2022, the municipalities of the Mata Sul RT grew at a slower rate than in the previous decade, with two municipalities, Pitimbu and Bayeux, reaching negative rates, the latter being the most significant (-1.54%). In turn, the municipalities of Conde (2.14%), Santa Rita (1.85%) and Alhandra (1.58%) experienced the highest growth rates over the same period.

When we look at the household situation of the population living in the Mata Sul RT, we can see that practically all of them were located in urban areas (93.36%) in 2010, higher than the state average, which in the same year had an urbanization rate of 75.37%. This shows the highly urbanized profile of the municipalities in the region.

Therefore, in 2010, practically all the municipalities in the Mata Sul RT had high urbanization rates, especially Cabedelo (99.99%), João Pessoa (99.62%) and Bayeux (99.07%), with almost all of their populations living in urban areas. On the other hand, only in three municipalities in the CA did most of their population live in rural areas: Cruz do Espírito Santo, Riachão do Poço and Sobrado, the latter with an urbanization rate of only 11.98%.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Mata Sul RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 44 - Population by Household Status - TR Mata Sul - 2000, 2010 and 2022**

TR Mata Sul	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	1.011.297	1.189.121	1.335.829	1,63%	0,97%
<b>Urban:</b>	936.029	1.110.161	N/A	1,72%	-
<b>Rural:</b>	75.268	78.960	N/A	0,48%	-

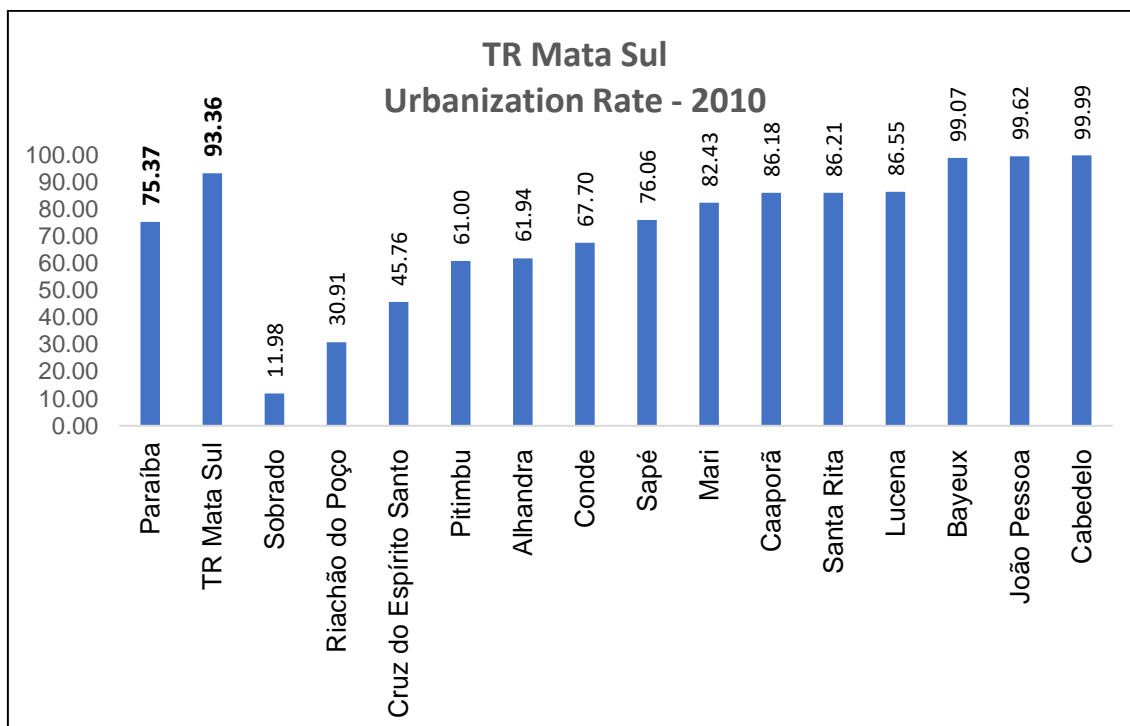
<b>Urbanization rate:</b>	92,56%	93,36%	-	-	-
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Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

## 62 - Urbanization Rate - Paraíba, TR Mata Sul and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### **RT Middle Piranhas**

In the period from 2000 to 2010, the TR Médio Piranhas showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.84% p.a., indicating a similar behavior to that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.15% p.a.). In 2022, the territory had 113,431 inhabitants, which represents 2.9% of the state's population in the same year, with São Bento being the municipality with the largest population (32,235 inhabitants). Catolé do Rocha also stood out, with more than 30,661 residents, while the rest of the municipalities registered populations of less than 15,000, the smallest of which was in São José do Brejo do Cruz: 1,699 inhabitants.

In terms of population growth between 2000-2010, Bom Sucesso was the only municipality in the region with a negative rate (-0.48%). The rest of the municipalities showed a positive rate, especially São Bento, Mato Grosso and Brejo do Cruz, with geometric growth rates of 1.65%, 1.08% and 1.01%, respectively.

Between 2010-2022, the municipalities of the TR Médio Piranhas grew at a slower rate than in the previous decade, with five municipalities reaching negative rates, the most significant being Belém do Brejo do Cruz (-1.08%). In turn, the municipalities of Catolé

do Rocha (0.54%), São Bento (0.36%) and Brejo do Cruz (0.31%) experienced the highest growth rates over the same period.

When we analyze the household situation of the population living in the TR Médio Piranhas, we can see that a large part was located in the urban area (71.02%) in 2010, below the state average, which in the same year had an urbanization rate of 75.37%.

Among the municipalities of the TR Médio Piranhas, it can be seen that São Bento, Brejo do Cruz, Brejo dos Santos, Catolé do Rocha, Belém do Brejo do Cruz and Jericó are basically urban municipalities, i.e. most of their populations live in urban areas, while in Bom Sucesso, Mato Grosso and Riacho dos Cavalos most of their populations live in rural areas, and in São José do Brejo do Cruz, with an urbanization rate of 56.89%, the population was more divided between urban and rural areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Middle Piranhas RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 45 - Population by Household Status - TR Médio Piranhas - 2000, 2010 and 2022**

TR Middle Piranhas	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	102.417	111.375	113.431	0,84%	0,15%
<b>Urban:</b>	65.396	79.098	N/A	1,92%	-
<b>Rural:</b>	37.021	32.277	N/A	-1,36%	-
<b>Urbanization rate:</b>	63,85%	71,02%	-	-	-

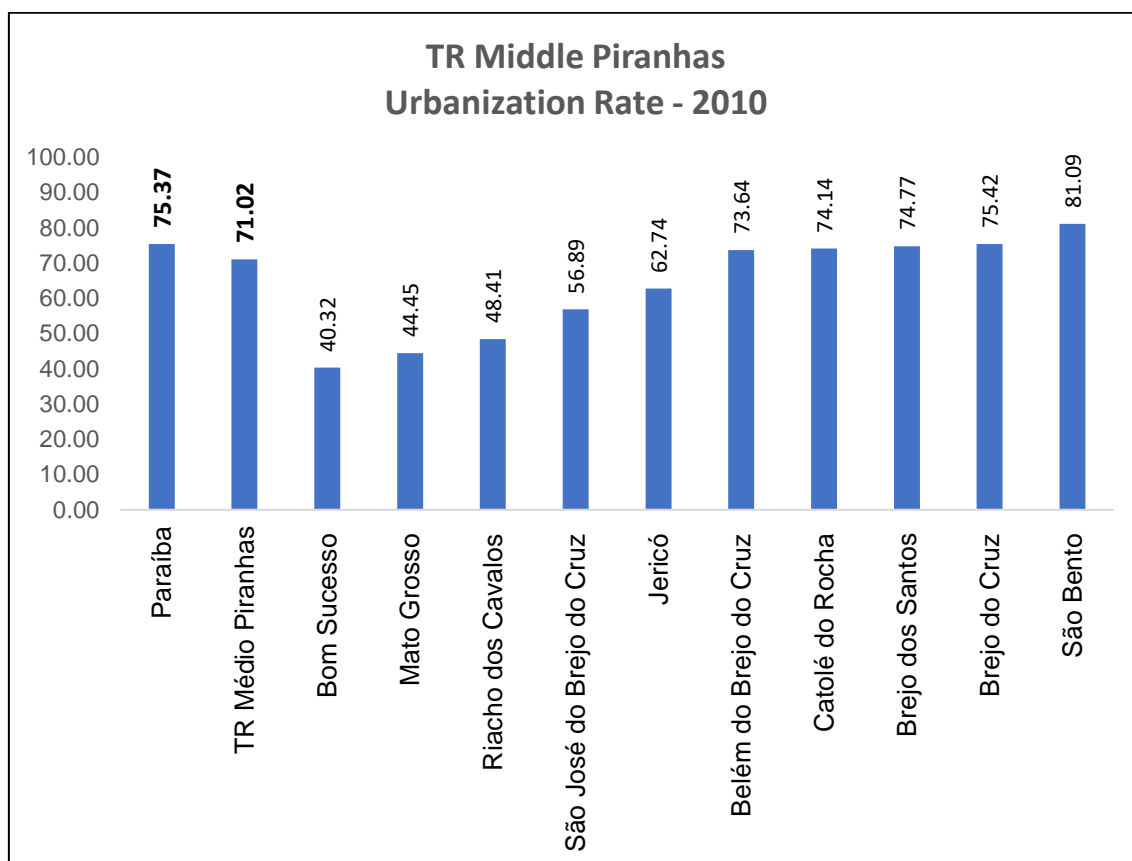
Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.



### 63 - Urbanization Rate - Paraíba, TR Médio Piranhas and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

#### **RT Middle Hinterland**

In the period from 2000 to 2010, the Médio Sertão RT showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.76% p.a., indicating a lower behavior than that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.11% p.a.). In 2022, the territory had 217,262 inhabitants, which represents 5.5% of the state's population in the same year, with Patos being the municipality with the largest population (103,165 inhabitants). Santa Luzia and Teixeira also stood out, with around 15,000 inhabitants each. The rest of the municipalities had fewer than 10,000 inhabitants, especially Quixaba and Areia de Baraúnas, which had the smallest populations in the state (1,743 and 2,005 residents, respectively).

In terms of population growth between 2000-2010, seven municipalities showed negative rates, the highest being Areia de Baraúnas (-0.87% p.a.) and the lowest Cacimba de Areia (-0.06% p.a.). The rest of the municipalities had positive rates, especially Quixaba, Salgadinho and Várzea, with geometric growth rates of 2.65%, 2.20% and 2.02%, respectively.

Between 2010-2022, the municipalities of the TR Médio Sertão grew at a slower rate than in the previous decade, with eight municipalities reaching negative rates, the most significant being São José de Espinharas (-1.27%). In turn, the municipalities of

Passagem (0.82%), Maturéia (0.67%) and Malta (0.62%) experienced the highest growth rates over the same period.

When analyzing the household situation of the population living in the TR Médio Sertão, of the 22 municipalities in the territory, nine had a predominantly rural population in 2010, with Cacimbas standing out, with only 24.08% of its population living in urban areas. The highest urban proportions were found in Patos and Santa Luzia, with 96.63% and 91.58%, respectively, of the population living in this stratum.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Médio Sertão RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 46 - Population by Household Status - TR Médio Sertão - 2000, 2010 and 2022**

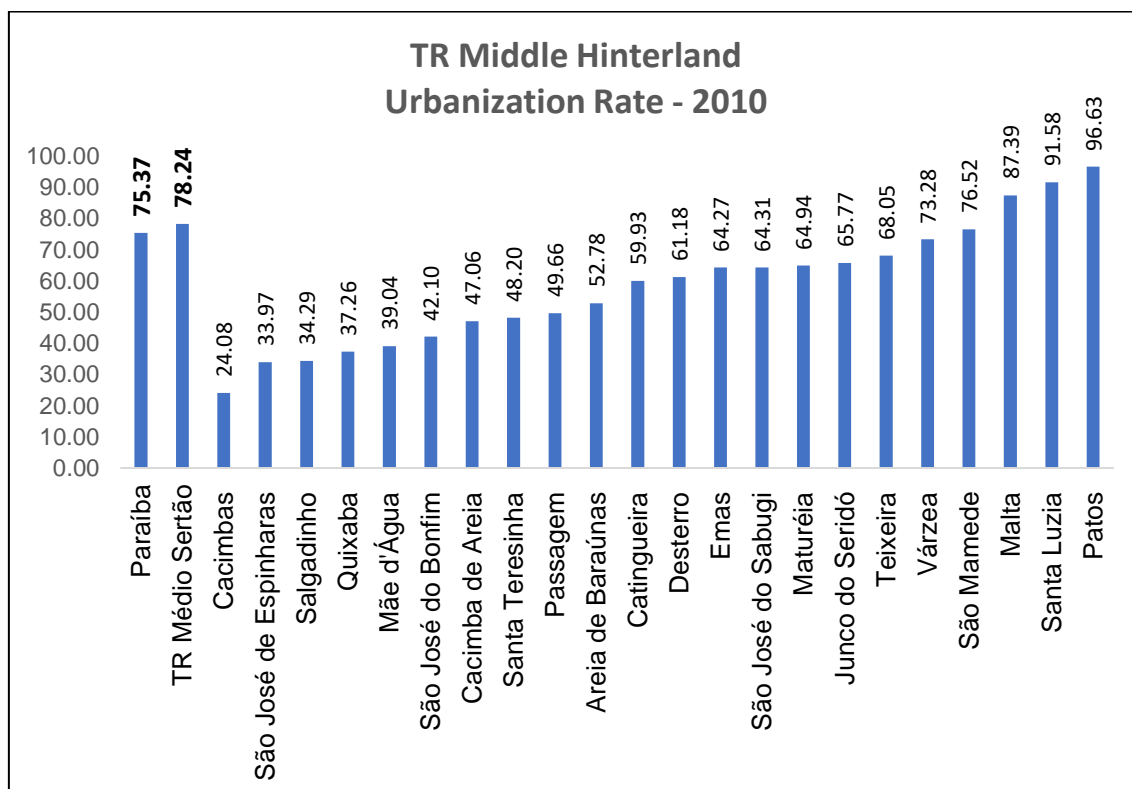
TR Middle Hinterland	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	198.804	214.454	217.262	0,76%	0,11%
<b>Urban:</b>	147.264	167.799	N/A	1,31%	-
<b>Rural:</b>	51.540	46.655	N/A	-0,99%	-
<b>Urbanization rate:</b>	74,07%	78,24%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

**64 - Urbanization Rate - Paraíba, TR Médio Sertão and TR Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.

### **RT Piemont da Borborema**

In the period 2000-2010, the population of the Piemont da Borborema RT had a geometric growth rate of 0.14% p.a., rising from 173,775 inhabitants in 2000 to 176,143 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, the population of the TR Piemont da Borborema decreased significantly, reaching a negative geometric growth rate of -0.33% per year. In 2022 the territory had 169,348 inhabitants, which represents 4.3% of the state's population in the same year, with Solânea being the municipality with the largest population (26,774 inhabitants). Bananeiras, Araruna, Belém and Cacimba de Dentro also stood out, with populations of between 15,000 and 25,000 inhabitants. The rest of the municipalities had fewer than 15,000 inhabitants, especially Borborema and Logradouro, which had the smallest populations in the region (4,214 and 4,797 inhabitants, respectively).

In terms of population growth between 2000-2010, five municipalities showed negative rates, the highest being Solânea (-1.38% p.a.) and the lowest Cacimba de Dentro (-0.04% p.a.). The rest of the municipalities showed a positive rate, especially Damião, Logradouro and Araruna, with geometric growth rates of 3.00%, 1.52% and 1.29%, respectively.

Between 2010-2022, the municipalities of the TR Piemont da Borborema grew at a slower rate than in the previous decade, with negative rates in eleven municipalities, the most significant being Tacima (-2.04%) and Serraria (-2.02%). On the other hand, the municipalities of Logradouro (1.65%), Bananeiras (0.48%) and Damião (0.14%) experienced the highest growth rates in the same period.

When analyzing the household situation of the population living in the TR Piemont da Borborema, of the 15 municipalities in the territory, eight had a predominantly rural population in 2010, with Bananeiras standing out with only 39.67% of its population living in urban areas. The highest urban proportions were found in Belém and Borborema, with 82.56% and 73.02% of the population living in this stratum respectively.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Piemont da Borborema RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 47 - Population by Household Status - TR Piemont da Borborema - 2000, 2010 and 2022**

TR Piemont da Borborema	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	173.775	176.143	169.348	0,14%	-0,33%
<b>Urban:</b>	87.992	101.725	N/A	1,46%	-

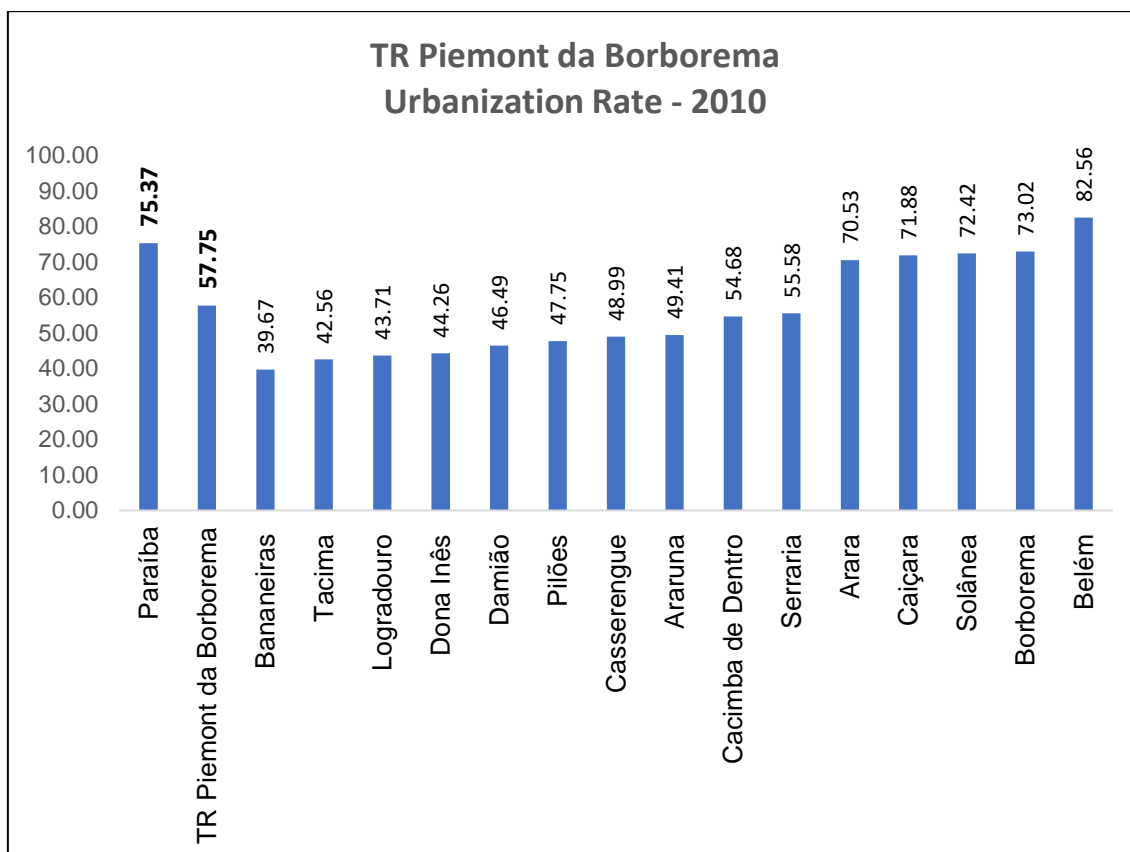
<b>Rural:</b>	85.783	74.418	N/A	-1,41%	-
<b>Urbanization rate:</b>	50,64%	57,75%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

### 65 - Urbanization Rate - Paraíba, TR Piemont da Borborema and TR Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### RT Serra do Teixeira

In the period 2000-2010, the population of the Serra do Teixeira RT had a geometric growth rate of 0.47% p.a., rising from 77,257 inhabitants in 2000 to 80,991 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, the population of the Serra do Teixeira RT decreased slightly, reaching a negative geometric growth rate of -0.31% per year. In 2022, the territory had 78,026 inhabitants, which represents 2.0% of the state's population in the same year, with Princesa Isabel being the municipality with the largest population (21,114 inhabitants). Tavares, Manaíra and Imaculada also stood out, with populations of over 10,000 inhabitants. The rest of the municipalities had fewer than 10,000 inhabitants, especially São José de Princesa, which had the smallest population in the state (3,416 residents).

In terms of population growth between 2000-2010, three municipalities showed negative rates: São José de Princesa (-1.62% p.a.), Juru (-0.22%) and Imaculada (-0.20%). The rest of the municipalities showed a positive rate, especially Princesa Isabel and Água Branca, with geometric growth rates of 1.56% and 1.21%, respectively.

Between 2010-2022, the municipalities of the Serra do Teixeira RT grew at a slower rate than in the previous decade, with all the municipalities reaching negative rates, except for Tavares, which experienced a small increase in its population, reaching a geometric growth rate of practically zero (0.00% p.a.). São José de Princesa and Imaculada saw the biggest reductions in inhabitants, with negative growth rates of -1.74% and -0.53%, respectively.

When we analyze the household situation of the population living in the Serra do Teixeira RT, we can see that the population was divided between urban and rural areas in 2010, with an urbanization rate of only 51.05%. This shows that the municipalities in the RT are not very urbanized.

Therefore, in 2010, practically all the municipalities in the Serra do Teixeira RT had low urbanization rates, with São José de Princesa standing out (16.45%), with almost all of its population living in rural areas. In turn, Princesa Isabel was the only municipality in the RT where most of its population lived in urban areas, reaching an urbanization rate of 68.26% in 2010. In the municipality of Manairá, with an urbanization rate of 56.02%, the population was more divided between urban and rural areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Serra do Teixeira RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 48 - Population by Household Status - Serra do Teixeira RT - 2000, 2010 and 2022**

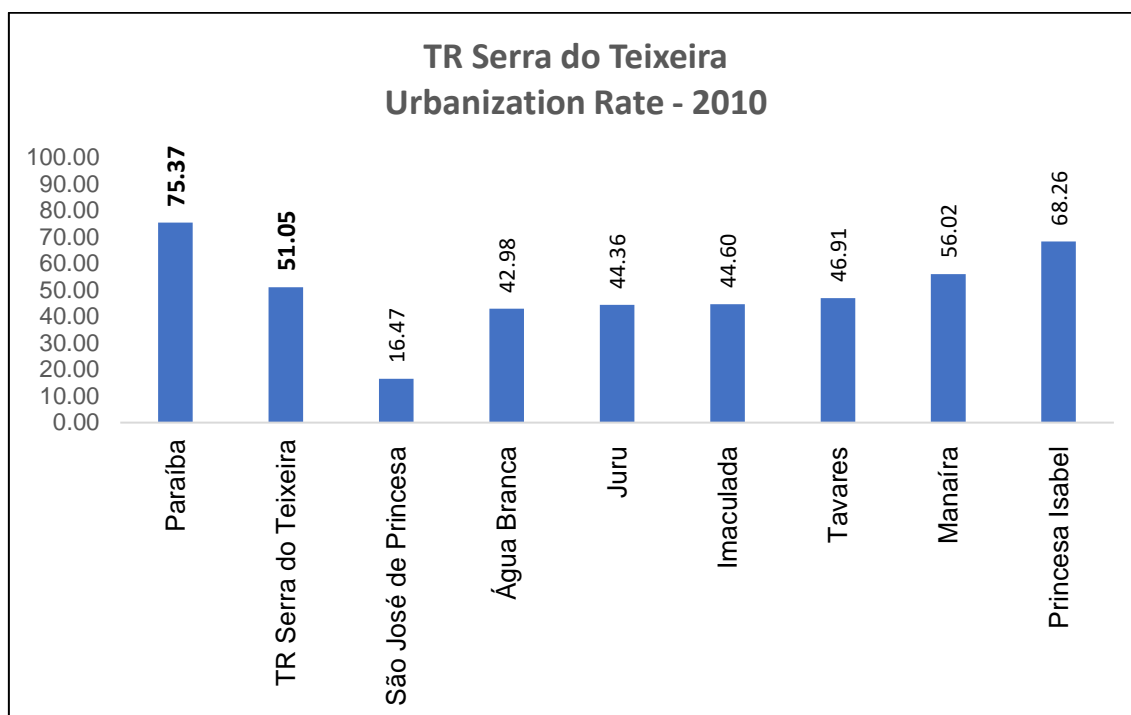
TR Serra do Teixeira	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	77.257	80.991	78.026	0,47%	-0,31%
<b>Urban:</b>	32.899	41.349	N/A	2,31%	-
<b>Rural:</b>	44.358	39.642	N/A	-1,12%	-
<b>Urbanization rate:</b>	42,58%	51,05%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

## 66 - Urbanization Rate - Paraíba, Serra do Teixeira RT and RT Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### **RT Vale de Piancó**

In the period from 2000 to 2010, the population of the TR Vale de Piancó showed a negative variation in the number of inhabitants, with a geometric growth rate of -0.04% p.a., indicating a different behavior from that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

According to the 2000 IBGE Demographic Census, the Vale de Piancó RT had 147,225 inhabitants, which fell to 772,683 in 2010. The phenomenon of a decrease in the number of inhabitants between 2000 and 2010 extended to almost all of the 18 municipalities in the RT. The biggest drop occurred in Boa Ventura (-1.35% p.a.), followed by Olho d'Água (-1.21% p.a.) and Santana dos Garrotes (-0.81 p.a.%). Among the 18 municipalities that make up the CA, only seven showed a positive variation in the number of inhabitants in the period in question, with Itaporanga standing out, which achieved a growth rate of 0.94%.

In total, 624 people emigrated from the Vale de Piancó RT between 2000 and 2010, an atypical behavior compared to the state of Paraíba and the other rural territories.

In the last decade, between 2010 and 2022, the population of TR Vale de Piancó decreased a little more, at a faster rate than in the previous period, reaching a negative geometric growth rate of -0.28% per year. In 2022, the territory had 141,772 inhabitants, which represents 3.6% of the state's population in the same year, with Itaporanga and Conceição being the municipalities with the largest populations, 23,940 and 18,260 inhabitants respectively. The other municipalities had populations of between 16,441 and 2,292 inhabitants (Piancó and Curral Velho, respectively).

When analyzing the household situation of the population living in the Vale de Piancó RT, of the 18 municipalities in the territory, fourteen showed a predominance of the

population living in the urban stratum in 2010, with Itaporanga and Coremas standing out, with 76.01% and 75.38% of their populations living in urban areas. Only the populations of four municipalities, Santa Inês (40.41%), Santana de Mangueira (41.85%), São José de Caiana (45.41%) and Aguiar (48.84%), lived mostly in rural areas.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Vale de Piancó RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 49 - Population by Household Status - TR Vale de Piancó - 2000, 2010 and 2022**

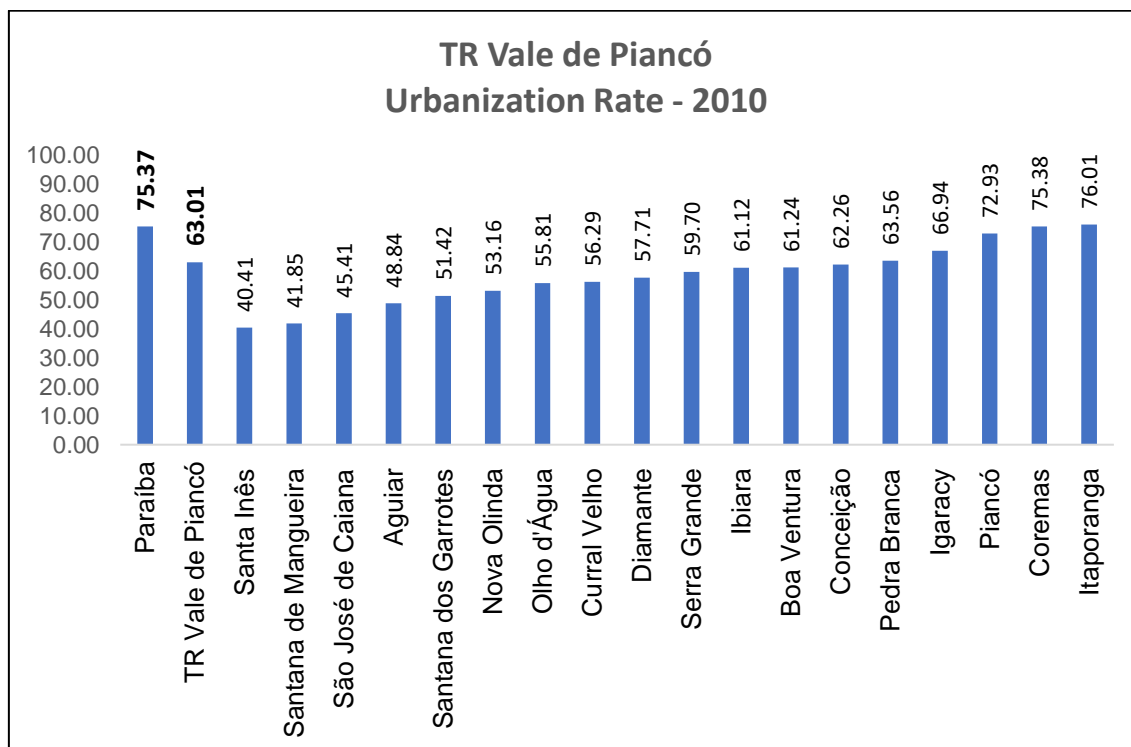
TR Vale de Piancó	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	147.225	146.601	141.772	-0,04%	-0,28%
<b>Urban:</b>	82.023	92.379	N/A	1,20%	-
<b>Rural:</b>	65.202	54.222	N/A	-1,83%	-
<b>Urbanization rate:</b>	55,71%	63,01%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

**67 - Urbanization Rate - Paraíba, TR Vale de Piancó and TR Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.

### **RT Maringá Valley**

In the period 2000-2010, the population of the Maringá Valley RT had a geometric growth rate of 0.31% p.a., rising from 66,615 inhabitants in 2000 to 68,701 in 2010, according to data from the IBGE Demographic Censuses (2000 and 2010). During the same period, the state's population grew at a rate of 0.90% p.a., which meant a decrease in the proportion of the RT population in the composition of Paraíba's population.

In the last decade, between 2010 and 2022, the population of the Maringá Valley RT decreased slightly, reaching a negative geometric growth rate of -0.03% per year. In 2022, the territory had 68,476 inhabitants, representing 1.7% of the state's population in the same year, with Pombal having the largest population (32,473 inhabitants). Paulista also stood out, with a population of over 10,000. The rest of the municipalities had fewer than 10,000 inhabitants, with São Domingos standing out as having the smallest population in the CA (2,595 residents).

With regard to population growth between 2000-2010, only one municipality showed a negative rate, Lagoa (-0.34%). The rest of the municipalities showed a positive rate, especially São Bentinho and São Domingos, with geometric growth rates of 1.43% and 1.34%, respectively.

Between 2010-2022, the municipalities of the Maringá Valley RT grew at a slower rate than in the previous decade, with four municipalities reaching negative rates, the most significant being Cajazeirinhas (-0.84%). In turn, the municipalities of São Bentinho (0.37%), Vista Serrana (0.30%) and Pombal (0.09%) experienced the highest growth rates over the same period.

When we look at the household situation of the population living in the Maringá Valley RT, we can see that most of them were located in urban areas (65.16%) in 2010, below the state average, which in the same year had an urbanization rate of 75.37%.

However, among the municipalities in the Maringá Valley RT, it can be seen that only three of the eight municipalities had more urban than rural population in 2010: Pombal, Condado and São Bentinho, with urbanization rates of 80.20%, 65.29% and 68.75%, respectively. On the other hand, Cajazeirinhas (32.97%), São Domingos (34.82%), Vista Serrana (45.16%), Paulista (48.52%) and Lagoa (49.22%) had more people living in rural areas in the same year.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Maringá Valley RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 50 - Population by Household Status - TR Vale do Maringá - 2000, 2010 and 2022**

TR Maringá Valley	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	66.615	68.701	68.476	0,31%	-0,03%
<b>Urban:</b>	39.019	44.764	N/A	1,38%	-
<b>Rural:</b>	27.596	23.937	N/A	-1,41%	-



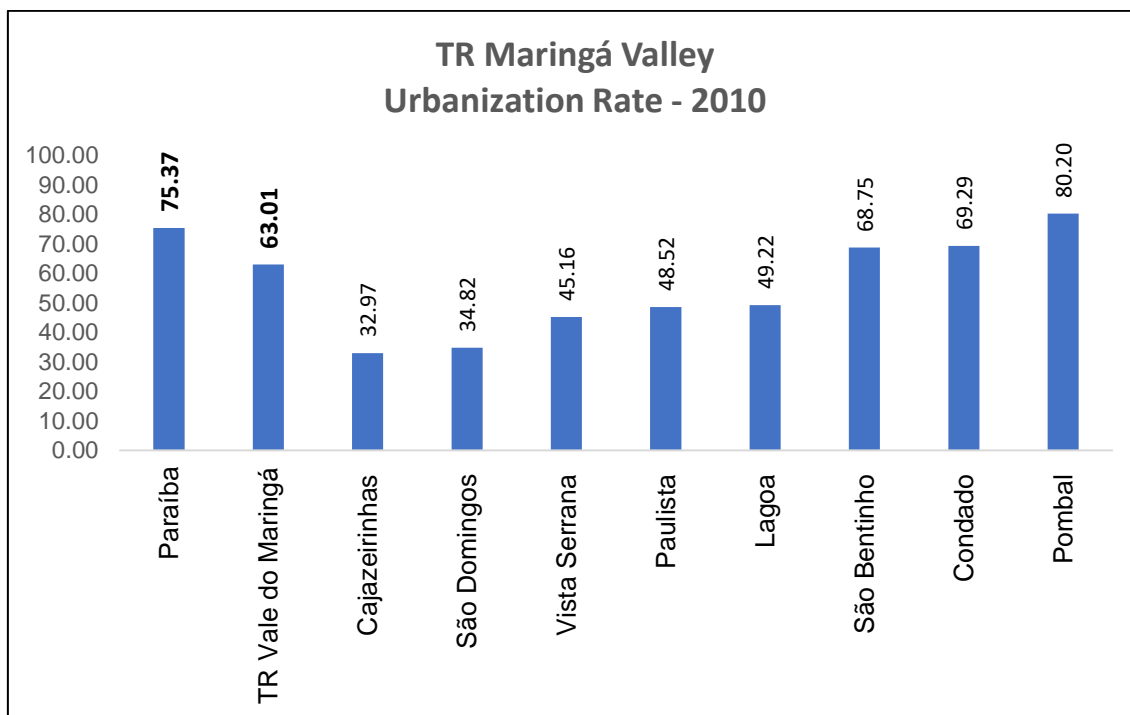
<b>Urbanization rate:</b>	58,57%	65,16%	-	-	-
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Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

### 68 - Urbanization Rate - Paraíba, Vale do Maringá RT and RT Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### RT Paraíba Valley

In the period from 2000 to 2010, the Paraíba Valley RT showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.32% p.a., indicating a lower behavior than that seen in Paraíba for the same period, where a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.20% p.a.). In 2022, the territory had 180,552 inhabitants, which represents 4.5% of the state's population in the same year, with Pedras de Fogo being the municipality with the largest population (29,662 inhabitants). Itabaiana and Ingá also stood out, with 23,182 and 17,692 respectively. The rest of the municipalities had fewer than 15,000 inhabitants, especially Riachão do Bacamarte and Caldas Brandão, which had the smallest populations in the state (4,690 and 5,753 residents, respectively).

In terms of population growth between 2000-2010, four municipalities showed negative rates, the highest being Mogeiro (-0.57% p.a.) and the lowest Salgado de São Félix (-0.06% p.a.). The rest of the municipalities showed a positive rate, especially São José dos Ramos, São Miguel de Taipu and Caldas Brandão, with geometric growth rates of 1.18%, 0.96% and 0.90%, respectively.

Between 2010-2022, the municipalities of the Paraíba Valley RT grew at a slower rate than in the previous decade, with six municipalities experiencing negative rates, the most significant being Itabaiana (-0.45%). In turn, the municipalities of Mogeiro (0.89%), Pilar

(0.80%) and Riachão do Bacamarte (0.80%) experienced the highest growth rates over the same period.

When analyzing the household situation of the population living in the Vale do Paraíba RT, of the 15 municipalities in the territory, only five had a predominance of the population living in the rural stratum in 2010: Gurinhém (with 41.77% of the population living in urban areas), São José dos Ramos (43.08%), Salgado de São Félix (43.84%), São Miguel de Taipu (44.46%) and Mogeiro (44.70%). The highest urban proportions were found in Juripiranga, Itabaiana and Juárez Távora, with, respectively, 93.64%, 80.60% and 78.46% of the population living in this stratum. The other municipalities had an urbanization rate of between 50.00% and 70.00%.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Vale do Paraíba RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 51 - Population by Household Status - TR Vale do Paraíba - 2000, 2010 and 2022**

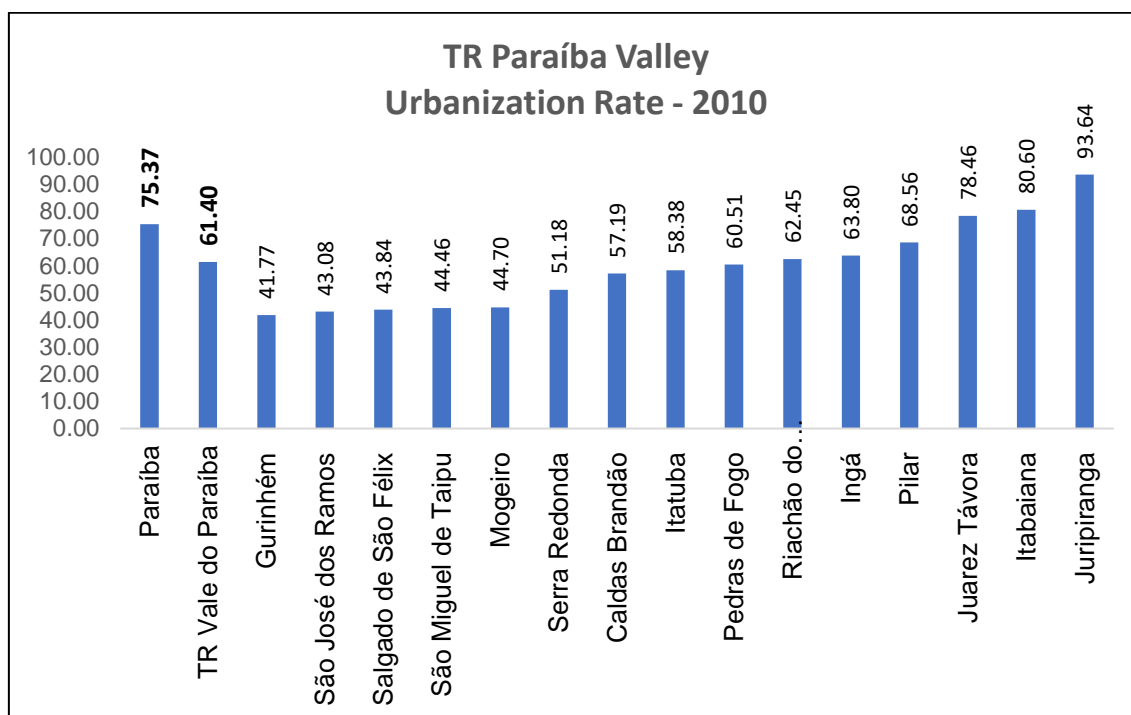
TR Paraíba Valley	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	170.772	176.275	180.552	0,32%	0,20%
<b>Urban:</b>	97.738	108.227	N/A	1,02%	-
<b>Rural:</b>	73.034	68.048	N/A	-0,70%	-
<b>Urbanization rate:</b>	57,23%	61,40%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GRR: Geometric annual growth rate.

N/A: Not available.

## 69 - Urbanization Rate - Paraíba, Vale do Paraíba RT and RT Municipalities - 2010



Source: IBGE - 2010 Demographic Census.

### **RT Piranhas Valley**

In the period from 2000 to 2010, the TR Vale do Piranhas showed a positive variation in the number of inhabitants, with a geometric growth rate of 0.54% p.a., indicating a behavior greater than that seen in Paraíba for the same period, in which a population increase of 0.90% p.a. was observed.

In the last decade, between 2010 and 2022, growth was less significant than in the previous decade (0.08% p.a.). In 2022, the territory had 113,363 inhabitants, representing 2.9% of the state's population in the same year, with Sousa having the largest population (67,259 inhabitants). The rest of the municipalities had populations of less than 10,000 inhabitants, the smallest of which was in São Francisco: 3,137 inhabitants.

In terms of population growth between 2000-2010, two municipalities showed negative rates, Lastro (-0.93%) and São Francisco (-0.49%). The rest of the municipalities showed a positive rate, especially Aparecida, Marizópolis and Vieirópolis, with geometric growth rates of 2.68%, 0.95% and 0.77%, respectively. It should be noted that the municipality of Santa Cruz maintained the same population over this period.

Between 2010-2022, the municipalities in the Paraíba Valley region grew at a slower rate than in the previous decade, with five municipalities experiencing negative rates, the most significant being Santa Cruz (-0.70%). In turn, the municipalities of Lastro (0.90%), Marizópolis (0.69%) and Aparecida (0.30%) experienced the highest growth rates over the same period.

When analyzing the domicile situation of the population living in the Vale do Paraíba RT, of the 9 municipalities in the territory, seven had a predominantly rural population in 2010, with Vieirópolis standing out with only 19.74% of its population living in urban areas. The

highest urban proportions were found in Marizópolis and Sousa, with 86.78% and 78.84%, respectively, of the population living in this stratum.

The following table shows the degree of urbanization and the evolution of the rural and urban population in the years 2000, 2010 and 2022 in the Piranhas Valley RT. Next, the figure shows the urbanization rate of the municipalities in the RT in 2010.

**Table 52 - Population by Household Status - TR Vale do Piranhas - 2000, 2010 and 2022**

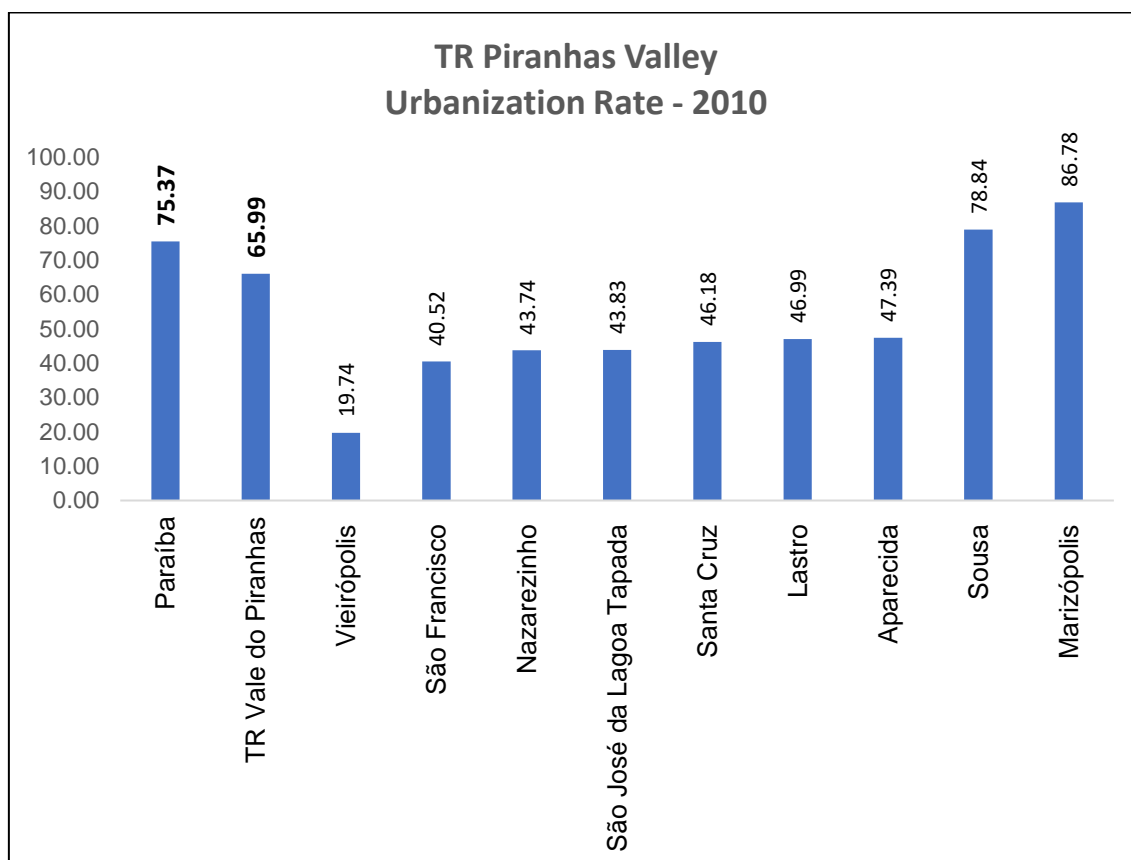
TR Piranhas Valley	2000	2010	2022	TGCA 2000-2010	TGCA 2010-2022
<b>Total Population:</b>	106.328	112.217	113.363	0,54%	0,08%
<b>Urban:</b>	65.523	74.057	N/A	1,23%	-
<b>Rural:</b>	40.805	38.160	N/A	-0,67%	-
<b>Urbanization rate:</b>	61,62%	65,99%	-	-	-

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

GGRR: Geometric annual growth rate.

N/A: Not available.

**70 - Urbanization Rate - Paraíba, TR Vale do Piranhas and TR Municipalities - 2010**



Source: IBGE - 2010 Demographic Census.

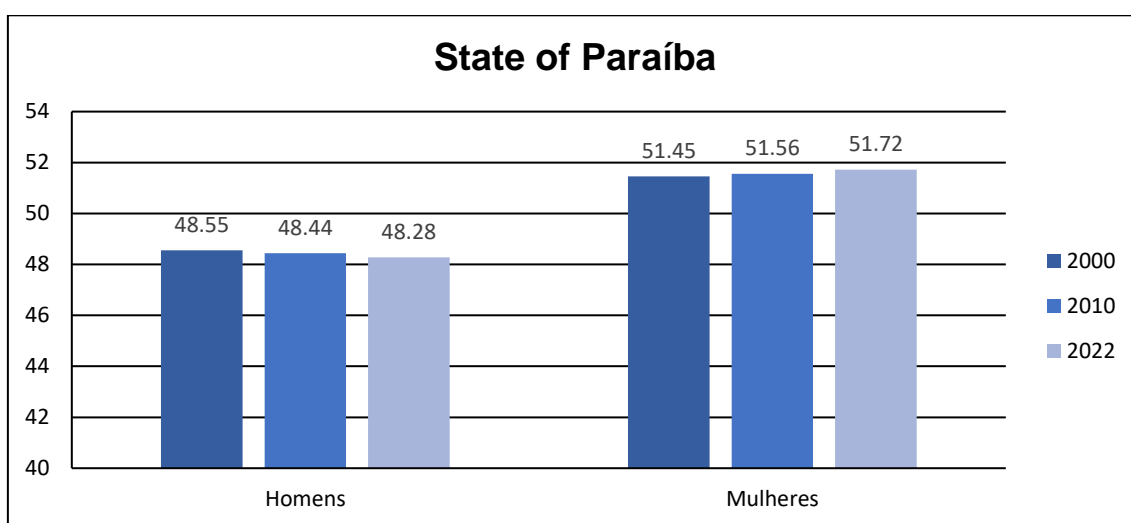
## Composition by Sex

Another indicator used to profile the population is the sex ratio, which indicates the number of men for every 100 women. When the indicator is above 100, there is a predominance of men, and below this number, there is a predominance of women.

The following sub-items show the composition by sex and the sex ratio in the project area during a given period, for the state as a whole and by Rural Territory.

According to data obtained from the IBGE Demographic Census, in 2000 the state of Paraíba had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.28% of the population was male and 51.72% female in the year of the survey, as can be seen in the figure below.

**71 - Relative Distribution of the Population by Sex at State of Paraíba**



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

The table below shows the results of the sex ratio indicator for the state of Paraíba.

**Table 53 - Sex Ratio in the State of Paraíba (2000, 2010 and 2022)**

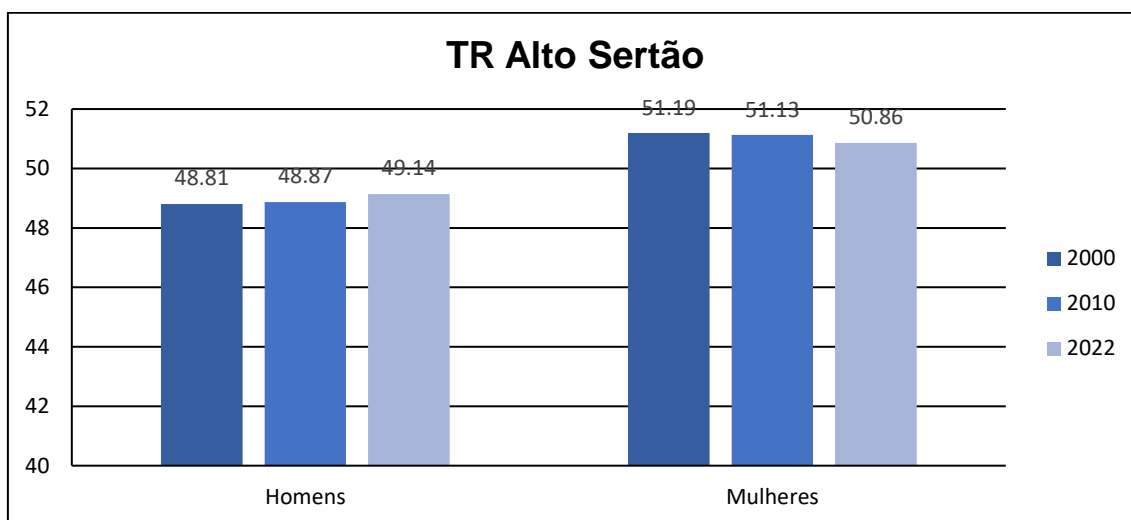
State of Paraíba	2000	2010	2022
Men	1.671.978	1.824.379	1.918.855
Women	1.771.847	1.942.149	2.055.832
Sex ratio	94,36	93,94	93,34

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### TR Alto Sertão

According to data obtained from the IBGE Demographic Census, in 1991 TR Alto Sertão had a larger female than male population. The difference has narrowed slightly over the years, with the latest Demographic Census (2022) revealing that 49.14% of the population was male and 50.86% female in the year of the survey, as can be seen in the figure below.

## 72 - Relative Distribution of Population by Sex in the Alto Sertão RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

All the municipalities in the region had a larger female than male population in 2022, except for Bom Jesus, Carrapateira, Santa Helena, São José de Piranhas and Triunfo, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Cajazeiras and Uiraúna, with a sex ratio of 93.29 and 93.39 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Alto Sertão RT.

**Table 54 - Sex Ratio in the Alto Sertão RT (2000, 2010 and 2022)**

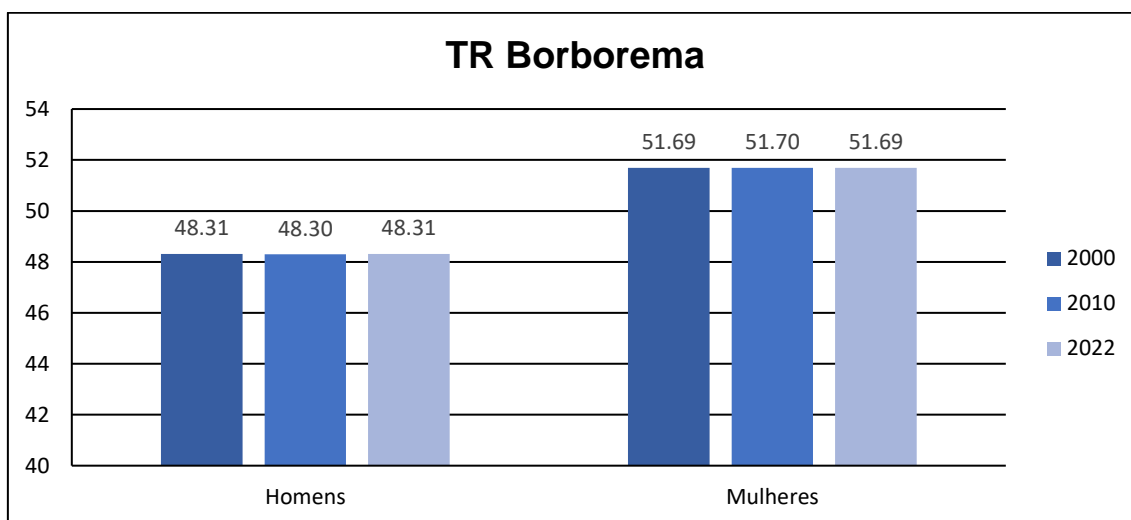
TR Alto Sertão	2000	2010	2022
<b>Men</b>	76.712	82.094	85.101
<b>Women</b>	80.457	85.877	88.074
<b>Sex ratio</b>	95,35	95,59	96,62

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **RT Borborema**

According to data obtained from the IBGE Demographic Census, in 1991 TR Borborema had a larger female than male population. The difference has narrowed slightly over the years, with the latest Demographic Census (2022) revealing that 48.31% of the population was male and 51.69% female in the year of the survey, as can be seen in the figure below.

### 73 - Relative Distribution of Population by Sex in TR Borborema



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for Algodão de Jandaíra, Santa Cecília, Riacho de Santo Antônio, Alcantil, Matinhas, Tenório, Barra de São Miguel, Olivedos, Barra de Santana and Natuba, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Campina Grande and Remígio, with a sex ratio of 89.79 and 90.06 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Borborema RT.

**Table 55 - Sex Ratio in TR Borborema (2000, 2010 and 2022)**

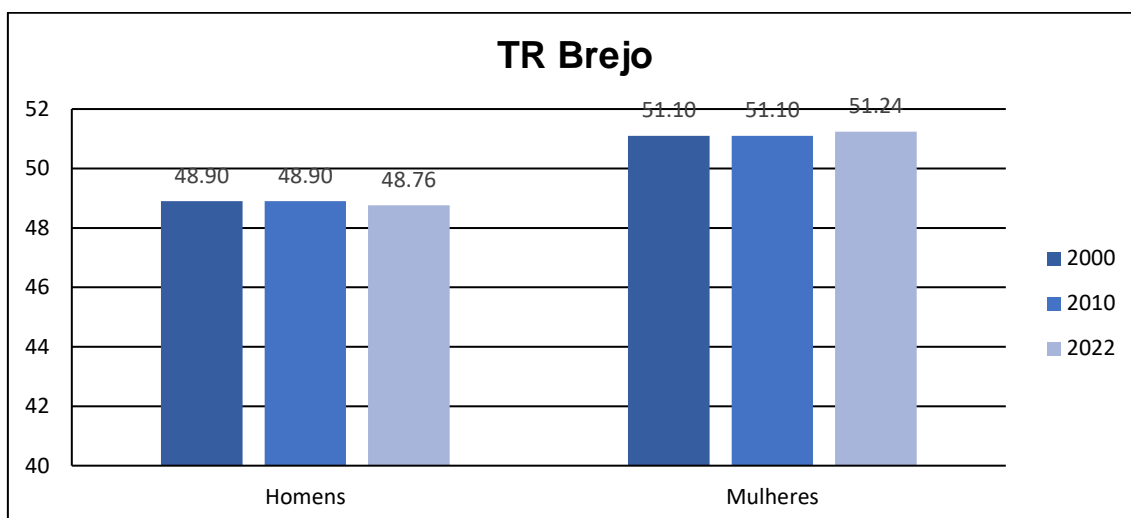
TR Borborema	2000	2010	2022
<b>Men</b>	372.792	400.305	423.194
<b>Women</b>	398.858	428.420	452.723
<b>Sex ratio</b>	93,46	93,44	93,48

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### TR Brejo

According to data obtained from the IBGE Demographic Census, in 1991 TR Brejo had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.90% of the population was male and 51.24% female in the year of the survey, as can be seen in the figure below.

#### 74 - Relative Distribution of Population by Sex in the Brejo RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

All of the municipalities in the CA had a larger female than male population in 2022. The highest proportions of women to men were in the municipalities of Guarabira and Mulungu, with a sex ratio of 93.25 and 93.55 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Brejo RT.

**Table 56 - Sex Ratio in the Brejo RT (2000, 2010 and 2022)**

TR Brejo	2000	2010	2022
<b>Men</b>	62.088	64.777	64.580
<b>Women</b>	64.884	67.691	67.867
<b>Sex ratio</b>	95,69	95,70	95,16

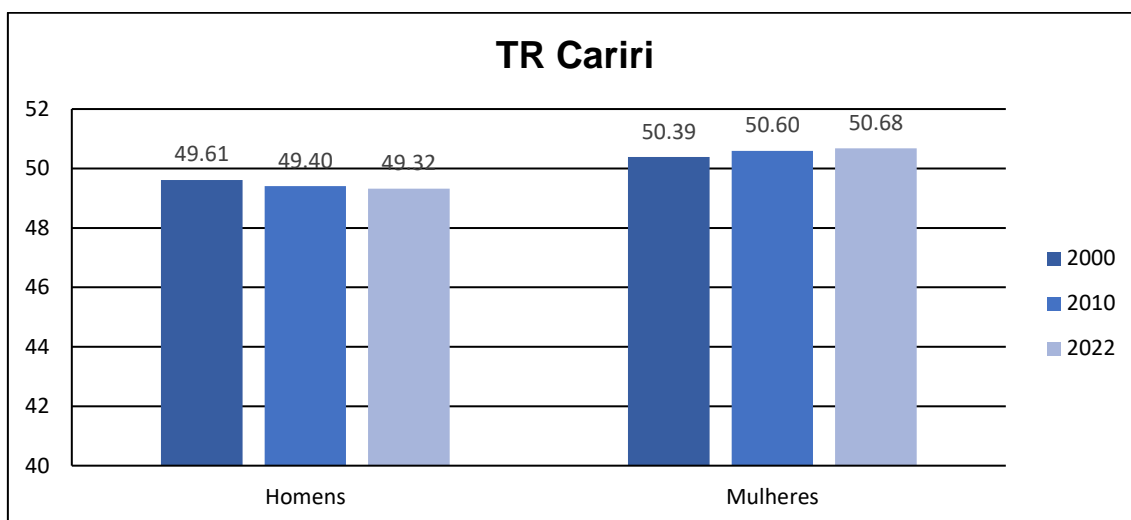
Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

#### RT Cariri

In 1991, in TR Cariri, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has increased slightly over the years, with the latest Demographic Census (2010) revealing that 49.32% of the population was male and 50.68% female in the year of the survey, as can be seen in the figure below.



## 75 - Relative Distribution of Population by Sex in the Cariri RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

More than half of the municipalities in the region had more women than men in 2022, except for Coxixola, São Sebastião do Umbuzeiro, São João do Tigre, Amparo, Caraúbas, Prata, Parari and São José dos Cordeiros, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Camalaú and Monteiro, with a sex ratio of 95.09 and 95.54 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Cariri RT.

**Table 57 - Sex Ratio in TR Cariri (2000, 2010 and 2022)**

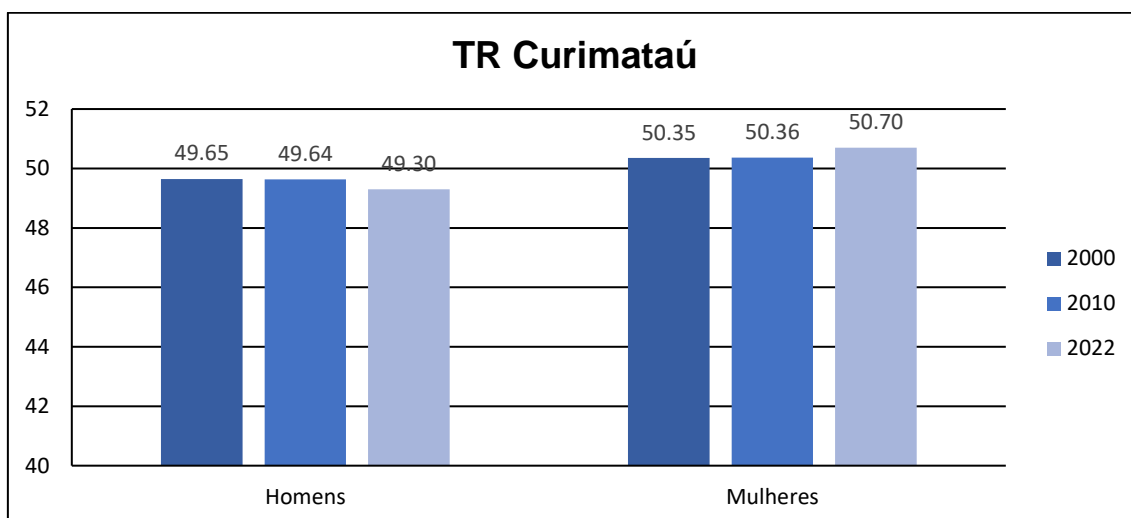
TR Cariri	2000	2010	2022
<b>Men</b>	51.185	54.319	56.177
<b>Women</b>	51.980	55.630	57.724
<b>Sex ratio</b>	98,47	97,64	97,32

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **RT Curimataú**

In 1991, in TR Curimataú, according to the data obtained by the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has increased slightly over the years, with the latest Demographic Census (2010) revealing that 49.30% of the population was male and 50.70% female in the year of the survey, as can be seen in the figure below.

## 76 - Relative Distribution of Population by Sex in TR Curimataú



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for Barra de Santa Rosa and São Vicente do Seridó, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Nova Floresta and Nova Floresta, with a sex ratio of 92.10 and 94.70 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Curimataú RT.

**Table 58 - Sex Ratio in TR Curimataú (2000, 2010 and 2022)**

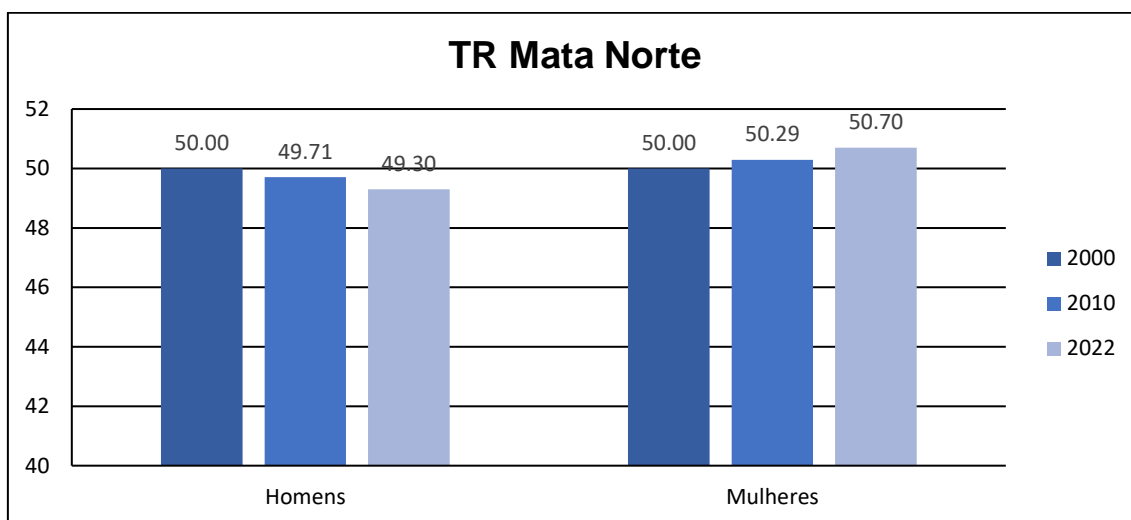
TR Curimataú	2000	2010	2022
<b>Men</b>	47.049	50.702	49.609
<b>Women</b>	47.715	51.442	51.013
<b>Sex ratio</b>	98,60	98,56	97,25

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **TR Mata Norte**

In 1991, in TR Mata Norte, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has increased slightly over the years, with the latest Demographic Census (2010) revealing that 49.30% of the population was male and 50.70% female in the year of the survey, as can be seen in the figure below.

### 77 - Relative Distribution of Population by Sex in the Mata Norte RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for Pedro Régis, Curral de Cima, Marcação and Cuité de Mamanguape, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Rio Tinto and Mamanguape, with a sex ratio of 94.12 and 95.15 men for every 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Mata Norte RT.

**Table 59 - Sex Ratio in the Mata Norte RT (2000, 2010 and 2022)**

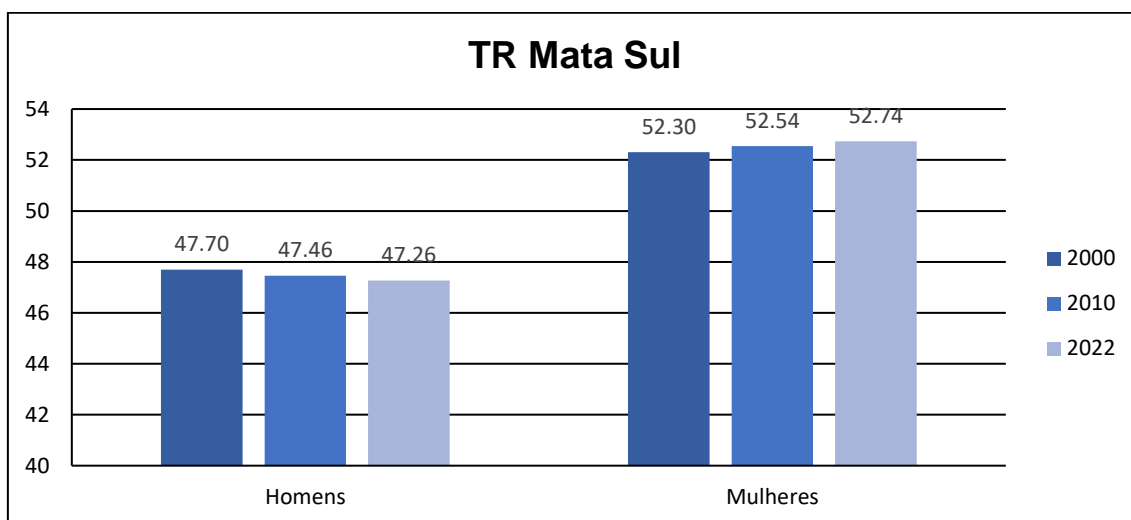
TR Mata Norte	2000	2010	2022
<b>Men</b>	67.804	74.265	79.153
<b>Women</b>	67.811	75.128	81.413
<b>Sex ratio</b>	99,99	98,85	97,22

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### RT Mata Sul

According to data obtained from the IBGE Demographic Census, in 1991 TR Mata Sul had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 47.26% of the population was male and 52.74% female in the year of the survey, as can be seen in the figure below.

## 78 - Relative Distribution of Population by Sex in the Mata Sul RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

All the municipalities in the region had a higher female than male population in 2022. The highest proportions of women to men were in the municipalities of João Pessoa and Bayeux, with a sex ratio of 87.45 and 90.44 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Mata Sul RT.

**Table 60 - Sex Ratio in the Mata Sul RT (2000, 2010 and 2022)**

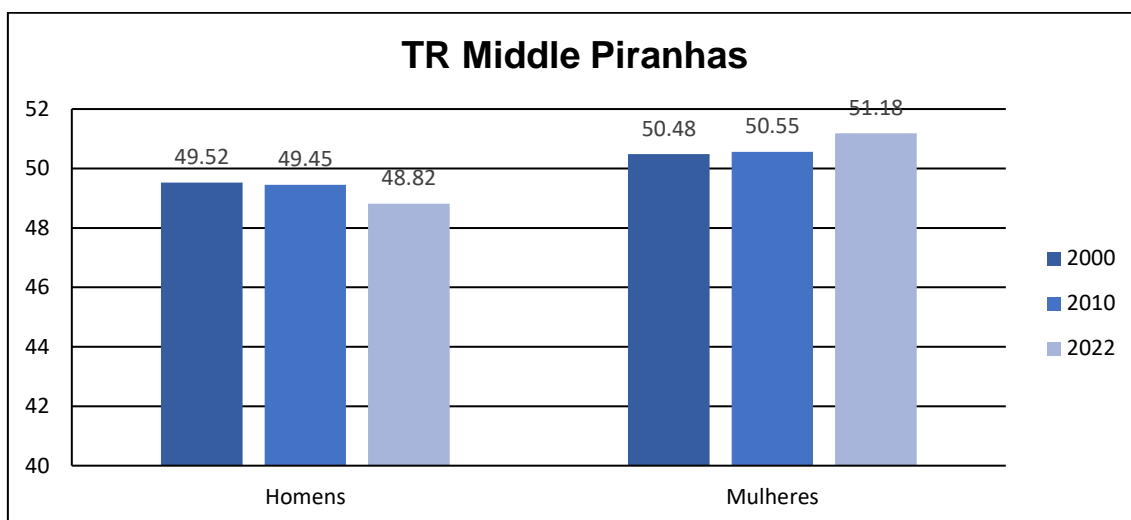
TR Mata Sul	2000	2010	2022
<b>Men</b>	482.374	564.304	631.367
<b>Women</b>	528.923	624.817	704.462
<b>Sex ratio</b>	91,20	90,32	89,62

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **TR Middle Piranhas**

According to data obtained from the IBGE Demographic Census, in 1991 the TR Médio Piranhas had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.82% of the population was male and 51.18% female in the year of the survey, as can be seen in the figure below.

### 79 - Relative Distribution of Population by Sex in the Middle Piranhas RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

All the municipalities in the RT had a larger female than male population in 2022, except for Riacho dos Cavalos, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of São Bento and Brejo do Cruz, with a sex ratio of 93.14 and 94.55 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Middle Piranhas RT.

**Table 61 - Sex Ratio in the Middle Piranhas RT (2000, 2010 and 2022)**

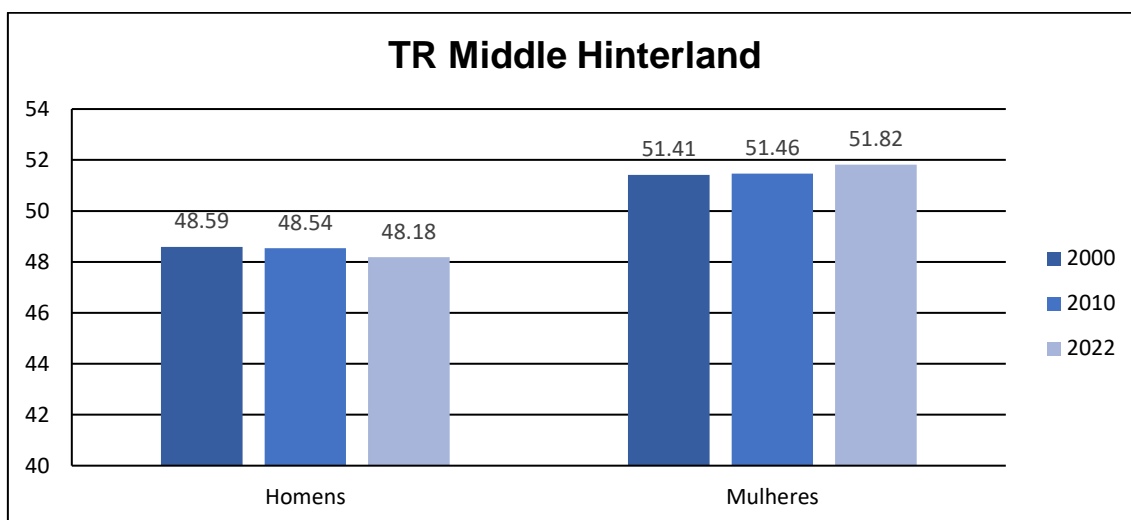
TR Middle Piranhas	2000	2010	2022
<b>Men</b>	50.718	55.070	55.375
<b>Women</b>	51.699	56.305	58.056
<b>Sex ratio</b>	98,10	97,81	95,38

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

#### **RT Middle Hinterland**

According to data obtained from the IBGE Demographic Census, in 1991 the TR Médio Sertão had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.18% of the population was male and 51.82% female in the year of the survey, as can be seen in the figure below.

## 80 - Relative Distribution of the Population by Sex in the Médio Sertão RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for São José de Espinharas, Salgadinho, Quixaba, Areia de Baraúnas, São José do Sabugi, Emas and Cacimba de Areia, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Patos and Maturéia, with a sex ratio of 88.91 and 91.92 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Médio Sertão RT.

**Table 62 - Sex Ratio in the Médio Sertão RT (2000, 2010 and 2022)**

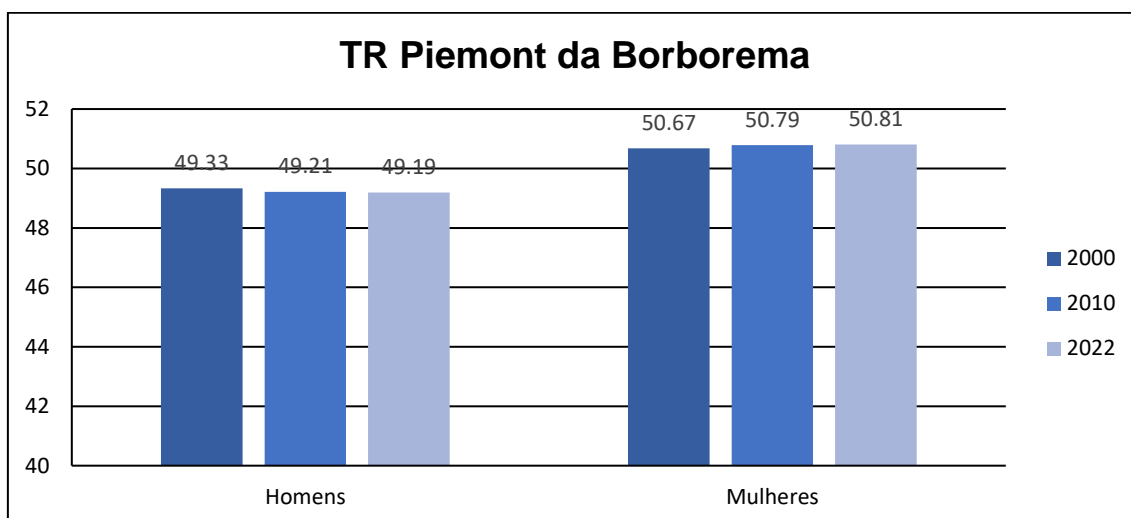
TR Middle Hinterland	2000	2010	2022
<b>Men</b>	96.595	104.089	104.683
<b>Women</b>	102.209	110.365	112.579
<b>Sex ratio</b>	94,51	94,31	92,99

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **TR Piemont da Borborema**

In 1991, in TR Piemont da Borborema, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has increased slightly over the years, with the latest Demographic Census (2010) revealing that 49.19% of the population was male and 50.81% female in the year of the survey, as can be seen in the figure below.

### 81 82 - Relative Distribution of the Population by Sex in the RT Piemont da Borborema



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for Damião, Dona Inês and Borborema, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Arara and Solânea, with a sex ratio of 91.92 and 92.62 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Piemont da Borborema RT.

**Table 63 - Sex ratio in the TR Piemont da Borborema (2000, 2010 and 2022)**

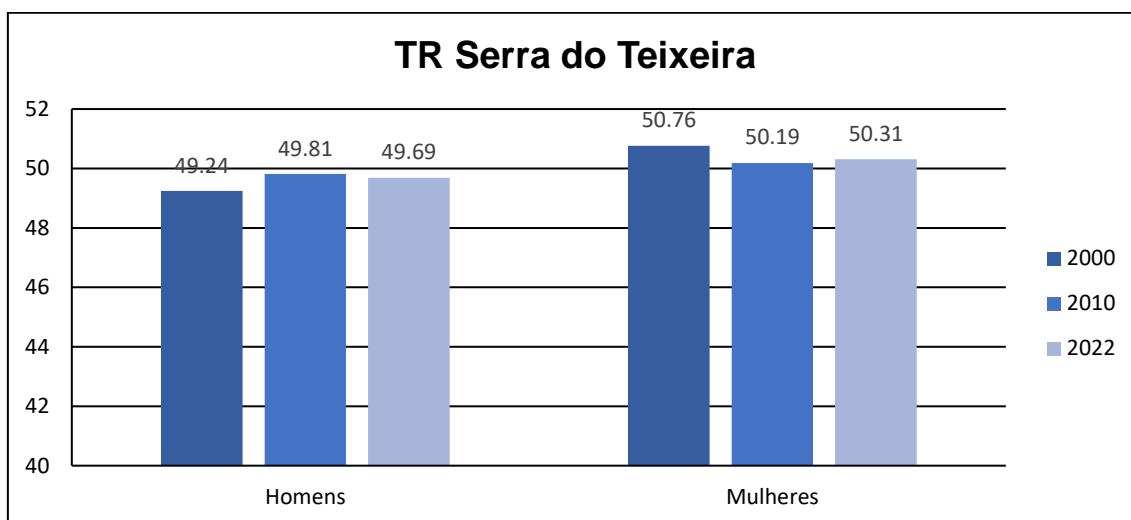
TR Piemont da Borborema	2000	2010	2022
<b>Men</b>	85.717	86.680	83.304
<b>Women</b>	88.058	89.463	86.044
<b>Sex ratio</b>	97,34	96,89	96,82

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### **TR Serra do Teixeira**

In 1991, in TR Serra do Teixeira, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has narrowed slightly over the years, with the latest Demographic Census (2010) revealing that 49.69% of the population was male and 50.31% female in the year of the survey, as can be seen in the figure below.

## 82 - Relative Distribution of Population by Sex in the Serra do Teixeira RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Slightly more than half of the municipalities in the region had more women than men in 2022, except for São José de Princesa, Imaculada and Manaíra, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Princesa Isabel and Água Branca, with a sex ratio of 91.92 and 92.62 men for every 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Serra do Teixeira RT.

**Table 64 - Sex Ratio in the Serra do Teixeira RT (2000, 2010 and 2022)**

TR Serra do Teixeira	2000	2010	2022
<b>Men</b>	38.042	40.344	38.771
<b>Women</b>	39.215	40.647	39.255
<b>Sex ratio</b>	97,01	99,25	98,77

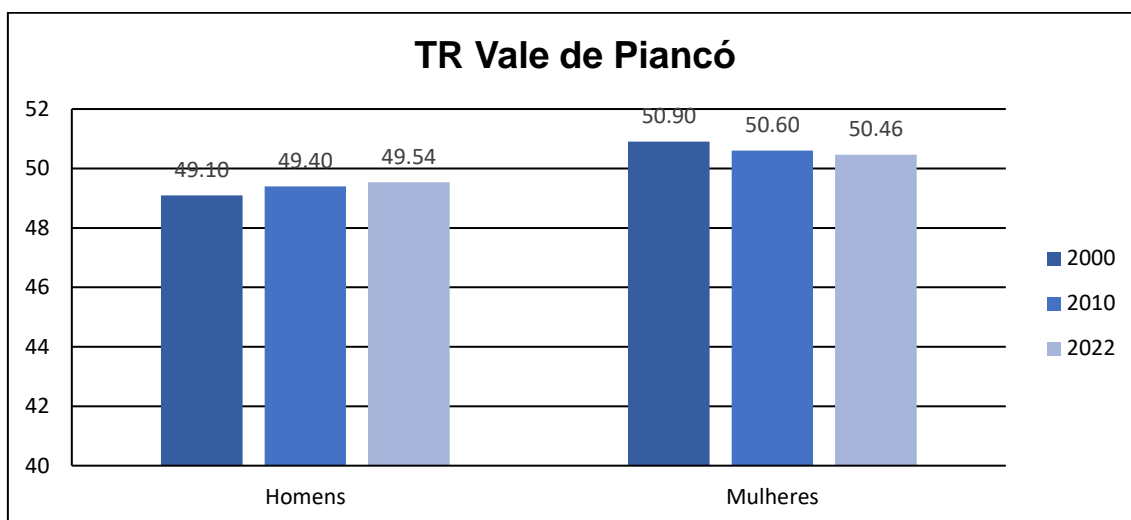
Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### TR Vale de Piancó

In 1991, in the TR Vale de Piancó, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has narrowed slightly over the years, with the latest Demographic Census (2010) revealing that 49.54% of the population was male and 50.46% female in the year of the survey, as can be seen in the figure below.



### 83 84 - Relative Distribution of Population by Sex in the Vale de Piancó RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the region had a larger female than male population in 2022, except for Santa Inês, São José de Caiana, Santana de Mangueira, Conceição, Nova Olinda and Boa Ventura, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Piancó and Santana dos Garrotes, with a sex ratio of 93.83 and 94.46 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Vale de Piancó RT.

**Table 65 - Sex Ratio in the Vale de Piancó RT (2000, 2010 and 2022)**

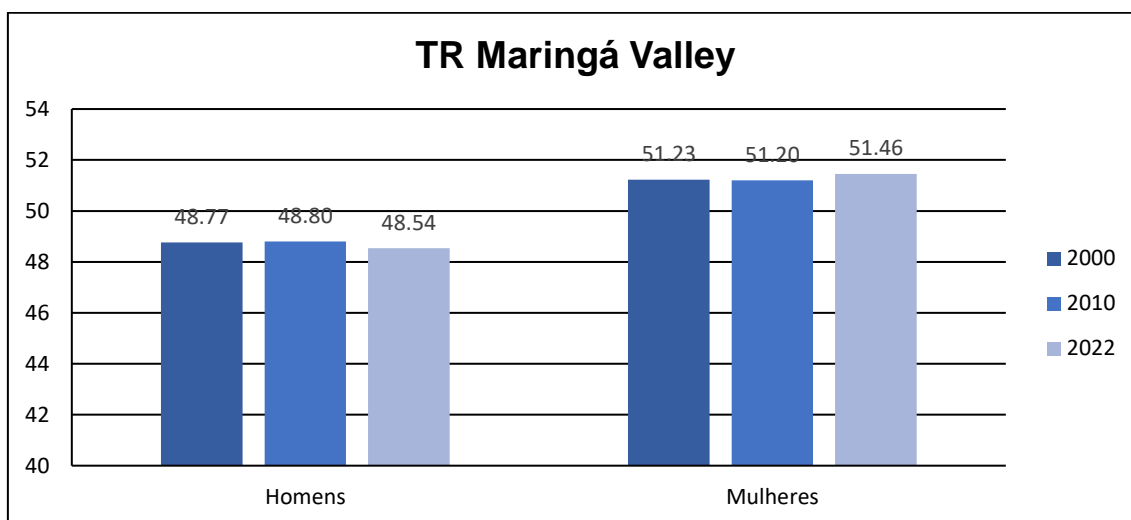
TR Vale de Piancó	2000	2010	2022
<b>Men</b>	72.283	72.414	70.235
<b>Women</b>	74.942	74.187	71.537
<b>Sex ratio</b>	96,45	97,61	98,18

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

#### **RT Maringá Valley**

According to data obtained from the IBGE Demographic Census, in 1991 TR Vale do Maringá had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.54% of the population was male and 51.46% female in the year of the survey, as can be seen in the figure below.

#### 84 - Relative Distribution of Population by Sex in the Maringá Valley RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Most of the municipalities in the RT had a larger female than male population in 2022, except for Cajazeirinhas and Vista Serrana, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Pombal and Condado, with a sex ratio of 90.75 and 95.60 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Maringá Valley RT.

**Table 66 - Sex Ratio in the Maringá Valley RT (2000, 2010 and 2022)**

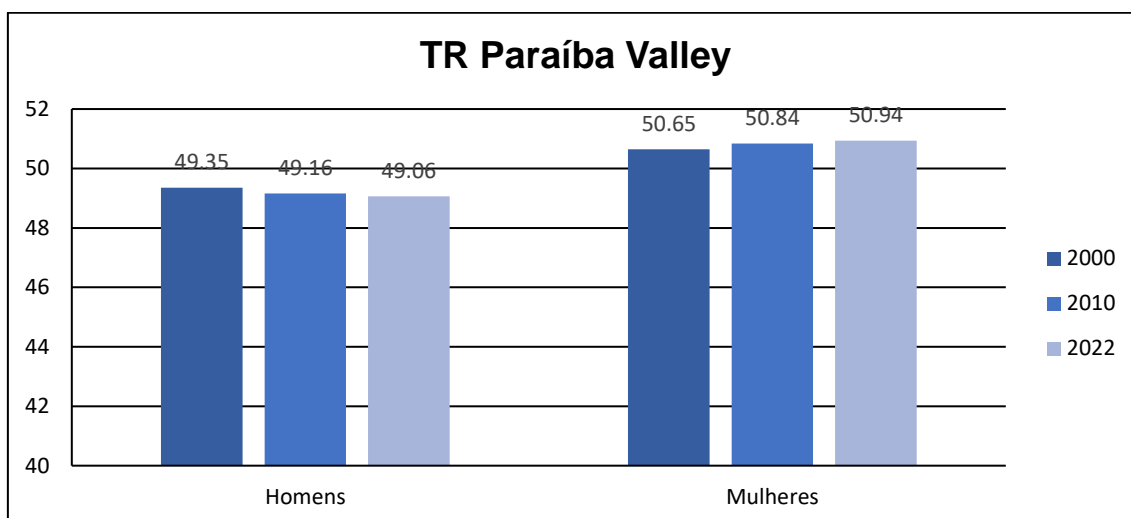
TR Maringá Valley	2000	2010	2022
<b>Men</b>	32.488	33.525	33.240
<b>Women</b>	34.127	35.176	35.236
<b>Sex ratio</b>	95,20	95,31	94,34

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

#### **RT Paraíba Valley**

In 1991, in the TR Vale do Paraíba, according to data obtained from the IBGE Demographic Census for that year, the male and female populations were practically equivalent, with a small increase in the female population. The difference has increased slightly over the years, with the latest Demographic Census (2010) revealing that 49.06% of the population was male and 50.94% female in the year of the survey, as can be seen in the figure below.

## 85 - Relative Distribution of Population by Sex in the Vale do Paraíba RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

All the municipalities in the region had a higher female than male population in 2022, except for São José dos Ramos, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Itabaiana and Caldas Brandão, with a sex ratio of 92.29 and 94.10 men per 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Vale do Paraíba RT.

**Table 67 - Sex Ratio in the Vale do Paraíba RT (2000, 2010 and 2022)**

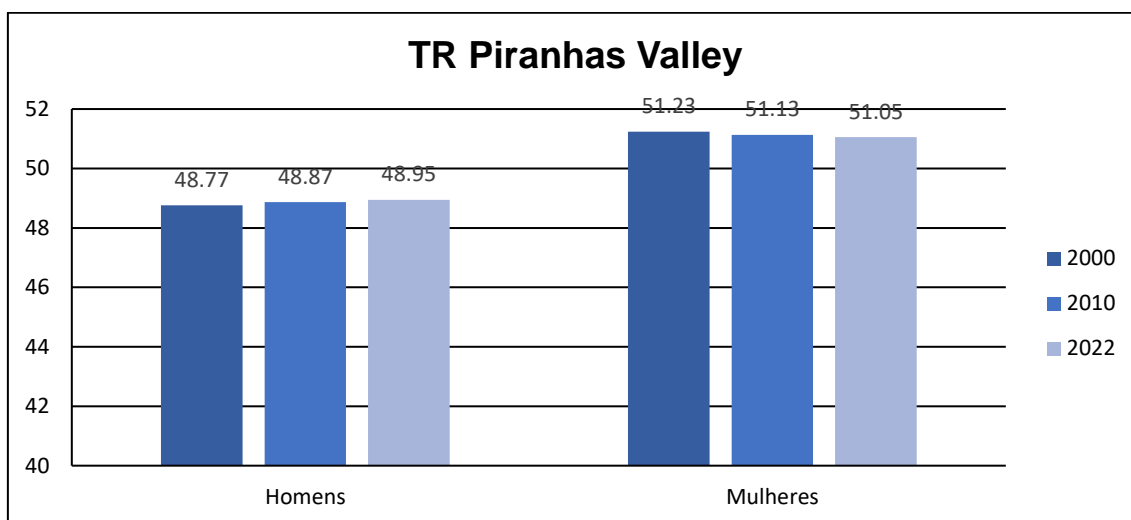
TR Paraíba Valley	2000	2010	2022
<b>Men</b>	84.279	86.651	88.579
<b>Women</b>	86.493	89.624	91.973
<b>Sex ratio</b>	97,44	96,68	96,31

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### RT Piranhas Valley

According to data obtained from the IBGE Demographic Census, in 1991 the TR Vale do Piranhas had a larger female than male population. The difference has increased slightly over the years, with the latest Demographic Census (2022) revealing that 48.95% of the population was male and 51.05% female in the year of the survey, as can be seen in the figure below.

### 86 87 - Relative Distribution of the Population by Sex in the Piranhas Valley RT



Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

Just over half of the municipalities in the region had a larger female than male population in 2022, except for Lastro, Nazarezinho, Vieirópolis and Santa Cruz, where the male population was slightly higher in the same year. The highest proportions of women to men were in the municipalities of Sousa and Marizópolis, with a sex ratio of 93.14 and 95.54 men for every 100 women, respectively.

The table below shows the results of the sex ratio indicator for the Piranhas Valley RT.

**Table 68 - Sex Ratio in the Piranhas Valley RT (2000, 2010 and 2022)**

TR Piranhas Valley	2000	2010	2022
<b>Men</b>	51.852	54.840	55.487
<b>Women</b>	54.476	57.377	57.876
<b>Sex ratio</b>	95,18	95,58	95,87

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

### Age composition

With regard to the population's age profile, at the beginning of this century the citizens of the state of Paraíba were largely made up of young people. Of the population, 1,083,610 inhabitants were under the age of 15 and 2,112,026 between the ages of 15 and 64. The population over 65 comprised a total of 248,189 inhabitants in 2000. The dependency ratio<sup>37</sup> was 63.08%, revealing that the availability of labor was proportionally small for the economic and financial sustainability of the population. The mismatch in the

<sup>37</sup> The dependency ratio indicates the ratio between the age segment of the population defined as economically dependent (those under 15 years of age and those aged 65 and over) and the potentially productive age segment (between 15 and 64 years of age). High values indicate that the working-age population must support a large proportion of dependents.

dependency ratio slowed down over two decades, reaching 51.14% in 2010, and falling to 46.71% in 2022 (IBGE, 2022).

The aging rate, another indicator of the population's age composition, represents the ratio of the population aged 65 and over to the total population. High values of this index indicate that the demographic transition<sup>38</sup> is at an advanced stage.

In Paraíba, the aging rate points to the growing participation of the elderly in relation to young people, rising from 7.21% in 2000 to 11.04% in 2022, a phenomenon that reflects the reduction in fertility levels and the increase in the population's life expectancy.

The details of the ageing index and dependency ratio for the state of Paraíba in the years 2000, 2010 and 2022 are shown in the table below.

**Table 69 - Age Structure, Dependency Ratio and Aging Rate in the State of Paraíba (2000, 2010 and 2022)**

State of Paraíba	2000	2010	2022
Less than 15 years old	1.083.610	952.881	826.921
15 to 64 years	2.112.026	2.492.029	2.709.129
65 years or older	248.189	321.618	438.637
Dependency ratio	63,08%	51,14%	46,71%
Ageing rate	7,21%	8,54%	11,04%

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

In 2022, TR Mata Norte (51.07%), TR Piemont da Borborema (50.99%) and TR Cariri (50.24%) had the highest dependency ratios among Paraíba's rural territories, while TR Mata Sul (43.49%) and TR Médio Piranhas (44.62%) had the lowest.

In turn, the Cariri RT (13.59%) and the Vale do Maringá RT (13.29%) had the highest ageing rates of Paraíba's rural territories, while the lowest rates were found in the Mata Sul RT (9.69%) and the Mata Norte RT (10.32%).

The details of the ageing rates and dependency ratios of Paraíba's rural territories can be seen in the table below.

**Table 70 - Age Structure, Dependency Ratio and Aging Rate in the Rural Territories of the State of Paraíba (2000, 2010 and 2022)**

TR Alto Sertão	2000	2010	2022
Less than 15 years old	49.457	41.281	33.747
15 to 64 years	95.421	110.158	117.346
65 years and over	12.291	16.532	22.082
Dependency ratio	64,71%	52,48%	47,58%

<sup>38</sup> Demographic transition: A term used by experts to describe the dynamics of population growth, resulting from advances in medicine, urbanization, the development of new technologies, birth rates and other factors. In general terms, the world is experiencing a transition from a regime of high fertility associated with high mortality, to a model of low fertility with decreasing mortality.

Ageing rate	7,82%	9,84%	12,75%
<b>TR Borborema</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	245.710	212.172	185.431
15 to 64 years	467.221	543.688	593.594
65 years and over	58.719	72.865	96.892
Dependency ratio	65,16%	52,43%	47,56%
Ageing rate	7,61%	8,79%	11,06%
<b>TR Brejo</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	41.234	34.402	28.591
15 to 64 years	74.536	85.216	88.968
65 years and over	11.202	12.850	14.888
Dependency ratio	70,35%	55,45%	48,87%
Ageing rate	8,82%	9,70%	11,24%
<b>TR Cariri</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	31.189	27.016	22.606
15 to 64 years	61.770	70.603	75.813
65 years and over	10.206	12.330	15.482
Dependency ratio	67,01%	55,73%	50,24%
Ageing rate	9,89%	11,21%	13,59%
<b>TR Curimataú</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	31.257	27.080	20.139
15 to 64 years	55.159	64.530	67.361
65 years and over	8.348	10.534	13.122
Dependency ratio	71,80%	58,29%	49,38%
Ageing rate	8,81%	10,31%	13,04%
<b>TR Mata Norte</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	46.471	42.069	37.710
15 to 64 years	78.767	94.785	106.284
65 years and over	10.377	12.539	16.572
Dependency ratio	72,17%	57,61%	51,07%
Ageing rate	7,65%	8,39%	10,32%

TR Mata Sul	2000	2010	2022
Less than 15 years old	299.351	285.416	275.412
15 to 64 years	655.568	821.800	930.972
65 years and over	56.378	81.905	129.445
Dependency ratio	54,26%	44,70%	43,49%
Ageing rate	5,57%	6,89%	9,69%
TR Middle Piranhas	2000	2010	2022
Less than 15 years old	32.050	27.672	21.953
15 to 64 years	63.200	74.251	78.435
65 years and over	7.167	9.452	13.043
Dependency ratio	62,05%	50,00%	44,62%
Ageing rate	7,00%	8,49%	11,50%
TR Middle Hinterland	2000	2010	2022
Less than 15 years old	62.740	55.896	45.368
15 to 64 years	121.198	139.833	147.155
65 years and over	14.866	18.725	24.739
Dependency ratio	64,03%	53,36%	47,64%
Ageing rate	7,48%	8,73%	11,39%
TR Piemont da Borborema	2000	2010	2022
Less than 15 years old	59.305	48.440	35.633
15 to 64 years	98.801	108.895	112.159
65 years and over	15.669	18.808	21.556
Dependency ratio	75,88%	61,75%	50,99%
Ageing rate	9,02%	10,68%	12,73%
TR Serra do Teixeira	2000	2010	2022
Less than 15 years old	28.401	23.101	16.969
15 to 64 years	43.784	51.107	52.082
65 years and over	5.072	6.783	8.975
Dependency ratio	76,45%	58,47%	49,81%
Ageing rate	6,57%	8,38%	11,50%
TR Vale de Piancó	2000	2010	2022

Less than 15 years old	49.058	38.239	29.045
15 to 64 years	88.219	95.340	95.439
65 years or older	9.948	13.022	17.288
Dependency ratio	66,89%	53,77%	48,55%
Ageing rate	6,76%	8,88%	12,19%
<b>TR Maringá Valley</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	19.919	16.216	13.099
15 to 64 years	41.246	45.418	46.277
65 years and over	5.450	7.067	9.100
Dependency ratio	61,51%	51,26%	47,97%
Ageing rate	8,18%	10,29%	13,29%
<b>TR Paraíba Valley</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	56.956	47.175	39.057
15 to 64 years	99.382	112.072	120.799
65 years and over	14.434	17.028	20.696
Dependency ratio	71,83%	57,29%	49,46%
Ageing rate	8,45%	9,66%	11,46%
<b>TR Piranhas Valley</b>	<b>2000</b>	<b>2010</b>	<b>2022</b>
Less than 15 years old	30.512	26.706	22.161
15 to 64 years	67.754	74.333	76.445
65 years and over	8.062	11.178	14.757
Dependency ratio	56,93%	50,97%	48,29%
Ageing rate	7,58%	9,96%	13,02%

Source: IBGE - Demographic Censuses, 2000, 2010 and 2022.

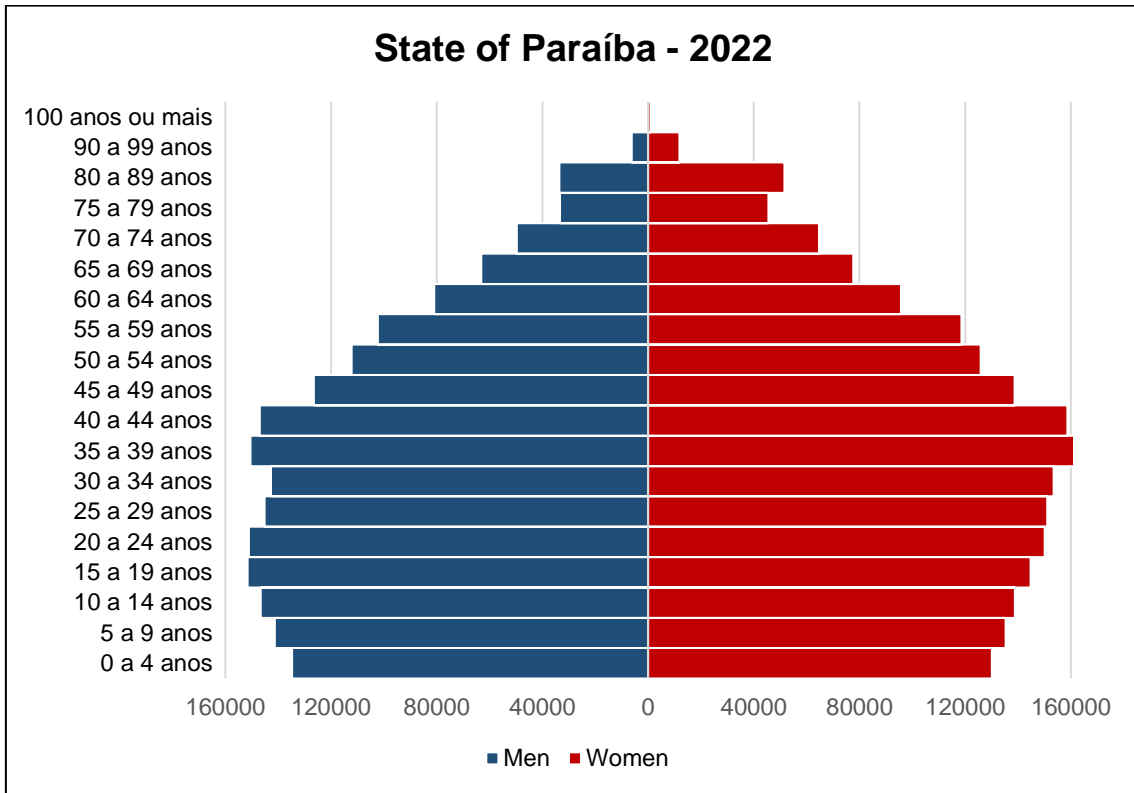
Evaluating the age composition of the population using the age pyramid is used not only to monitor the sex and age structure, but also as a complement to quality of life studies, since it is possible to visualize the average life span, the mortality rate and the regularity or otherwise of the population over time. The higher the pyramid, the higher the life expectancy and, consequently, the better the living conditions of that population. You can see that the more economically and socially developed a municipality is, the closer its pyramid is to a rectangle.

In this sense, it can be seen that the age pyramid of the state of Paraíba in 2022 is very close to a rectangular shape, showing a balance in the age groups and in the proportion between the two sexes, indicating good economic and social development.



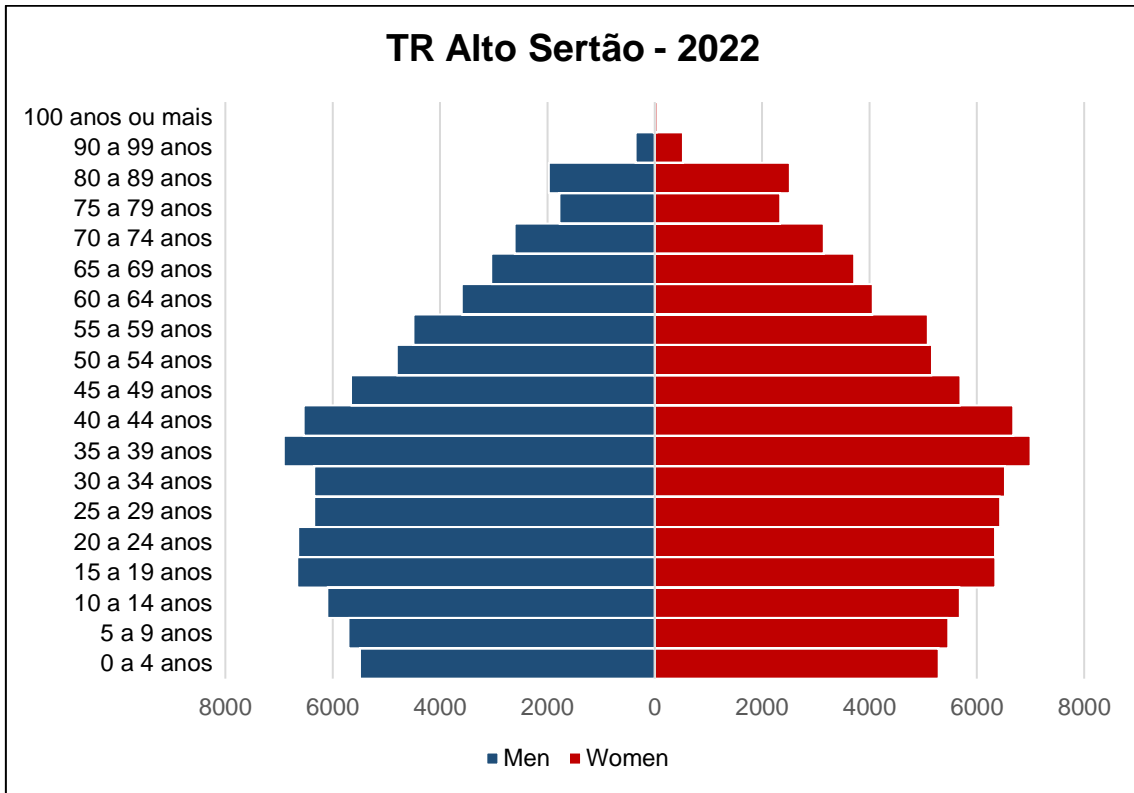
The following figures show the age pyramids by sex for the year 2022 for the state of Paraíba and the Rural Territories.

**87 - Paraíba State Age Pyramid (2022)**



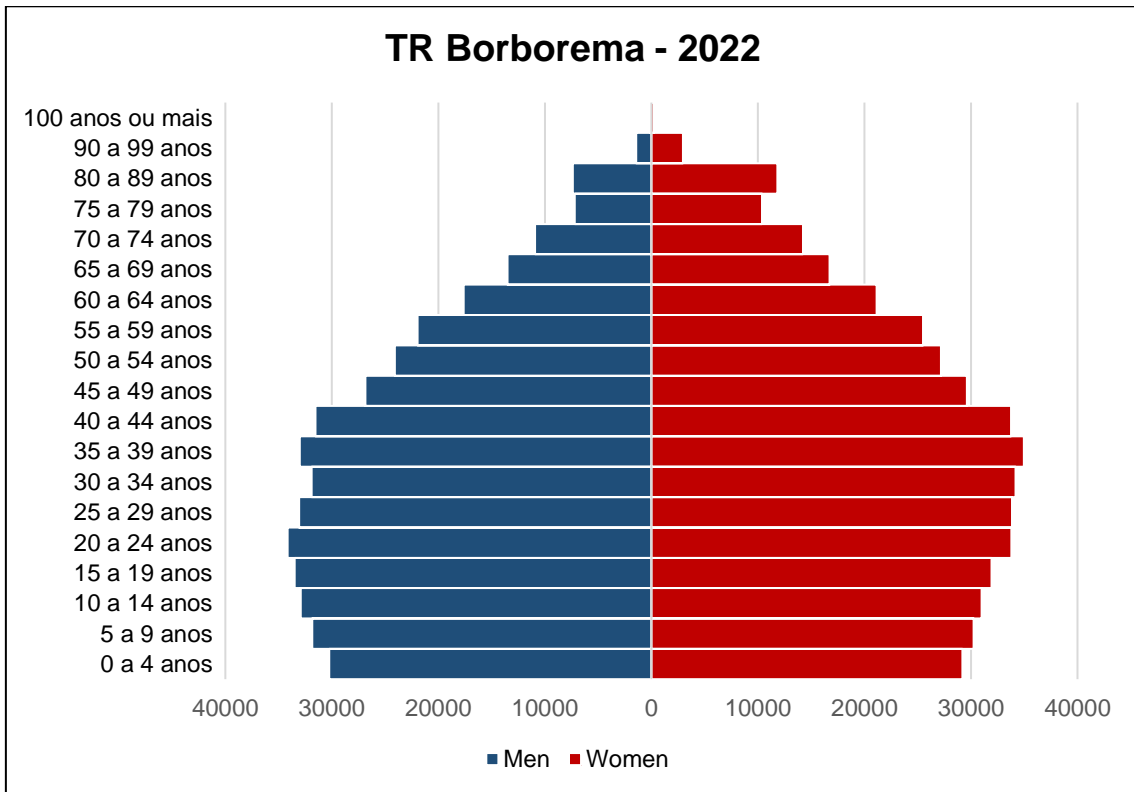
Source: IBGE - Demographic Census 2022.

**88 - Age Pyramid of the Alto Sertão RT (2022)**



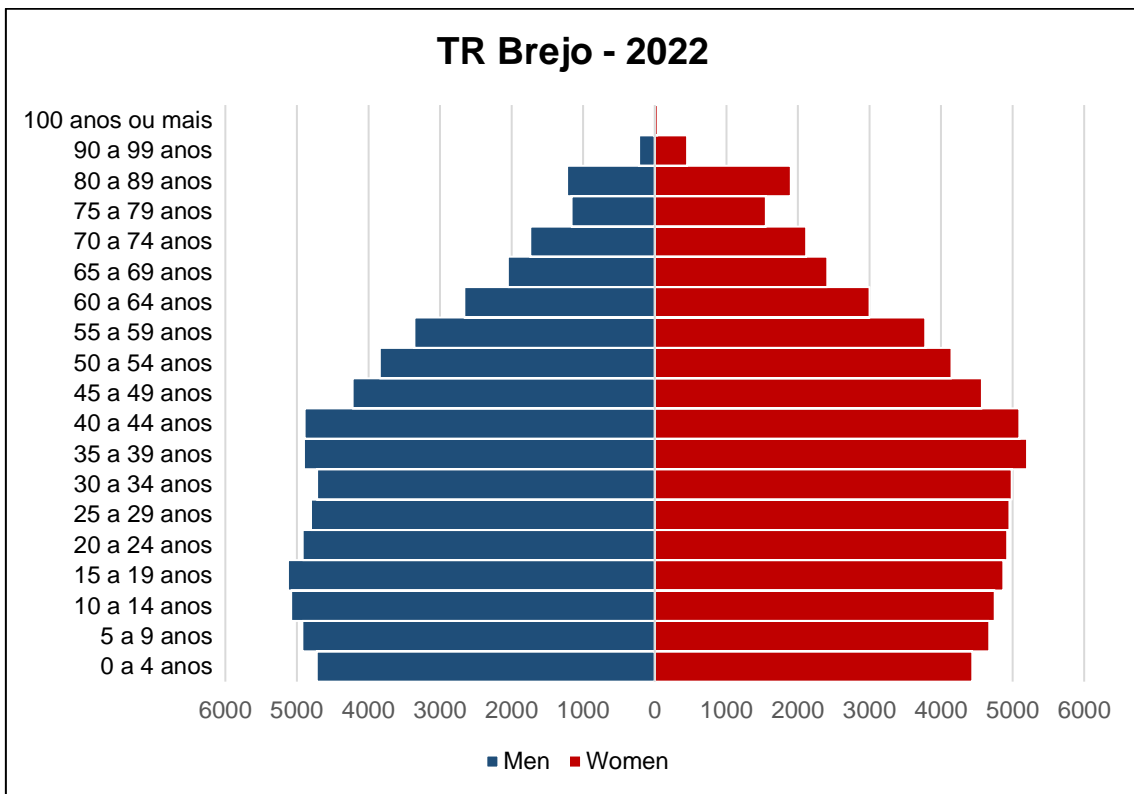
Source: IBGE - Demographic Census 2022.

**89 - Age Pyramid of TR Borborema (2022)**



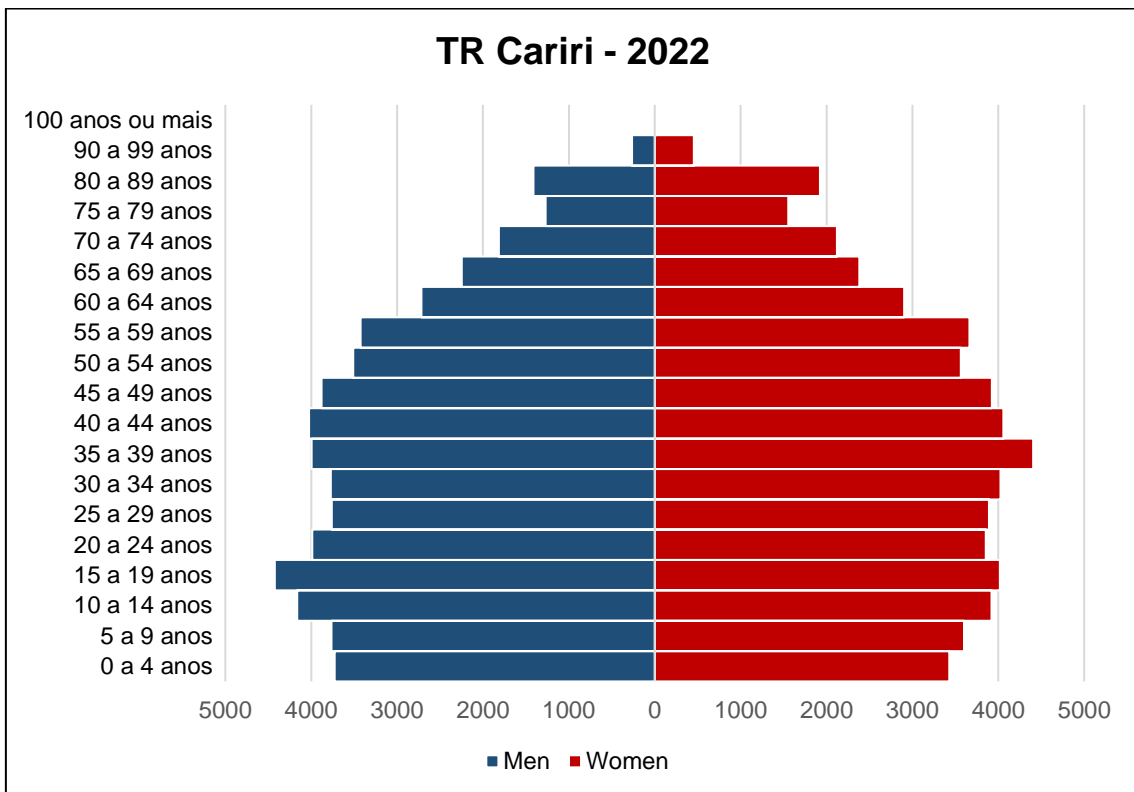
Source: IBGE - Demographic Census 2022.

**90 - Brejo RT Age Pyramid (2022)**



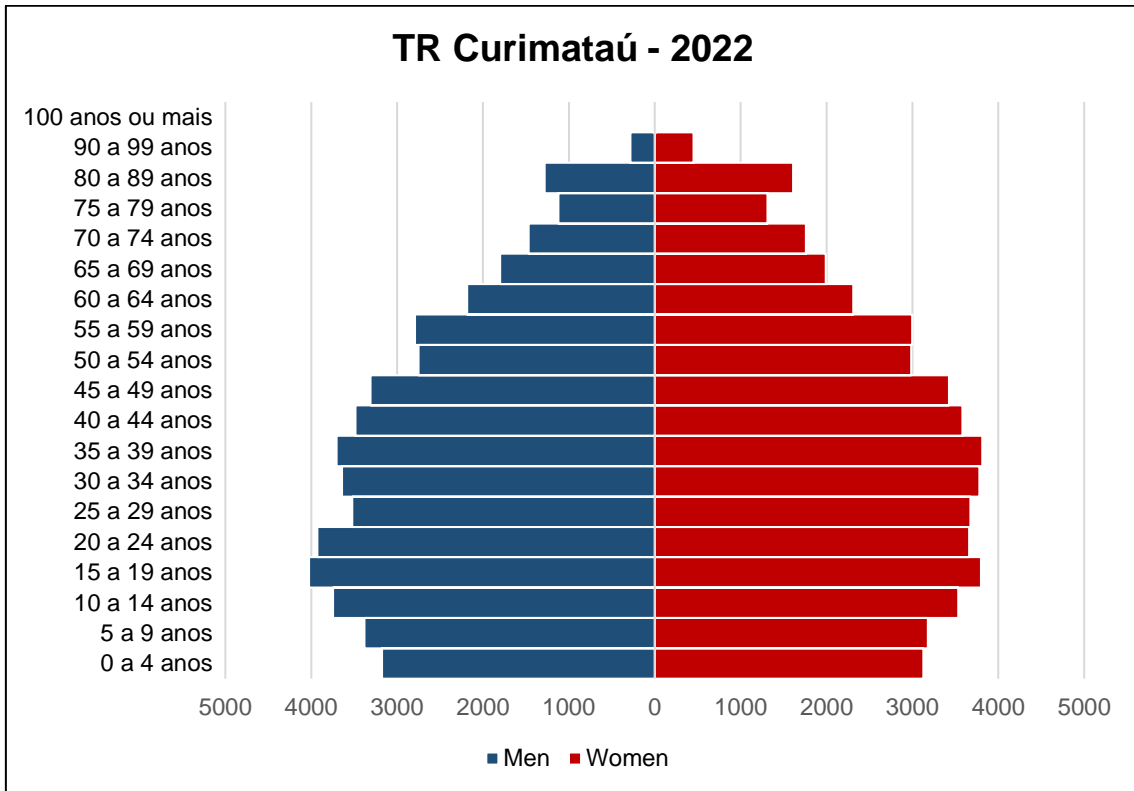
Source: IBGE - Demographic Census 2022.

**91 - Cariri RT Age Pyramid (2022)**



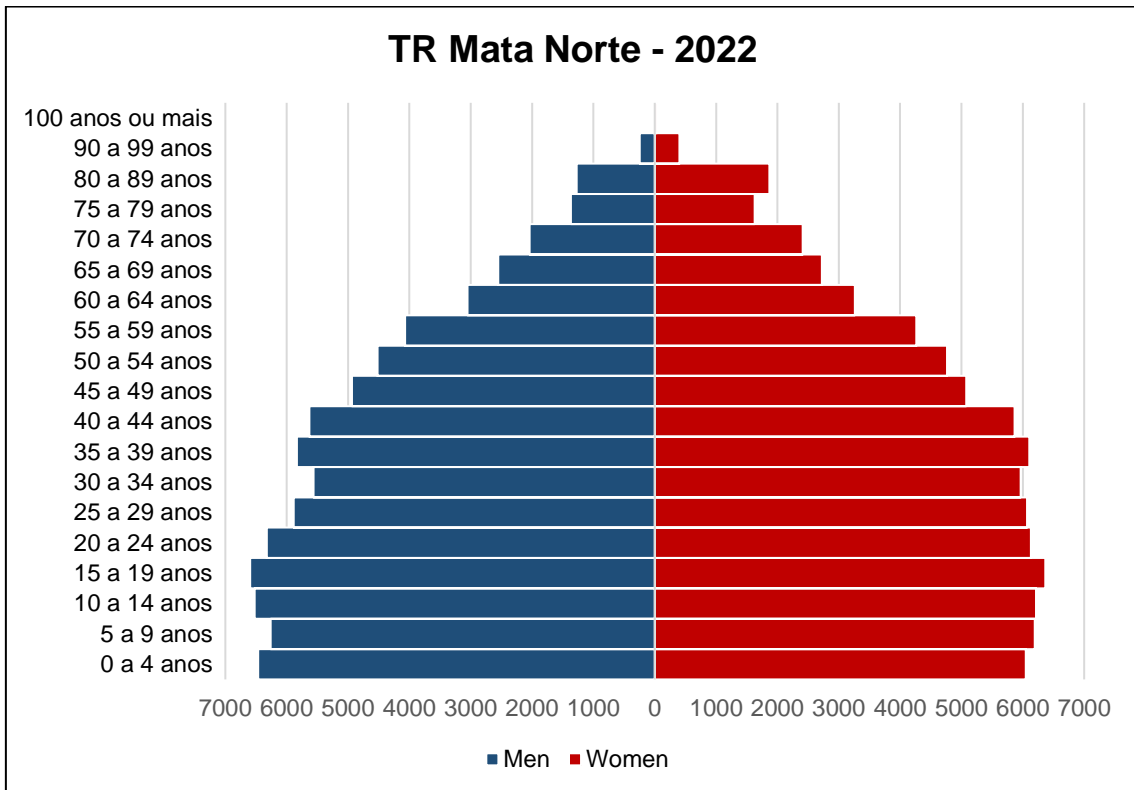
Source: IBGE - Demographic Census 2022.

**92 - Curimataú RT Age Pyramid (2022)**



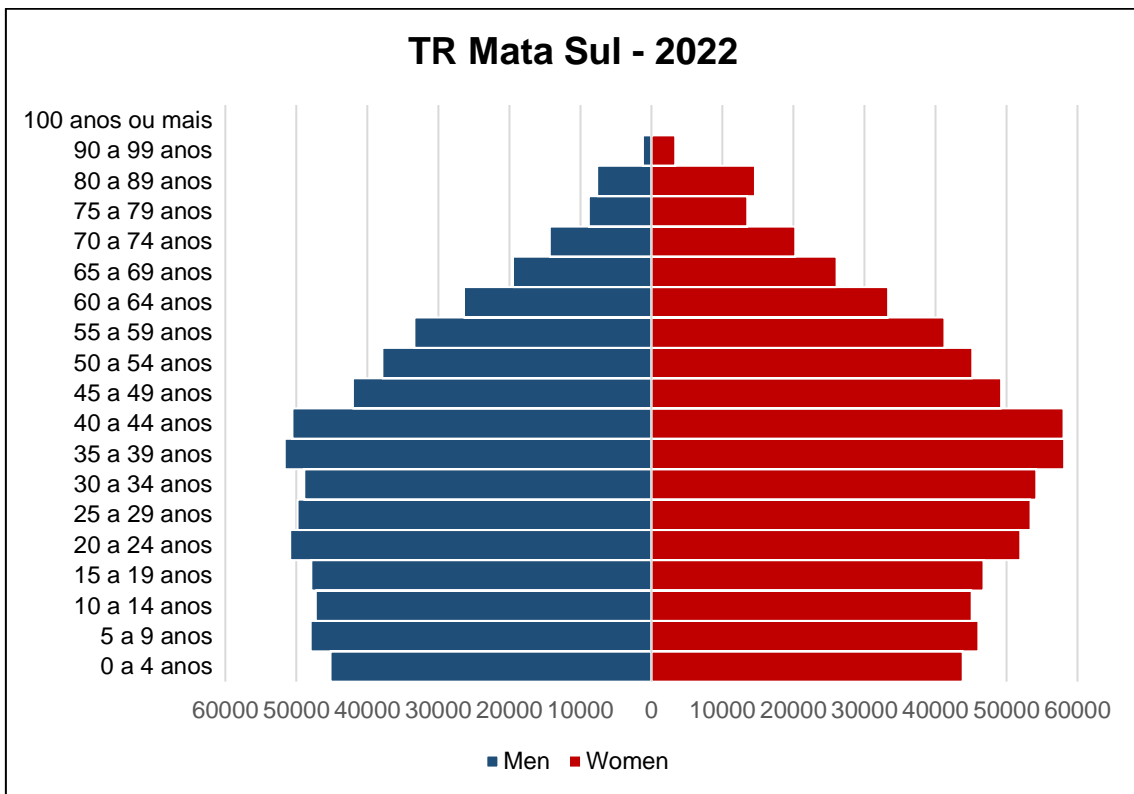
Source: IBGE - Demographic Census 2022.

**93 - Age Pyramid of the Northern Forest RT (2022)**



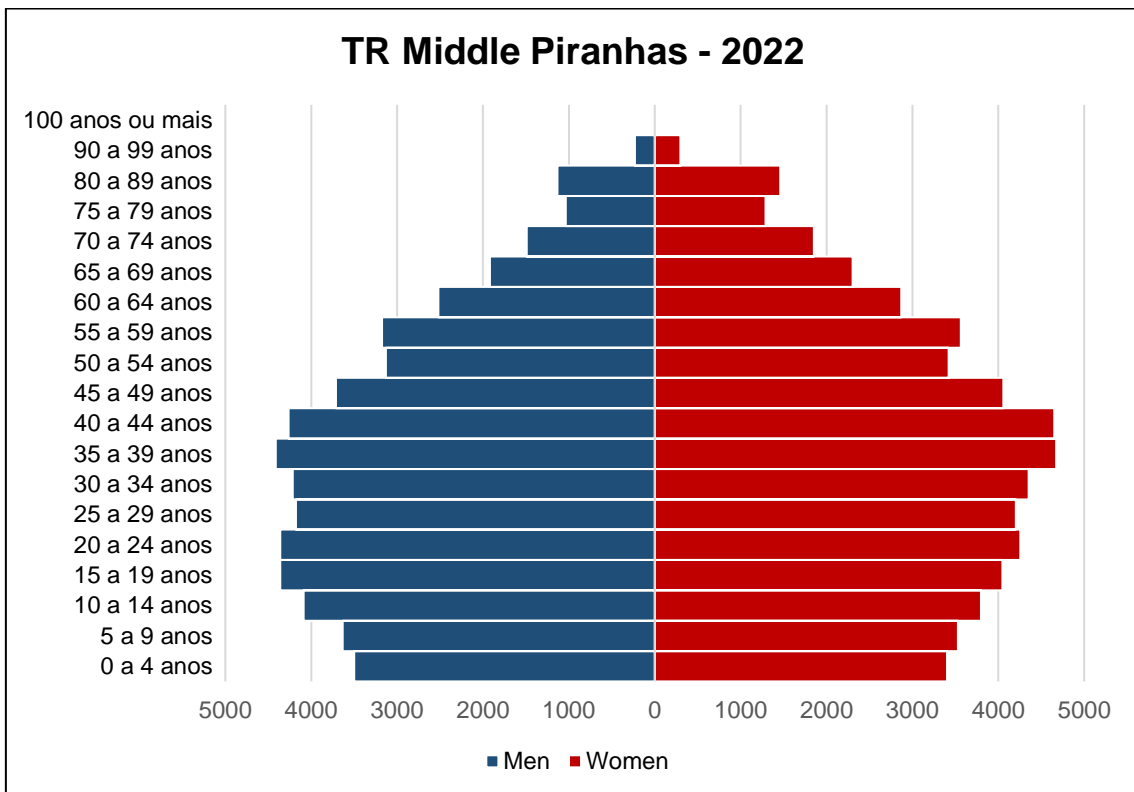
Source: IBGE - Demographic Census 2022.

**94 - Age Pyramid of TR Mata Sul (2022)**



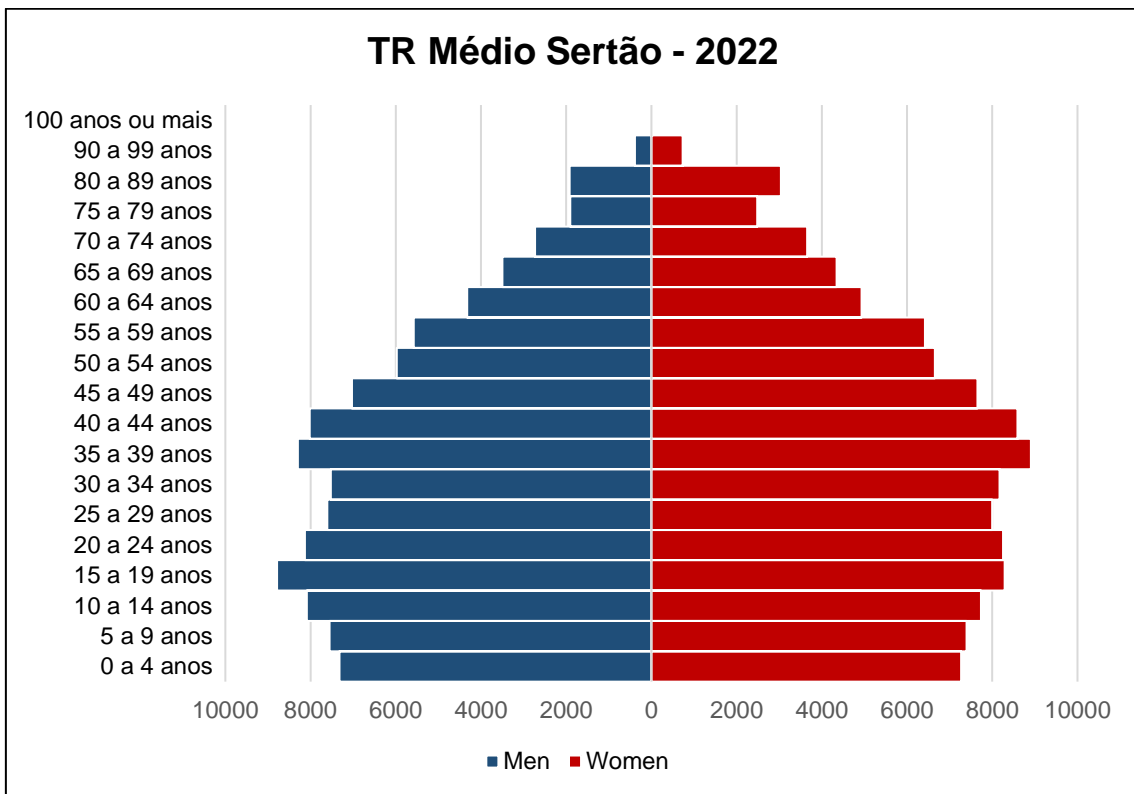
Source: IBGE - Demographic Census 2022.

**95 - Age Pyramid of the Middle Piranhas RT (2022)**



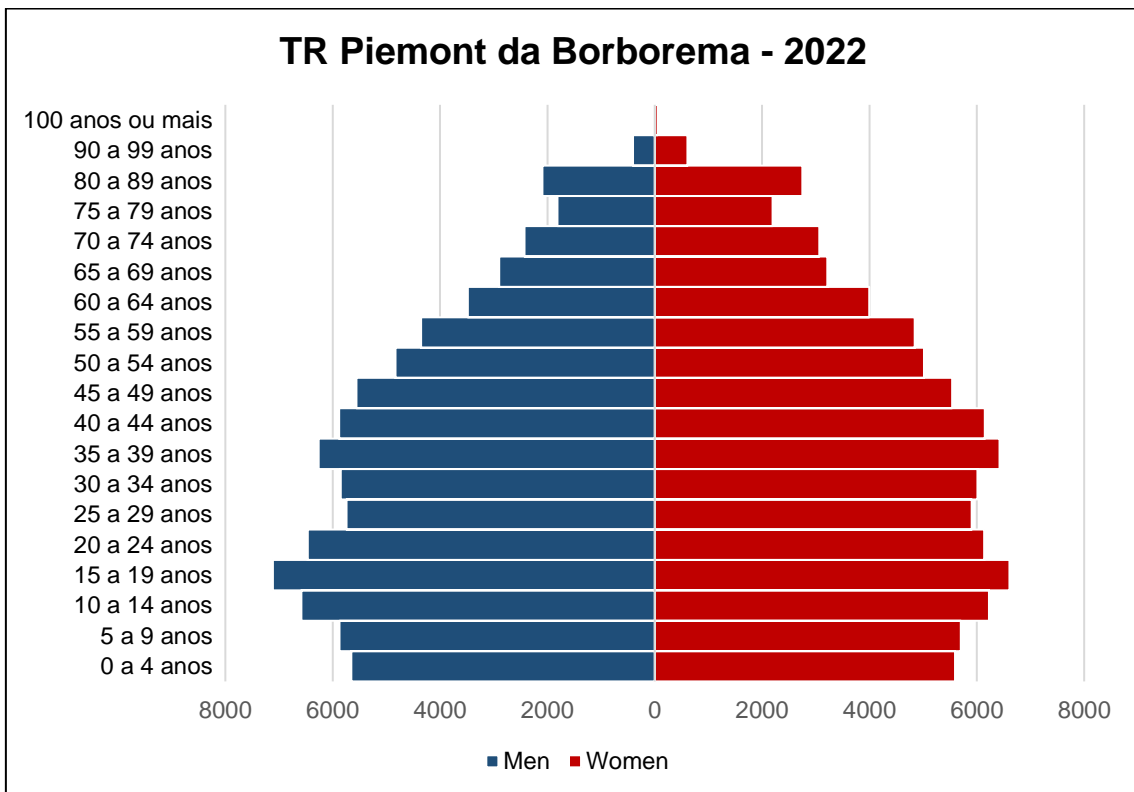
Source: IBGE - Demographic Census 2022.

**96 - TR Médio Sertão Age Pyramid (2022)**



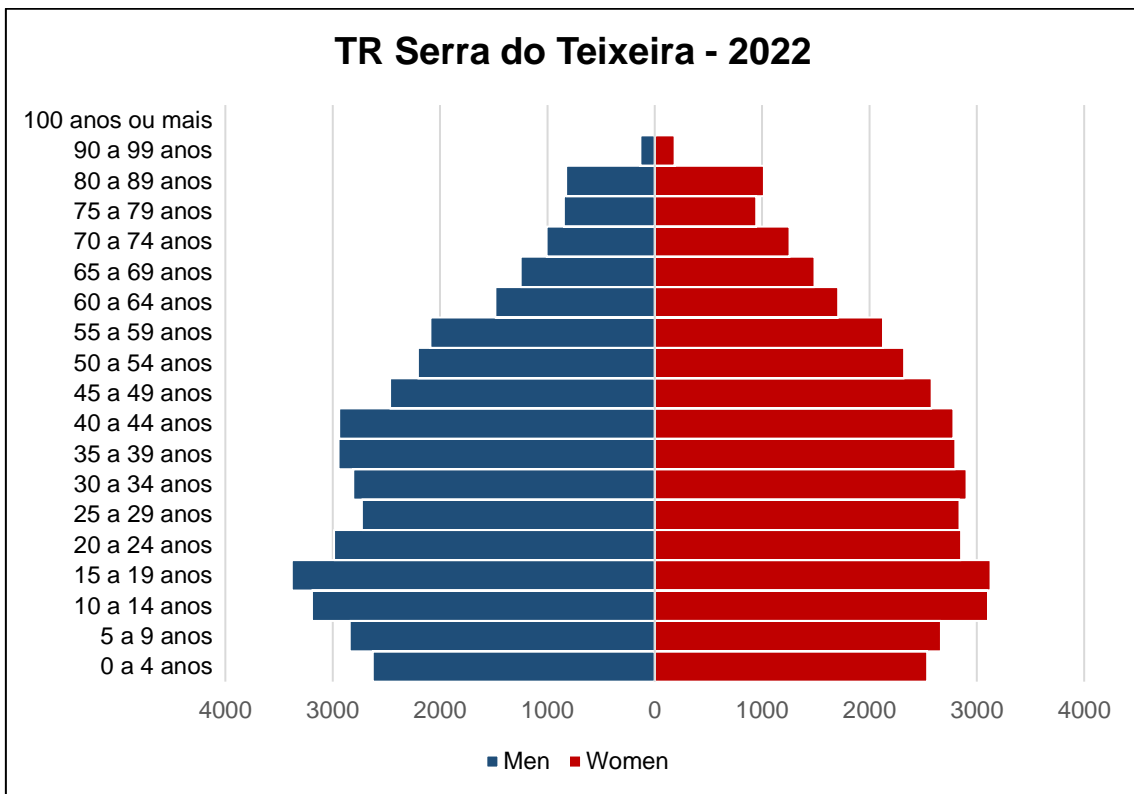
Source: IBGE - Demographic Census 2022.

**97 - Age Pyramid of the TR Piemont da Borborema (2022)**



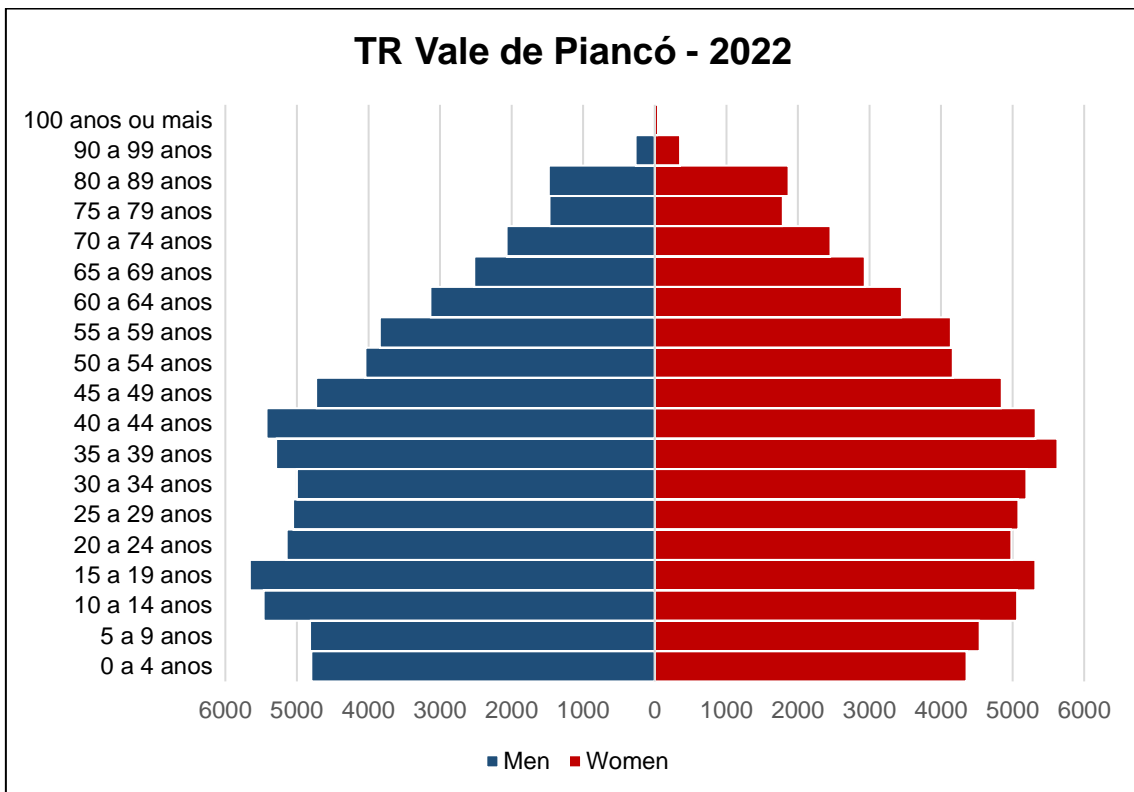
Source: IBGE - Demographic Census 2022.

**98 - Serra do Teixeira RT Age Pyramid (2022)**



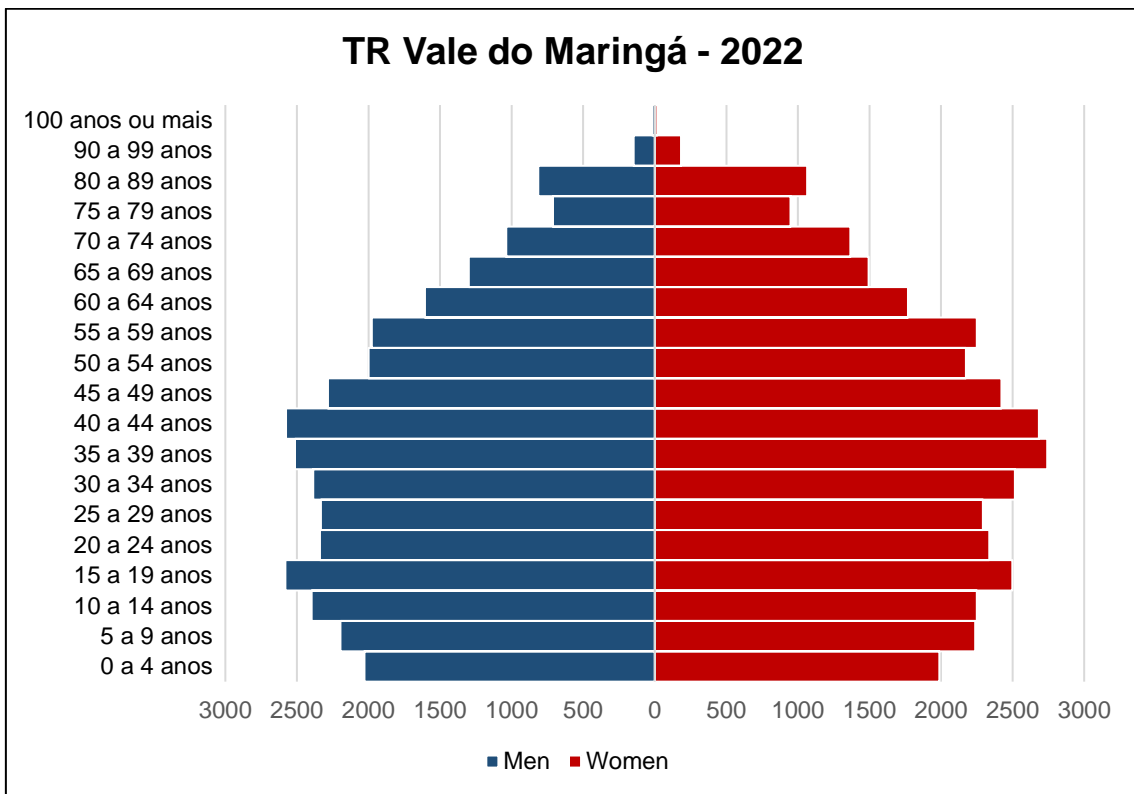
Source: IBGE - Demographic Census 2022.

**99 - Piancó Valley RT Age Pyramid (2022)**



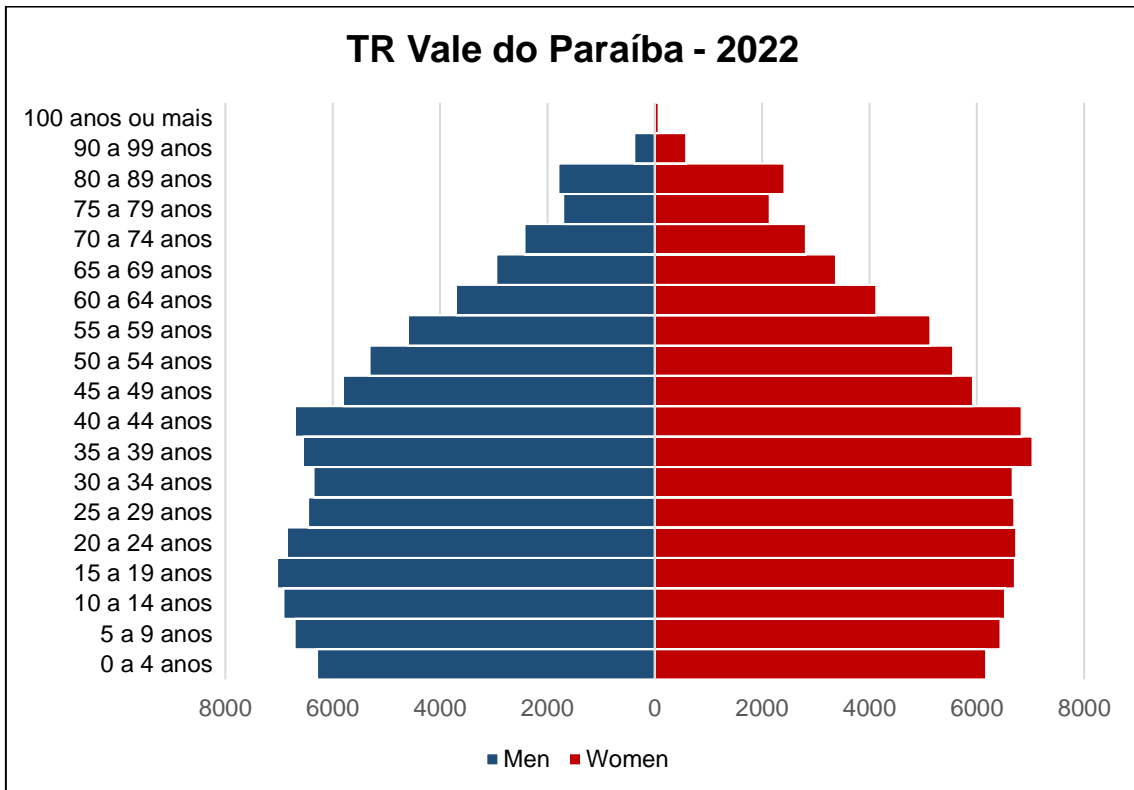
Source: IBGE - Demographic Census 2022.

**100 - Maringá Valley RT Age Pyramid (2022)**



Source: IBGE - Demographic Census 2022.

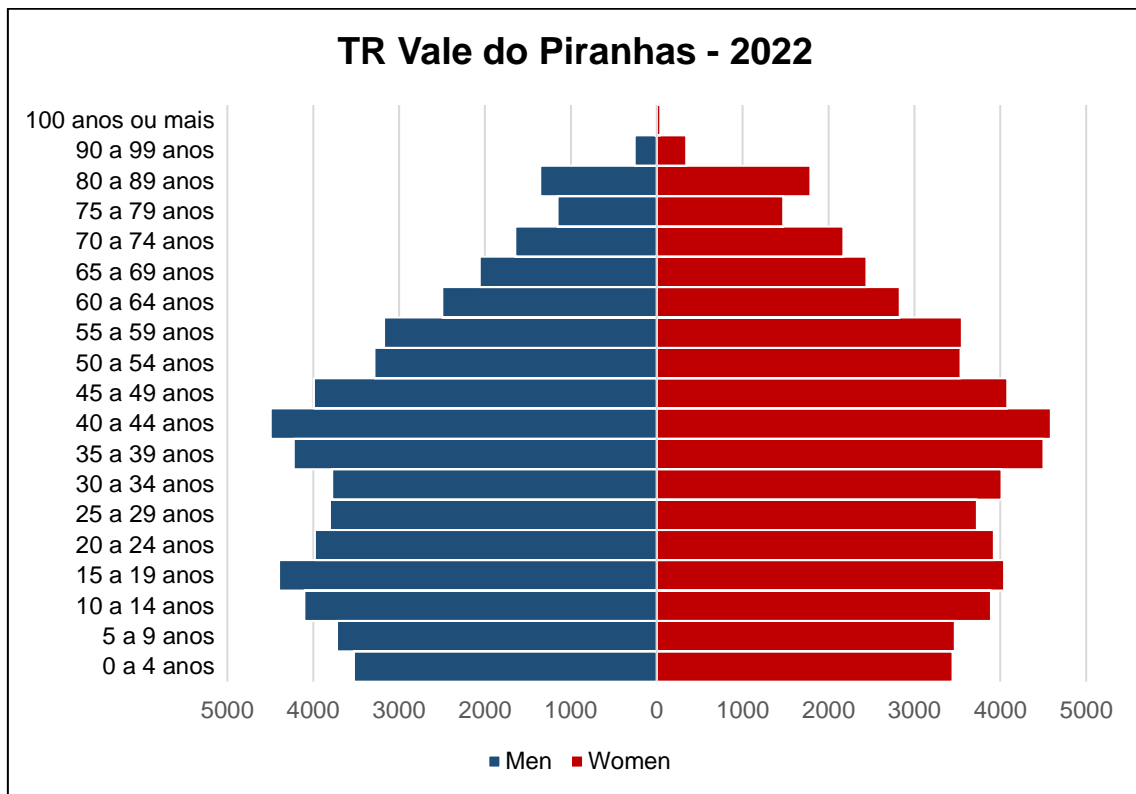
**101 - Age Pyramid of the Paraíba Valley RT (2022)**



Source: IBGE - Demographic Census 2022.



**102 103 - Age Pyramid of the Piranhas Valley RT (2022)**



Source: IBGE - Demographic Census 2022.

**4.3.3 Social Vulnerability**

Social vulnerability refers to susceptibility to poverty, and is expressed by variables related to the income, education, work and housing of people and families in vulnerable situations. For these four dimensions of indicators mentioned, the results for the state of Paraíba are shown in the table below, using information from the Demographic Census.

**Table 71 - Vulnerability in the State of Paraíba - 2000 and 2010**

Indicators	2000	2010
<b>Children and young people</b>		
% of 4 to 5 year olds in school	38,83	14,46
% of 15-24 year olds not studying or working in households vulnerable to poverty	22,57	18,98
% of children under 14 extremely poor	36,71	21,09
<b>Adults</b>		
% of people aged 18 and over without complete primary education and in informal employment	64,99	50,86
% of mothers who are heads of household, have not completed primary school and have at least one child under the age of 15	15,85	20,79
% of people in households vulnerable to poverty and dependent on the elderly	7,42	4,73
<b>Income and Work</b>		
% of 15-24 year olds not studying or working in households vulnerable to poverty	22,57	18,98
% of people in households vulnerable to poverty who spend more than an hour commuting to work	-	1,47
% of people aged 18 and over without complete primary education and in informal employment	64,99	50,86
<b>Housing Condition</b>		
% of the population living in households with a toilet and running water	60,28	78,91

Source: UNDP - Atlas of Human Development in Brazil, 2022.

In the state of Paraíba, between 2000 and 2010, the percentage of extremely poor children fell from 36.71% to 21.09%. Another indicator that stands out is the percentage of mothers who are heads of household without completed primary school and with children under the age of 15, which increased over the same period, from 11.51% in 2000 to 20.79% in 2010.

In this same period, it is possible to see that there was a reduction in the percentage of people aged 15 to 24 who neither study nor work and are vulnerable to poverty, from 22.57% in 2000 to 18.98% in 2010.

Finally, also in the period observed, there was an increase in the percentage of the population in households with a bathroom and running water in the state of Paraíba, from 60.28% in 2000 to 78.91% in 2010.

Among the state's municipalities, João Pessoa (6.31%), Cabedelo (8.48%), Campina Grande (8.95%) and Patos (9.05%) had the lowest percentage of extremely poor children in 2010, while Casserengue (58.36%), Dona Inês (51.81%), Santana de Mangueira (51.57%) and Natuba (51.31%) had the highest rates in the same year.

In 2010, the municipalities in Paraíba with the lowest percentages of mothers who did not complete primary school and had children under the age of 15 were Várzea (4.66%), Vieirópolis (6.93%), Bom Sucesso (7.54%) and Santana dos Garrotes (7.64%). In turn, the highest rates were found that same year in Cacimbas (77.59%), Santa Cecília (70.77%), Algodão de Jandaíra (62.22%) and São José dos Ramos (56.74%).

The highest percentages of people aged 15 to 24 who neither studied nor worked and were vulnerable to poverty in 2010 were found in Riachão (40.98%), Tacima (39.59%), Santana de Mangueira (39.28%) and Pedra Branca (37.64%). However, João Pessoa (10.66%), Parari (12.41%), Várzea (12.54%) and Princesa Isabel (13.58%) were the municipalities with the lowest percentage of young people neither studying nor working in 2010.

Finally, also in 2010, the municipalities of João Pessoa (1.22%), Guarabira (1.24%), Cabedelo (1.34%) and Bayeux (1.47%) had the lowest percentages of people living in households with precarious water supply and sanitation, while the highest rates were found in Santa Cecília (66.50%), Santo André (66.34%), Tenório (61.56%) and Damião (60.67%).

### **Human Development Index (HDI) and Municipal Human Development Index (MHDI)**

The following description of the HDI-MHDI indicators is based on the Atlas of Human Development in Brazil - UNDP, 2022.

For many years, the authorities have established the practice of assessing the well-being of a population, and consequently classifying countries or regions, by the size of their GDP per capita. However, human progress and the evolution of people's living conditions cannot be measured solely by their economic dimension.

For this reason, the constant search for more comprehensive socio-economic measures, which also include other fundamental dimensions of life and the human condition, is very present in the development of synthesis indicators by these institutions.

The HDI, created in the early 1990s for the UNDP (United Nations Development Program) by special advisor Mahbub ul Haq, is a contribution to this quest, and combines three basic components of human development:

- longevity, which also reflects, among other things, the health conditions of the population; measured by life expectancy at birth;
- education; measured by a combination of the adult literacy rate and the combined enrollment rate at primary, secondary and higher education levels;
- income; measured by the purchasing power of the population, based on GDP per capita adjusted to the local cost of living to make it comparable between countries and regions, through the methodology known as purchasing power parity (PPP).

The methodology for calculating the HDI involves transforming these three dimensions into indices for longevity, education and income, which vary between 0 (worst) and 1 (best), and combining these indices into a summary indicator. The closer the value of this indicator is to 1, the higher the level of human development of the country or region.

So that the indicators can be combined into a single index, they are transformed into partial indices, whose values vary between 0 and 1. The general formula for constructing these indices is:

$$\text{Índice} = \frac{\text{valor máximo} - \text{valor mínimo}}{\text{valor observado} - \text{valor mínimo}}$$

Note that the limit values (worst and best) do not coincide with the worst and best values observed; they are relatively stable parameters defined by the UNDP.

Based on these values and the values observed for the country or region in question, the Longevity, Education and Income indices are calculated.

### **Longevity Index**

The Longevity Index (ILi) of country i, whose life expectancy at birth is Vi, is obtained by directly applying the general formula described above, i.e. for the application of the basic formula, the worst and best values for life expectancy are 25 and 85 years, respectively.

### **Education Index**

To obtain the Education Index (IEi) of country i, whose adult literacy rate is Ai and whose combined enrollment rate is Mi, we first transform the two variables into indices using the general formula above, using 0% and 100% as the limit values: and we combine the two indices, with the weights mentioned above.

### **Income Index**

The construction of the Income Index (IRi) for country i, whose GDP per capita is Yi, is a little more complex, and starts from the hypothesis that the contribution of income to human development has diminishing returns.

This hypothesis is incorporated into the calculation of the HDI by means of the logarithmic function. Therefore, the Income Index (IRi) of country i, whose GDP per capita is Yi, is given by:

The highest value is \$40,000 PPP, and the worst is \$100 PPP. All values are in Purchasing Power Parity dollars, to ensure comparability between countries, and the PPP dollar rate is given by the World Bank.

### **Municipal Human Development Index**

The MHDI is a methodological adaptation of the HDI at the municipal level. Both indices aggregate the health, education and income dimensions, but some of the indicators used to portray these dimensions differ.

As with the global HDI, the Education MHDI is a composite of two indicators: one indicator provides information on the educational situation of the adult population and one on the school-age population (young people). However, the variables are different. In the case of the adult population, the average years of study of people aged 25 and over, as measured in the Global HDI, cannot be obtained from the 2010 Census information and has been replaced by the proportion of the adult population aged 18 and over who have completed elementary school. This indicator provides a good assessment of the level of deprivation of the adult population in relation to what is considered basic schooling (primary level). In the case of the young population, the methodology applied by the Global HDI since 2010 - school life expectancy - is a measure of people's retention in school, regardless of repetition, and includes higher education. The MHDI was adapted for the national and municipal contexts using a combination of 4 indicators that make it possible to verify the extent to which children and young people are attending and completing certain school cycles. The resulting sub-index, the school flow of the

young population, is the arithmetic mean of the percentage of children aged 5 to 6 attending school, the percentage of young people aged 11 to 13 attending the final years of elementary school (6th to 9th grade), the percentage of young people aged 15 to 17 with completed elementary school and the percentage of young people aged 18 to 20 with completed secondary school.

While the Global HDI calculates the income component by Gross National Income per capita, in purchasing power parity (ppp, World Bank 2005), the MHDI Income considers municipal income per capita, i.e. the average monthly income of individuals living in a given municipality, expressed in Reais through municipal income per capita.

Like the Global HDI, the Longevity MHDI is calculated by life expectancy at birth, i.e. the average number of years people would live from birth, given the same mortality patterns observed in the reference year.

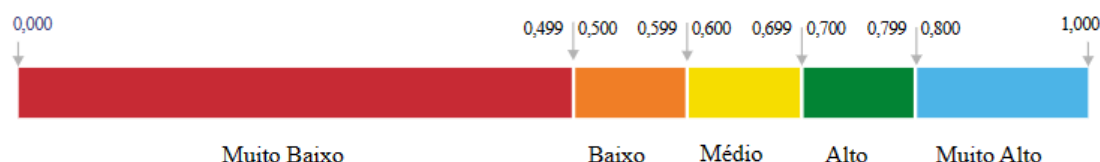
When comparing both indices, an important factor to highlight is the data source. To calculate the MHDI, all the data was taken from the IBGE Demographic Censuses, while the Global HDI includes data from the UN Department of Economic and Social Affairs, UNESCO Institute for Statistics, the World Bank and the International Monetary Fund. The option of restricting municipal information to a single source ensures greater comparability between locations in the country.

The Municipal Human Development bands do not follow the Global HDI bands. They have been adapted to better contextualize the Brazilian reality. The Global HDI bands are divided into Low, Medium, High and Very High Human Development, and their values vary each year, as they are calculated from the lowest and highest values observed in the countries. For the MHDI, they have been subdivided into five bands. The "Very Low" range of the MHDI generally coincides with the "Low" range of the Global HDI. And the "High" and "Very High" bands coincide with the same bands of the Global HDI. The "Low" and "Medium" bands differentiate Brazilian localities classified between 0.500 and 0.699, in order to highlight the differences and recognize the efforts of municipalities, UFs, metropolitan regions and UDHs that are closer to "High" Human Development.

- 0 < 0.499 MHDI: Very Low Human Development
- 0.500 < 0.599 MHDI: Low Human Development
- 0.600 < 0.699 MHDI: Medium Human Development
- 0.700 < 0.799 MHDI: High Human Development
- 0.800 < 1 MHDI: Very High Human Development

The figure below shows the stratification of development classes according to the MHDI.

### 103 - HDI scale M



Source: UNDP - Atlas of Human Development in Brazil, 2022.

Between 1991 and 2000, Paraíba's MHDl rose from 0.382 to 0.506, a growth rate of 32.46%. The dimension that evolved the most in the period was Education (with an increase of 0.140), followed by Longevity and Income.

Between 2000 and 2010, the MHDl also increased, from 0.506 to 0.658, according to data from the Demographic Censuses for those years. During this period, the index increased by 30.04%. When considering the dimensions that make up the MHDl, also between 2000 and 2010, it can be seen that the Longevity MHDl showed a change of 16.52%, the Education MHDl showed a change of 67.67% and the Income MHDl showed a change of 12.71%.

In 2020, according to information from the Continuous PNAD, Paraíba's MHDl was 0.714 and in 2021, 0.698, an increase in the index over this period of -2.24%, which currently places the state in the Medium Human Development range. For the dimensions that make up the MHDl, also between 2020 and 2021, we can see that the Longevity MHDl showed a change of -4.53%, the Education MHDl showed a change of -0.59% and the Income MHDl showed a change of -1.66%.

It should be noted that in 2019 and 2020, the MHDl of the state of Paraíba was 0.713 and 0.714, respectively, so in those years it was in the High Human Development range.

The following table shows the evolution of human development indices in the state of Paraíba.

**Table 72 - MHDl State of Paraíba - 1991, 2000, 2010, 2019, 2020 and 2021**

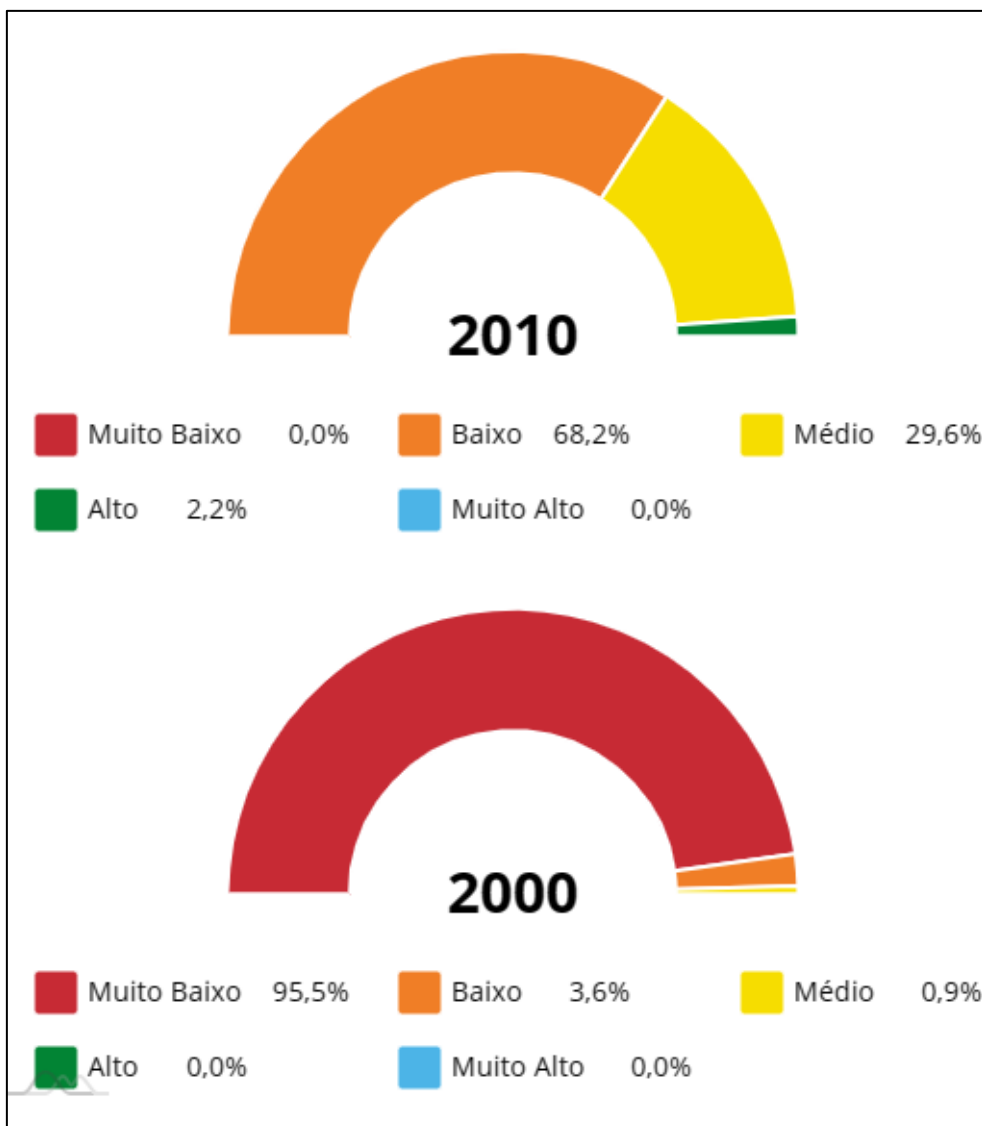
Indicators	1991	2000	2010	2019	2020	2021
<b>MHDl</b>	0,382	0,506	0,658	0,713	0,714	0,698
<b>Education MHDl</b>	0,191	0,331	0,555	0,660	0,673	0,669
<b>HDI Longevity</b>	0,565	0,672	0,783	0,816	0,816	0,779
<b>MHDl Income</b>	0,515	0,582	0,656	0,672	0,664	0,653

Source: UNDP - Atlas of Human Development in Brazil, 2022.

The figure below shows the percentage of municipalities in the state of Paraíba distributed in each of the five human development bands in 2000 and 2010. The Very Low Human Development band did not concentrate any of the state's municipalities in 2010, whereas in 2000 almost all municipalities were in this band (95.5%). In 2010, the Low Human Development band concentrated the largest number of municipalities (68.2%), while in 2000 the percentage was 3.6%. In the Medium Human Development band there were only 2 municipalities (0.9%) in 2000, rising to 66 (29.6%) in 2010. In 2010, 5 municipalities (2.2%) were in the High Human Development bracket and none in the Very High Human Development bracket. It should be noted that in 2000, no municipality was in the two highest human development bands.

*In 2021, Paraíba ranked 5th out of the 9 states in the Northeast region of the country, with Ceará in first place (0.734) and Maranhão in last place (0.676). In the national ranking, it is number 21 among the 27 Brazilian states, with the Federal District (0.814) in first place and Maranhão (0.676) in last place. It should be noted that, in 2010, it ranked 6th in the Northeast and 23rd among the country's states.*

**Figure104 - Distribution of Municipalities by MHD Band in the State of Paraíba - 2000 and 2010**



Source: UNDP - Atlas of Human Development in Brazil, 2022.

Among the state's municipalities, according to UNDP data, João Pessoa (0.763), Cabedelo (0.748), Campina Grande (0.720), Várzea (0.707) and Patos (0.701) had the highest MHD in 2010, all of them in the High Human Development bracket. On the other hand, Gado Bravo (0.513), Casserengue (0.514), Damião (0.521) and Cacimbas (0.523) had the lowest values in the same year.

In the Income dimension, the highest indices were found in Cabedelo (0.782), João Pessoa (0.770), Campina Grande (0.702) and Cajazeiras (0.668), and the lowest in Santana de Mangueira (0.488), Gado Bravo (0.491), Casserengue (0.492) and Cacimbas (0.501).

In the Education dimension, Várzea (0.714), João Pessoa (0.693), Campina Grande (0.654) and Cabedelo (0.651) had the highest values in 2010, while the worst MHDs were found in Gado Bravo (0.373), Casserengue (0.379), Lastro (0.380) and São José da Lagoa Tapada (0.389).

Finally, in the Longevity dimension, the highest MHDIs were found in João Pessoa (0.832), Cabedelo (0.822), Patos (0.821) and Santa Teresinha (0.820). Cacimbas (0.672), Mataraca (0.675), Juripiranga (0.677) and Areia de Baraúnas (0.680) had the lowest indices.

The following tables show the total MHDI by dimension and the positions they occupy in the national and state rankings of the municipalities in the state of Paraíba by Rural Territory.

**Table 73 - Human Development Index - Municipalities of the Alto Sertão RT - 2010**

TR Alto Sertão	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Cajazeiras	0,679	0,574	0,815	0,668	2.462	7
Uiraúna	0,636	0,528	0,797	0,612	3.378	17
Joca Claudino	0,622	0,568	0,765	0,553	3.653	30
Well of José de Moura	0,612	0,497	0,797	0,578	3.866	46
St. Helena	0,609	0,504	0,786	0,570	3.927	49
Triumph	0,609	0,501	0,780	0,578	3.927	49
São João do Rio do Peixe	0,608	0,490	0,782	0,586	3.957	52
Carrapateira	0,603	0,543	0,765	0,529	4.081	65
Bom Jesus	0,597	0,477	0,762	0,584	4.215	74
São José de Piranhas	0,591	0,461	0,755	0,594	4.372	95
Indian Waterfall	0,587	0,453	0,766	0,583	4.467	101
Mount Horeb	0,587	0,463	0,755	0,579	4.467	101
Bonito de Santa Fe	0,574	0,427	0,786	0,564	4.764	133
Bernardino Batista	0,558	0,462	0,716	0,526	5.081	180
Poço Dantas	0,525	0,408	0,702	0,506	5.432	217

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 74 - Human Development Index - TR Borborema Municipalities - 2010**

TR Borborema	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Campina Grande	0,720	0,654	0,812	0,702	1.301	3
Boa Vista	0,649	0,582	0,796	0,590	3.136	10
Lagoa Seca	0,627	0,516	0,769	0,621	3.534	22
Hope	0,623	0,526	0,767	0,598	3.631	27
Caturité	0,623	0,502	0,782	0,617	3.631	27
Puxinanã	0,617	0,542	0,754	0,574	3.756	39
Soledade	0,616	0,506	0,772	0,598	3.771	42



TR Borborema	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Cabaceiras	0,611	0,523	0,759	0,574	3.884	47
Asunción	0,609	0,510	0,738	0,601	3.927	49
Areial	0,608	0,503	0,779	0,573	3.957	49
Burning	0,608	0,489	0,796	0,578	3.957	49
Boqueirão	0,607	0,496	0,763	0,592	3.984	58
Remígio	0,607	0,474	0,797	0,592	3.984	58
Olivedos	0,603	0,540	0,766	0,531	4.081	65
Riacho de Santo Antônio	0,594	0,502	0,735	0,569	4.284	83
São Sebastião de Lagoa de Roça	0,594	0,471	0,795	0,561	4.284	83
Sand	0,594	0,467	0,756	0,593	4.284	83
Pocinhos	0,591	0,477	0,779	0,556	4.372	95
Mounted	0,590	0,505	0,748	0,545	4.395	98
São Domingos do Cariri	0,589	0,438	0,773	0,603	4.416	100
Umbuzeiro	0,584	0,514	0,712	0,545	4.540	110
Alagoa Grande	0,582	0,430	0,797	0,576	4.590	114
Tenório	0,581	0,490	0,707	0,565	4.614	116
Alcantil	0,578	0,458	0,765	0,550	4.670	126
Taperoá	0,578	0,456	0,749	0,564	4.670	126
Alagoa Nova	0,576	0,451	0,749	0,567	4.718	132
Barra de São Miguel	0,572	0,440	0,728	0,584	4.802	141
Juazeirinho	0,567	0,435	0,753	0,557	4.903	157
Barra de Santana	0,567	0,465	0,747	0,526	4.903	157
Massaranduba	0,567	0,441	0,747	0,552	4.903	157
Livramento	0,566	0,473	0,732	0,523	4.921	162
Fagundes	0,560	0,432	0,749	0,543	5.049	178
Cotton from Jandaíra	0,548	0,413	0,749	0,532	5.225	195
Mastic trees	0,548	0,411	0,745	0,537	5.225	195
Matinhas	0,541	0,400	0,747	0,531	5.306	207
Natuba	0,541	0,432	0,710	0,516	5.306	207
Santa Cecília	0,525	0,402	0,699	0,515	5.432	217
Gado Bravo	0,513	0,373	0,737	0,491	5.490	223

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 75 - Human Development Index - Brejo RT Municipalities - 2010**

TR Brejo	2010					
	MHDI	Education MHDI	HDI Longevity	MHDI Income	National Ranking	State Ranking
Guarabira	<b>0,673</b>	0,586	0,812	0,641	2.598	8
Serra da Raiz	<b>0,626</b>	0,544	0,792	0,570	3.561	25
Sertãozinho	<b>0,621</b>	0,561	0,769	0,554	3.680	33
Two Roads	<b>0,603</b>	0,488	0,795	0,565	4.081	65
Alagoinha	<b>0,595</b>	0,462	0,795	0,574	4.255	78
Pirpirituba	<b>0,595</b>	0,499	0,745	0,566	4.255	78
Riachão	<b>0,574</b>	0,481	0,763	0,515	4.764	133
Cuitegi	<b>0,570</b>	0,450	0,732	0,563	4.841	147
Mulungu	<b>0,565</b>	0,423	0,778	0,548	4.941	165
Pilõesinhos	<b>0,564</b>	0,421	0,802	0,532	4.965	169
Araçagi	<b>0,549</b>	0,412	0,745	0,540	5.209	194

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 76 - Human Development Index - Municipalities of TR Cariri - 2010**

TR Cariri	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Coxixola	<b>0,641</b>	0,567	0,794	0,586	3.275	13
Serra Branca	<b>0,628</b>	0,537	0,770	0,598	3.519	19
Monteiro	<b>0,628</b>	0,558	0,709	0,625	3.519	19
Sumé	<b>0,627</b>	0,534	0,765	0,602	3.534	21
Gurjão	<b>0,625</b>	0,581	0,729	0,576	3.587	26
Zabelê	<b>0,623</b>	0,587	0,725	0,567	3.631	27
São João do Cariri	<b>0,622</b>	0,488	0,797	0,618	3.653	30
Old Gold	<b>0,614</b>	0,518	0,764	0,585	3.820	44
Silver	<b>0,608</b>	0,514	0,772	0,566	3.957	52
Amparo	<b>0,606</b>	0,551	0,752	0,537	3.999	60
Saint André	<b>0,600</b>	0,476	0,797	0,568	4.144	71
Caraúbas	<b>0,585</b>	0,485	0,710	0,580	4.515	107
Parari	<b>0,584</b>	0,467	0,733	0,583	4.540	110
São Sebastião do Umbuzeiro	<b>0,581</b>	0,459	0,763	0,561	4.614	116
Congo	<b>0,581</b>	0,477	0,731	0,562	4.614	116
Camalaú	<b>0,567</b>	0,431	0,770	0,549	4.903	157
São José dos Cordeiros	<b>0,556</b>	0,407	0,778	0,542	5.116	185

TR Cariri	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
São João do Tigre	0,552	0,424	0,758	0,523	5.169	190

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 77 - Human Development Index - Curimataú TR Municipalities - 2010**

TR Curimataú	2010					
	MHDI	Education MHDI	HDI Longevity	MHDI Income	National Ranking	State Ranking
Friar Martin	0,641	0,542	0,770	0,631	3.275	13
Picuí	0,608	0,506	0,745	0,596	3.957	52
New Forest	0,601	0,498	0,758	0,576	4.123	70
New Palmeira	0,595	0,488	0,762	0,567	4.255	78
Cuité	0,591	0,470	0,766	0,574	4.372	95
Pedra Lavrada	0,574	0,458	0,733	0,564	4.764	133
Cosseting	0,573	0,460	0,769	0,531	4.786	138
Cubati	0,566	0,448	0,742	0,545	4.921	162
Barra de Santa Rosa	0,562	0,434	0,753	0,542	5.002	174
Baraúna	0,558	0,459	0,718	0,526	5.081	180
São Vicente do Seridó	0,555	0,453	0,714	0,528	5.128	187

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 78 - Human Development Index - Municipalities of TR Mata Norte - 2010**

TR Mata Norte	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Rio Tinto	0,585	0,480	0,742	0,562	4.515	107
Mamanguape	0,585	0,453	0,756	0,585	4.515	107
Baía da Traição	0,581	0,495	0,731	0,541	4.614	116
Lagoa de Dentro	0,570	0,444	0,772	0,539	4.841	147
Itapororoca	0,564	0,437	0,757	0,543	4.965	169
Jacaraú	0,558	0,435	0,720	0,554	5.081	180
Pedro Régis	0,542	0,399	0,754	0,529	5.293	205
Mataraca	0,536	0,427	0,675	0,533	5.354	210
Grass	0,533	0,400	0,728	0,520	5.370	212
Curral de Cima	0,529	0,392	0,715	0,528	5.402	215

TR Mata Norte	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Marking	0,529	0,408	0,691	0,525	5.402	215
Cuité de Mamanguape	0,524	0,398	0,683	0,529	5.439	219

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 79 - Human Development Index - Municipalities of TR Mata Sul - 2010**

TR Mata Sul	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
João Pessoa	0,763	0,693	0,832	0,770	320	1
Cabedelo	0,748	0,651	0,822	0,782	583	2
Bayeux	0,649	0,566	0,779	0,619	3.136	10
Santa Rita	0,627	0,534	0,774	0,597	3.534	21
Count	0,618	0,500	0,797	0,591	3.735	37
Caaporã	0,602	0,509	0,757	0,565	4.101	69
Lucena	0,583	0,469	0,734	0,577	4.562	112
Alhandra	0,582	0,465	0,778	0,544	4.590	114
Sobrado	0,573	0,477	0,753	0,525	4.786	138
Pitimbu	0,570	0,456	0,753	0,538	4.841	147
Sapé	0,569	0,461	0,711	0,563	4.869	152
Riachão do Poço	0,555	0,426	0,748	0,537	5.128	187
Cross of the Holy Spirit	0,552	0,408	0,778	0,531	5.169	190
Mari	0,548	0,429	0,692	0,553	5.225	195

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 80 - Human Development Index - Municipalities of the Middle Piranhas RT - 2010**

TR Middle Piranhas	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Catolé do Rocha	0,640	0,539	0,787	0,617	3.291	16
Brejo dos Santos	0,619	0,541	0,776	0,564	3.721	36
Jericho	0,603	0,476	0,798	0,577	4.081	65
Brejo do Cruz	0,597	0,463	0,798	0,575	4.215	74
Good Success	0,592	0,494	0,752	0,558	4.331	89
São José do Brejo do Cruz	0,581	0,473	0,776	0,535	4.614	116

TR Middle Piranhas	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
São Bento	0,580	0,424	0,769	0,597	4.638	121
Belém do Brejo do Cruz	0,578	0,451	0,779	0,550	4.670	126
Riacho dos Cavalos	0,568	0,447	0,752	0,546	4.884	153
Mato Grosso	0,565	0,419	0,760	0,566	4.941	165

Source: UNDP - Atlas of Human Development in Brazil, 2022.

Table 81 - Human Development Index - Municipalities of the TR Médio Sertão - 2010

TR Middle Hinterland	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Várzea	0,707	0,714	0,800	0,619	1.696	4
Ducks	0,701	0,628	0,821	0,667	1.866	5
Saint Lucia	0,682	0,635	0,804	0,620	2.386	6
Malta	0,642	0,533	0,800	0,620	3.254	12
São Mamede	0,641	0,558	0,765	0,617	3.275	13
Saint Theresa	0,627	0,513	0,820	0,586	3.534	21
Quixabá	0,622	0,579	0,737	0,564	3.653	30
Passage	0,620	0,534	0,790	0,566	3.702	35
São José do Sabugi	0,617	0,514	0,781	0,584	3.756	39
Junco do Seridó	0,617	0,576	0,715	0,571	3.756	39
Teixeira	0,605	0,527	0,741	0,566	4.029	64
Cacimba de Areia	0,596	0,497	0,771	0,553	4.238	77
Emus	0,595	0,492	0,773	0,554	4.255	78
Desterro	0,580	0,490	0,724	0,551	4.638	121
São José do Bonfim	0,578	0,493	0,713	0,549	4.670	126
São José de Espinharas	0,577	0,448	0,790	0,543	4.695	131
Catingueira	0,574	0,455	0,753	0,553	4.764	133
Maturéia	0,572	0,474	0,730	0,540	4.802	141
Salty	0,563	0,454	0,739	0,531	4.984	172
Baraúnas sand	0,562	0,462	0,680	0,566	5.002	174
Mother of Water	0,542	0,429	0,712	0,520	5.293	205
Cacimbas	0,523	0,425	0,672	0,501	5.444	220

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 82 - Human Development Index - Municipalities of the TR Piemont da Borborema - 2010**

TR Piemont da Borborema	2010					
	MHDI	Education MHDI	HDI Longevity	MHDI Income	National Ranking	State Ranking
Solânea	<b>0,595</b>	0,468	0,762	0,592	4.255	78
Bethlehem	<b>0,592</b>	0,492	0,759	0,557	4.331	89
Caiçara	<b>0,592</b>	0,488	0,733	0,580	4.331	89
Street	<b>0,583</b>	0,470	0,776	0,544	4.562	112
Banana trees	<b>0,568</b>	0,430	0,766	0,555	4.884	153
Araruna	<b>0,567</b>	0,439	0,758	0,549	4.903	157
Cacimba de Dentro	<b>0,564</b>	0,419	0,777	0,551	4.965	169
Pylons	<b>0,560</b>	0,409	0,767	0,559	5.049	178
Borborema	<b>0,558</b>	0,426	0,750	0,544	5.081	180
Tacima	<b>0,551</b>	0,450	0,726	0,513	5.186	192
Macaw	<b>0,548</b>	0,407	0,712	0,569	5.225	195
Sawmill	<b>0,547</b>	0,392	0,779	0,536	5.244	202
Dona Inês	<b>0,545</b>	0,447	0,690	0,524	5.268	203
Damião	<b>0,521</b>	0,391	0,720	0,503	5.453	221
Casserengue	<b>0,514</b>	0,379	0,730	0,492	5.487	222

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 83 - Human Development Index - Municipalities of the Serra do Teixeira RT - 2010**

TR Serra do Teixeira	2010					
	MHDI	Education MHDI	HDI Longevity	MHDI Income	National Ranking	State Ranking
Princess Isabel	<b>0,606</b>	0,514	0,720	0,600	3.999	60
Tavares	<b>0,586</b>	0,462	0,777	0,560	4.495	104
White Water	<b>0,572</b>	0,484	0,712	0,542	4.802	141
Juru	<b>0,570</b>	0,443	0,758	0,552	4.841	147
São José de Princesa	<b>0,565</b>	0,443	0,765	0,533	4.941	165
Immaculate	<b>0,557</b>	0,461	0,715	0,524	5.098	184
Manaíra	<b>0,543</b>	0,426	0,698	0,537	5.288	204

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 84 - Human Development Index - Municipalities of the Vale de Piancó RT - 2010**

TR Vale de Piancó	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Piancó	<b>0,621</b>	0,550	0,736	0,593	3.680	33
Itaporanga	<b>0,615</b>	0,517	0,742	0,607	3.796	43
Igaracy	<b>0,610</b>	0,496	0,794	0,575	3.902	48
Curral Velho	<b>0,606</b>	0,491	0,739	0,613	3.999	60
Pedra Branca	<b>0,599</b>	0,532	0,761	0,532	4.167	72
Boa Ventura	<b>0,599</b>	0,480	0,790	0,566	4.167	72
Aguiar	<b>0,597</b>	0,447	0,753	0,632	4.215	74
Santana dos Garrotes	<b>0,594</b>	0,479	0,772	0,568	4.284	83
Diamond	<b>0,593</b>	0,496	0,748	0,562	4.309	88
Conceição	<b>0,592</b>	0,476	0,754	0,577	4.331	89
Coremas	<b>0,592</b>	0,452	0,794	0,578	4.331	89
Serra Grande	<b>0,586</b>	0,491	0,745	0,549	4.495	104
Ibiara	<b>0,586</b>	0,479	0,768	0,548	4.495	104
Nova Olinda	<b>0,573</b>	0,453	0,744	0,557	4.786	138
Santa Inês	<b>0,572</b>	0,492	0,706	0,540	4.802	141
Olho D'Água	<b>0,572</b>	0,452	0,776	0,533	4.802	141
São José de Caiana	<b>0,565</b>	0,434	0,762	0,545	4.941	165
Santana de Mangueira	<b>0,535</b>	0,414	0,756	0,488	5.361	211

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 85 - Human Development Index - Municipalities of the Maringá Valley RT - 2010**

TR Maringá Valley	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Pombal	<b>0,634</b>	0,515	0,787	0,629	3.407	18
São Bentinho	<b>0,606</b>	0,491	0,787	0,575	3.999	60
County	<b>0,594</b>	0,476	0,769	0,573	4.284	83
Paulista	<b>0,587</b>	0,461	0,747	0,587	4.467	101
Mountain View	<b>0,566</b>	0,424	0,773	0,554	4.921	162
Lagoon	<b>0,563</b>	0,448	0,747	0,533	4.984	172
Cajazeirinhas	<b>0,550</b>	0,413	0,773	0,521	5.194	193
São Domingos	<b>0,548</b>	0,394	0,754	0,555	5.225	195

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 86 - Human Development Index - Municipalities of the Vale do Paraíba RT - 2010**

TR Paraíba Valley	2010					
	MHDI	HDI Education	HDI Longevity	MHDI Income	National Ranking	State Ranking
Itabaiana	<b>0,613</b>	0,536	0,727	0,592	3.847	45
Ingá	<b>0,592</b>	0,471	0,768	0,573	4.331	89
Stones of Fire	<b>0,590</b>	0,468	0,771	0,568	4.395	98
Juarez Távora	<b>0,579</b>	0,465	0,768	0,544	4.654	124
Pilar	<b>0,579</b>	0,461	0,775	0,544	4.654	124
Mogeyro	<b>0,574</b>	0,481	0,732	0,538	4.764	133
Serra Redonda	<b>0,570</b>	0,424	0,772	0,565	4.841	147
Caldas Brandão	<b>0,568</b>	0,451	0,723	0,562	4.884	153
Salgado de São Félix	<b>0,568</b>	0,448	0,770	0,531	4.884	153
Itatuba	<b>0,562</b>	0,436	0,742	0,549	5.002	174
Gurinhém	<b>0,556</b>	0,435	0,728	0,544	5.116	185
Riachão do Bacamarte	<b>0,553</b>	0,417	0,721	0,561	5.157	189
Juripiranga	<b>0,548</b>	0,448	0,677	0,544	5.225	195
São Miguel de Taipu	<b>0,548</b>	0,443	0,721	0,516	5.225	195
São José dos Ramos	<b>0,541</b>	0,406	0,738	0,527	5.306	207

Source: UNDP - Atlas of Human Development in Brazil, 2022.

**Table 87 - Human Development Index - Municipalities of the Piranhas Valley RT - 2010**

TR Piranhas Valley	2010					
	MHDI	Education MHDI	HDI Longevity	MHDI Income	National Ranking	State Ranking
Sousa	<b>0,668</b>	0,567	0,814	0,645	2.716	9
Santa Cruz	<b>0,618</b>	0,523	0,779	0,578	3.735	37
Marizópolis	<b>0,608</b>	0,512	0,753	0,582	3.957	52
San Francisco	<b>0,580</b>	0,481	0,726	0,560	4.638	121
Aparecida	<b>0,578</b>	0,456	0,747	0,567	4.670	126
Vieirópolis	<b>0,571</b>	0,455	0,762	0,537	4.827	146
Nazarezinho	<b>0,562</b>	0,449	0,747	0,528	5.002	174
Ballast	<b>0,533</b>	0,380	0,747	0,532	5.370	212
São José da Lagoa Tapada	<b>0,530</b>	0,389	0,722	0,530	5.395	214

Source: UNDP - Atlas of Human Development in Brazil, 2022.



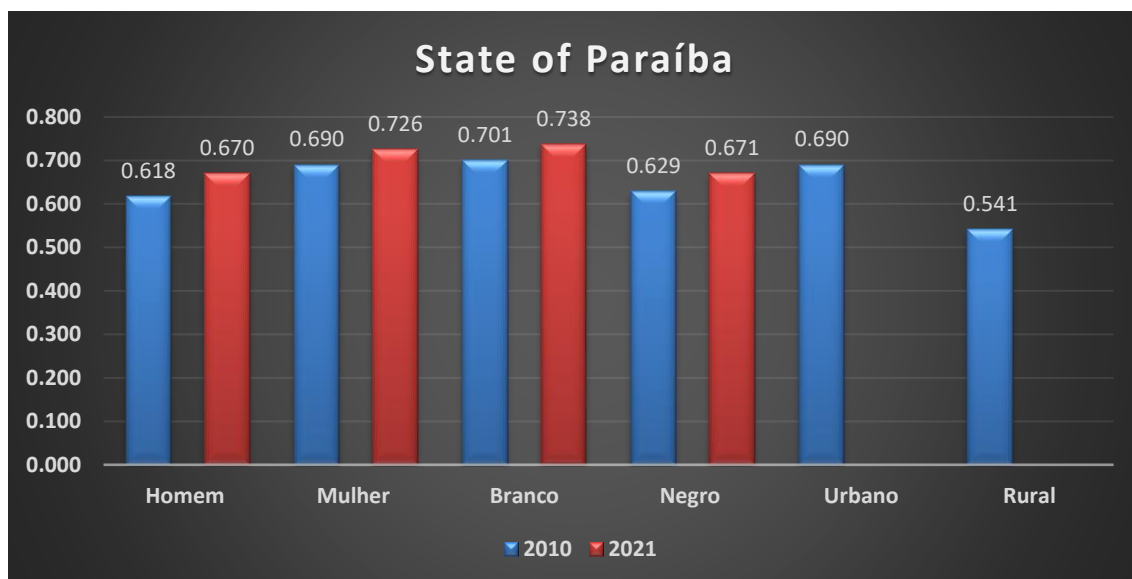
The Atlas of Human Development in Brazil presents a range of disaggregated information for these social groups, with the aim of giving visibility to statistical information that highlights inequalities and, with this, supporting the development of public policies aimed at promoting racial and gender equality and the social conditions of people living in urban and rural areas. The disaggregated MHDl is the MHDl calculated for portions of the population according to color (black and white), gender (women and men) and household situation (rural and urban).

The figure below shows the MHDl data for the state of Paraíba broken down by sex and color for the years 2010, calculated with information from the Census, and 2021, for which information from the Continuous PNAD was used. In 2010, the MHDl for women was 0.690 and for men 0.618, which placed both portions of the population in the Medium Human Development range. In 2021, the MHDl for the female population was 0.726, placing it in the High Human Development bracket. The MHDl of the male population in the same year was 0.670, placing this group in the Medium Human Development range.

If we analyze by color, according to the Demographic Census, in 2010 the MHDl of the black population in the state of Paraíba was 0.629, which placed it in the Medium Human Development range. The white population's MHDl in the same year was 0.701, corresponding to the High Human Development range. In absolute numbers, the difference between the two was 0.072. In 2021, the MHDl of the black population was 0.671 and that of the white population was 0.738, placing them in the Medium and High Human Development brackets, respectively.

With regard to household situation, according to the 2010 Demographic Census, the MHDl of the population living in the urban area of the state of Paraíba was 0.690 in 2010, which placed it in the Medium Human Development range. The MHDl of the population living in rural areas in the same year was 0.541, corresponding to the Low Human Development range. In absolute numbers, the difference between the two was 0.149.

**105 - MHDl values disaggregated by color, sex and household situation in the state of Paraíba - 2010 and 2021**



Source: UNDP - Atlas of Human Development in Brazil, 2022.

In its studies on human development, the UNDP looks at two other indicators of health and well-being: life expectancy at birth and infant mortality.

Life expectancy at birth is the indicator that makes up the Longevity dimension of the MHDH and refers to Sustainable Development Goal 3 - Health and Well-being. Life expectancy at birth for the population of the state of Paraíba, according to data from the Demographic Census, changed by 6.66 years between 2000 and 2010, from 65.34 years in 2000 to 72.00 years in 2010. Analyzing the information by household situation, life expectancy at birth for the population living in the urban area of the state of Paraíba was 72.78 years, while in the rural area it was 69.95 years, both for 2010. In 2021, according to the PNAD Continuous data, life expectancy at birth decreased compared to 2010, to 71.72 years.

In turn, infant mortality is expressed in the Infant Mortality Coefficient, represented by the number of infant deaths (children up to 1 year of age) per thousand live births. With this indicator it is possible, among other things, to obtain clues about the quality of life, sanitation and health of the inhabitants of a certain region. The WHO establishes that acceptable levels of this index should be between 6 and 7. In the state of Paraíba, infant mortality fell from 43.30 per thousand live births in 2000 to 21.67 per thousand live births in 2010, according to data from the Demographic Census. Analyzing by household situation, in 2010, infant mortality in urban areas was 19.82 and in rural areas 26.97. In 2021, according to data from the Continuous PNAD, infant mortality in the state of Paraíba fell even further, reaching 17.68 per thousand live births. In 2017, this figure was 15.46 per thousand live births. With the rate observed in 2021, the state of Paraíba still does not meet target 3.2 of the United Nations Sustainable Development Goals - SDGs, according to which infant mortality in the country should be below 12 deaths per thousand live births by 2030.

The following table shows life expectancy and total infant mortality rates in the state of Paraíba for the years 2000, 2010 and 2021, disaggregated by sex and color for the year 2021 and by household situation for the year 2010.

**Table 88 - Longevity and Mortality by Sex, Color and Household Status in the State of Paraíba - 2000, 2010 and 2021**

Indicators	2000	2010			2021				
	Total	Total	Rural	Urban	Total	Women	Men	Blacks	White
<b>Infant mortality (per 1000 live births)</b>	43,30	21,67	26,97	19,82	17,68	16,28	19,16	18,41	15,94
<b>Life expectancy at birth (years)</b>	65,34	72,00	69,95	72,78	71,72	76,19	67,31	69,84	73,00

Source: UNDP - Atlas of Human Development in Brazil, 2022.

### Income, Poverty and Inequality

Between 2000 and 2010, monthly per capita income rose significantly in the state of Paraíba, from R\$ 299.09 to R\$ 474.94. During this period, this figure grew at an average annual rate of 58.80%.

Between 2020 and 2021, according to data from the Continuous PNAD, monthly per capita income fell in the state of Paraíba, from R\$497.15 to R\$465.74 (at August 2010 prices), which is equivalent to a variation of -6.32% in the period, in real terms.

In 2010, among the state's municipalities, the ones with the highest per capita income were Cabedelo (R\$ 1.036.21), João Pessoa (R\$ 964.82), Campina Grande (R\$ 630.03) and Cajazeiras (R\$ 511.56), while the lowest per capita incomes were in Santana de Mangueira (R\$ 166.28), Gado Bravo (R\$ 170.29), Casserengue (R\$ 171.37) and Cacimbas (R\$ 181.17).

The proportion of extremely poor people, i.e. with a per capita income of less than R\$70.00 (at current August 2010 prices), fell considerably in the state of Paraíba between 2010 and 2020, from 13.39% to 6.66%, but in 2021 experienced a significant increase, possibly caused by the effects of COVID-19, reaching a rate of 12.95%. The proportion of poor people (with a per capita household income of less than R\$140.00, at August 2010 prices) was 28.93% in 2010 and 15.92% in 2020, rising to 24.91% in 2021. Finally, the proportion of people vulnerable to poverty (with a per capita income of less than R\$255.00, at August 2010 prices) followed the same trend, decreasing between 2010 and 2020 and increasing between the latter year and 2021, with respective rates of 53.65%, 40.60% and 46.62%.

In 2021, the proportions of extremely poor, poor and vulnerable to poverty in the female population of the state of Paraíba were 13.72%, 25.47% and 47.09%, respectively. In the male population, the same proportions were 12.16%, 24.31% and 46.12%.

Considering the breakdown of the population of the state of Paraíba by color, in that same year, 13.45% of blacks were extremely poor, 26.48% were poor and 49.26% were vulnerable to poverty. In the white population, these proportions were 11.93%, 21.82% and 41.50%, respectively.

In 2010, the highest proportions of extremely poor people were found in the municipalities of Casserengue (43.17%), Santana de Mangueira (38.59%), Gado Bravo (37.60%) and Cacimbas (36.97%), while João Pessoa (3.48%), Campina Grande (5.02%), Cabedelo (5.27%) and Patos (5.38%) had the lowest rates in the same year.

With regard to poor people, the municipalities with the highest rates (2010) were Casserengue (60.98%), Gado Bravo (58.49%), Santana de Mangueira (58.22%) and Damião (55.88%). In turn, João Pessoa, Cabedelo, Campina Grande and Patos were the municipalities in the sample with the lowest proportions, 11.59%, 15.61%, 16.34% and 18.86%, respectively.

As for the proportion of people vulnerable to poverty, in the same year 2010, Santana de Mangueira (80.61%), Gado Bravo (79.49%), Casserengue (78.02%) and Capim (77.37%) had the highest rates, while the lowest rates were found in João Pessoa (30.30%), Cabedelo (39.32%), Campina Grande (40.74%) and Várzea (42.47%).

Between 2000 and 2010, social inequality decreased in the state of Paraíba, i.e. the increase in the population's average income in this period was accompanied by a more equal distribution of gross income, which can be verified through the Gini index - a classic indicator measured by the UNDP which looks at the levels of income distribution in the region. During this period, the indicator went from 0.63 in 2000 to 0.61 in 2010. According to the methodology used to measure the Gini index, the closer it is to zero, the more even the distribution of income in the region, while the closer it is to 1, the greater the

concentration of earnings among a smaller number of people. More recently, according to data from the Continuous PNAD, it stood at 0.51 in 2020 and 0.56 in 2021.

In 2010, the municipalities in the state of Paraíba with the greatest social inequality, expressed through the Gini Index, were Cabedelo, Aguiar, João Pessoa and Bananeiras, with indices of 0.70, 0.65, 0.62 and 0.59, respectively, while Várzea (0.40), Logradouro (0.42) and Boa Vista (0.42) showed greater balance in income distribution among the state's municipalities.

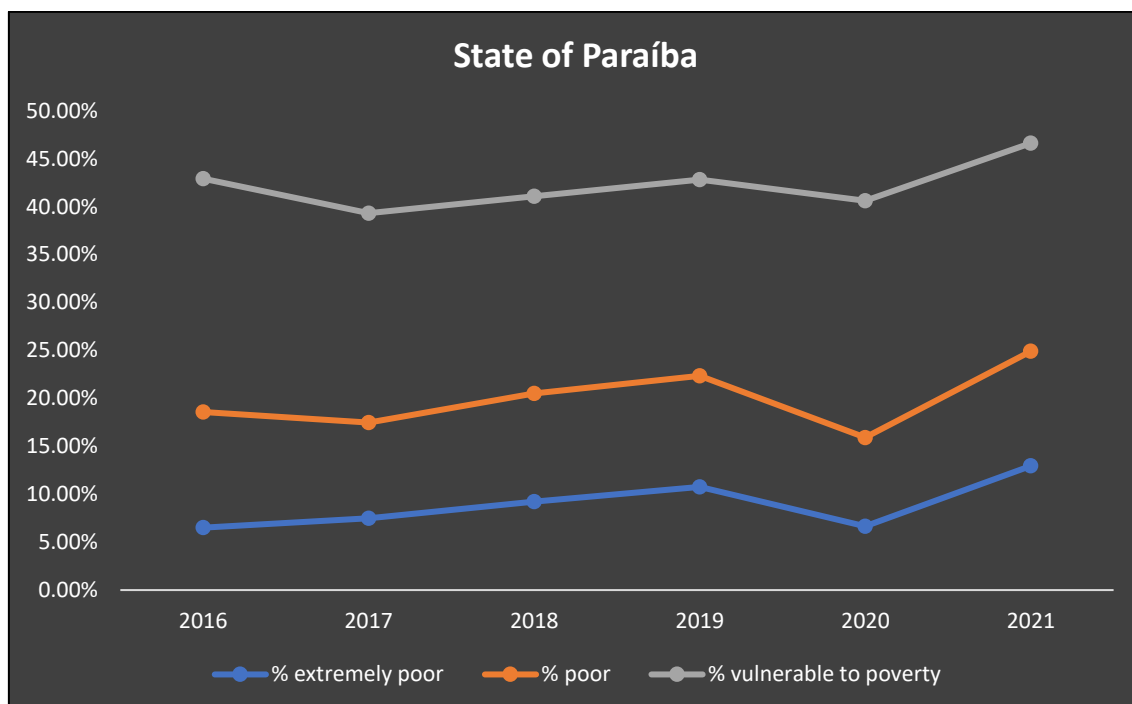
The following table shows the information on income, poverty and inequality by sex, color and household situation in the state of Paraíba for the years 2000, 2010 and 2021. The figure below shows the evolution of the proportions of people who are extremely poor, poor and vulnerable to poverty in the state of Paraíba in the period 2016-2021.

**Table 89 - Income, poverty and inequality by sex, color and household situation in the State of Paraíba - 2000, 2010 and 2021**

Indicators	2000	2010			2021				
	Total	Total	Rural	Urban	Total	Women	Men	Blacks	White
<b>Per capita income (in R\$ as of Aug/2010)</b>	299,09	474,94	208,27	562,49	465,74	452,67	479,33	391,08	621,31
<b>Gini Index</b>	0,63	0,61	0,51	0,60	0,56	0,56	0,57	0,52	0,61
<b>Proportion of extremely poor (%)</b>	25,17	13,39	27,60	8,73	12,95	13,72	12,16	13,45	11,93
<b>Proportion of poor (%)</b>	49,61	28,93	48,51	22,51	24,91	25,47	24,31	26,48	21,82
<b>Proportion of people vulnerable to poverty</b>	72,39	53,65	73,68	47,07	46,62	47,09	46,12	49,26	41,50

Source: UNDP - Atlas of Human Development in Brazil, 2022.

### 106107 - Evolution of the proportions of extremely poor, poor and vulnerable to poverty in the state of Paraíba - 2016 and 2021



Source: UNDP - Atlas of Human Development in Brazil, 2022.

#### 4.3.4 Economic aspects

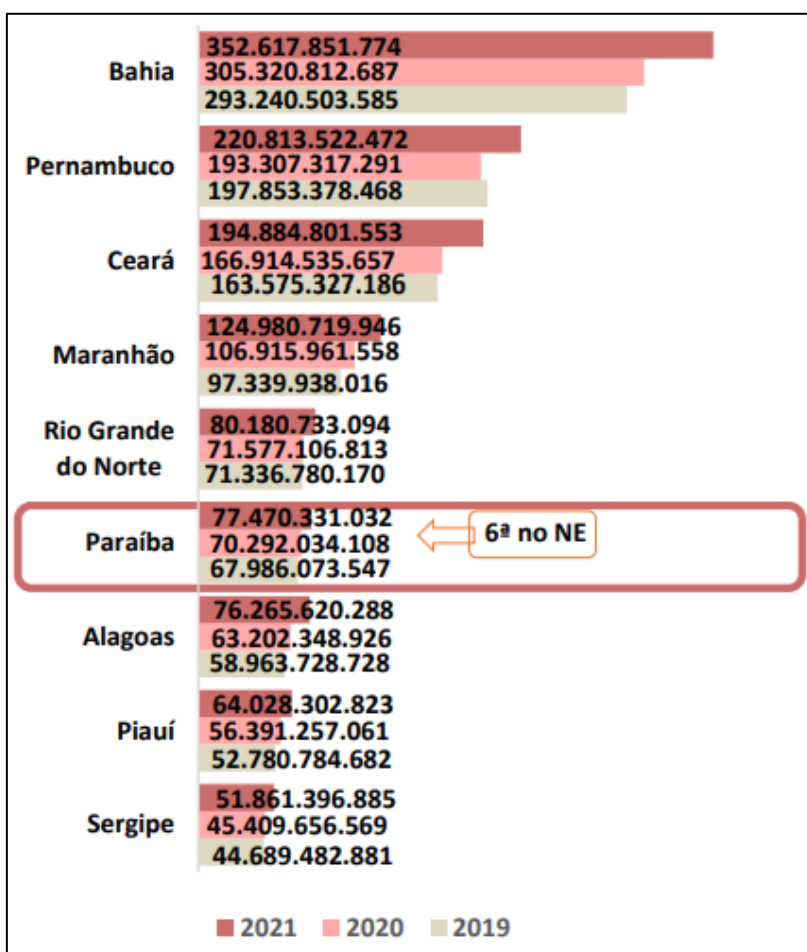
The studies on the economy presented below show the size and dynamics of the production of the municipalities in the state of Paraíba, looking at the data over a period of time. The production data comes from the State Secretariat for Planning, Budget and Management which, in partnership with IBGE, is responsible for producing and publishing the annual GDP for the state of Paraíba and its municipalities.

The productivity and production power of the municipalities in terms of available labor and economic potential are also discussed.

#### Size, Dynamics and Economic Sectors

In 2021, the state of Paraíba recorded a 10.2% growth in its Gross Domestic Product (GDP), reaching R\$77.470 billion. With this, the state remained the sixth largest economy in the Northeast region, after a nominal increase of R\$7.178 billion compared to the previous year, as can be seen in the figure below (PARAÍBA, 2023a).

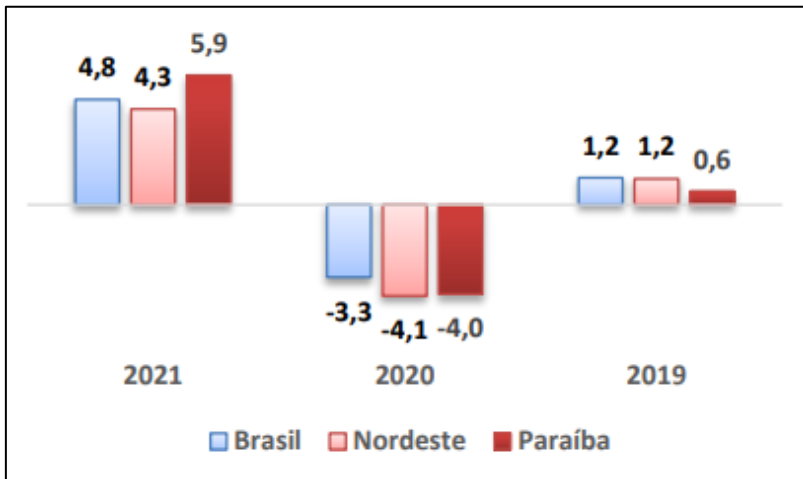
### 108 - Gross Domestic Product (GDP) of the Northeastern States (in R\$ 1.00)



Source: IBGE/SEPLAG-PB.

The real growth rate, without the effect of inflation, was positive, showing an economic recovery in 2021. Thus, Paraíba's GDP registered a rate of 5.9% in that year, representing an increase of 9.9 percentage points compared to 2020. It is worth noting that this rate was higher than that of the Northeast region (4.3%) and Brazil (4.8%) (PARAÍBA, 2023a).

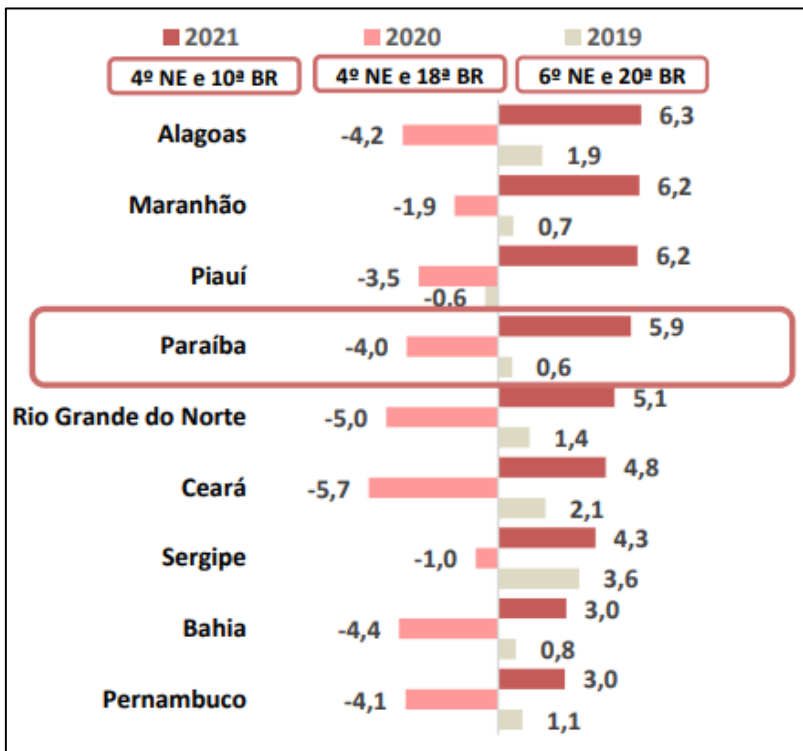
### 109 - National Overview - Real GDP Growth (%)



Source: IBGE/SEPLAG-PB.

In terms of the GDP growth rate, Paraíba stood out as the fourth best performing state in the Northeast in 2020 and 2021. On the national stage, its position rose from 18th place in 2020 to 10th in 2021, compared to the other Brazilian states (PARAÍBA, 2023a).

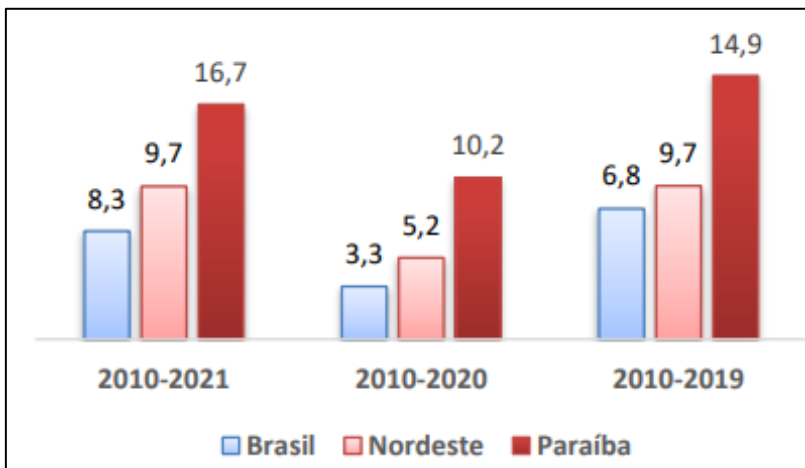
### 110 - Real GDP Growth in the Northeastern States (%)



Source: IBGE/SEPLAG-PB.

During the period from 2010 to 2021, Paraíba recorded an accumulated real growth of 16.7%, representing an increase of 6.5 percentage points compared to the previous period from 2010 to 2020. It is important to note that this rate exceeded the average for the Northeast region (9.7%) and Brazil (8.3%) (PARAÍBA, 2023a).

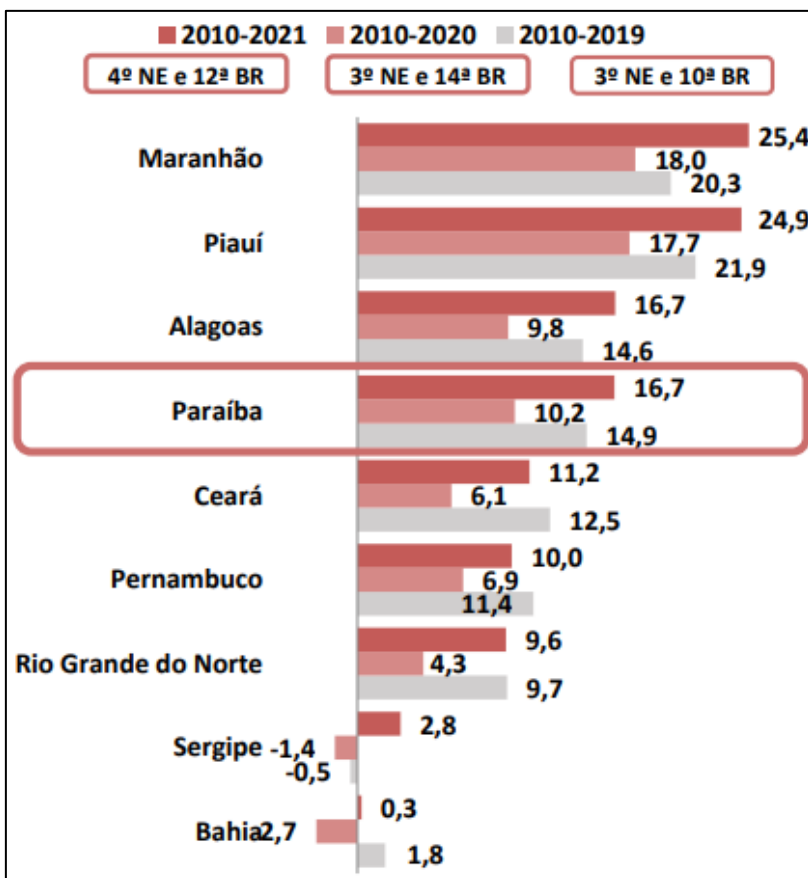
### 111 - National Overview - Accumulated GDP Growth (%)



Source: IBGE/SEPLAG-PB.

Considering the *ranking of the* accumulated GDP growth rate among the Northeastern states, Paraíba ranked 4th in the 2010-2021 period. In the national *ranking*, its position rose from 14th in 2020 to 12th in 2021, compared to the other states in Brazil (PARAÍBA, 2023a).

### 112 - Accumulated Real GDP Growth of the Northeastern States (%)



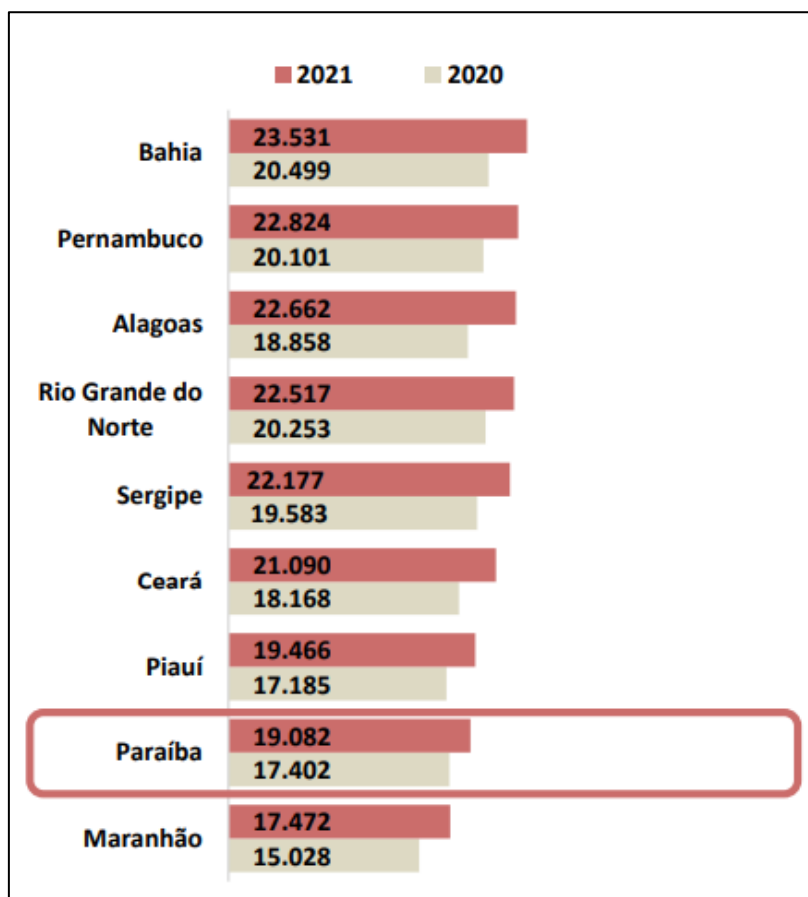
Source: IBGE/SEPLAG-PB.



In 2021, Paraíba's GDP *per capita* reached R\$ 19,082 per inhabitant, registering a nominal increase of 9.7%, compared to 2.9% in 2020, representing an increase of 6.8 percentage points in the period (PARAÍBA, 2023a).

Considering the GDP *per capita* ranking among the Northeastern states, Paraíba was in 7th place in 2020, dropping to 8th in 2021. On the national scene, it was also in the penultimate position (26th) in 2021, compared to the other states in Brazil.

### 113 - GDP per Capita of the Northeastern States (in R\$ 1.00)



Source: IBGE/SEPLAG-PB.

Paraíba's Gross Domestic Product (GDP), from the point of view of production, is made up of Gross Value Added (GVA), the value coming from the production process and taxes net of subsidies on the production of goods and services, when they are produced or imported, sold or distributed by the state (PARAÍBA, 2023a).

In 2021, GVA reached R\$67,766,358,252, equivalent to 87.5% of GDP. On the other hand, Taxes totaled R\$9,703,972,780, representing 12.5% of the total and registering an increase of 1.4 percentage points in its share of GDP (PARAÍBA, 2023a).

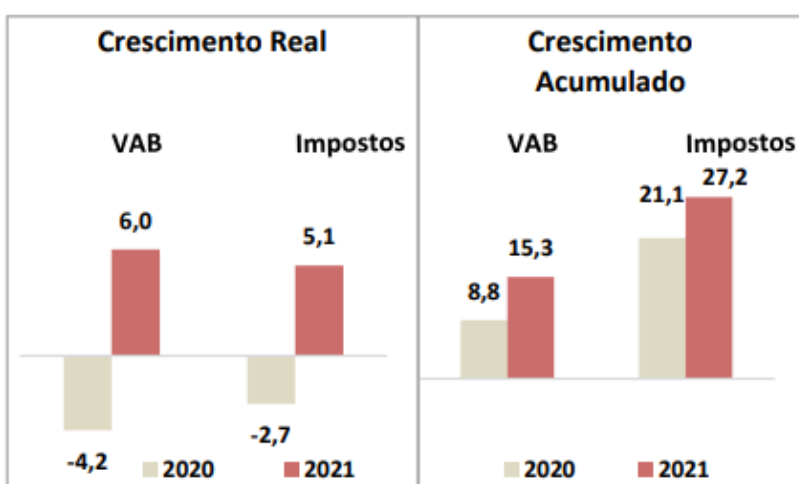
#### 114 - Composition of Paraíba State GDP from the Production Perspective

Ótica produção	2020		2021	
	R\$ 1,00	%	R\$ 1,00	%
<b>PIB Total</b>	<b>70.292.034.108</b>	<b>100</b>	<b>77.470.331.032</b>	<b>100</b>
<b>Valor Adicionado Bruto</b>	<b>62.468.031.910</b>	<b>88,9</b>	<b>67.766.358.252</b>	<b>87,5</b>
Agropecuária	2.823.160.240	4,5	3.190.465.869	4,7
Indústria	10.000.792.871	16,0	10.071.557.156	14,9
Serviços	49.644.078.799	79,5	54.504.335.227	80,4
<b>Impostos</b>	<b>7.824.002.199</b>	<b>11,1</b>	<b>9.703.972.780</b>	<b>12,5</b>

Source: IBGE/SEPLAG-PB.

Gross Value Added (GVA) and Taxes had real growth of 6.0% and 5.1%, respectively, compared to the previous year (2020), when these rates were negative, favoring a real increase in GDP in 2021. With these results, the accumulated GVA and Taxes registered 15.3% and 27.2%, respectively, in the 2010-2021 period (PARAÍBA, 2023a).

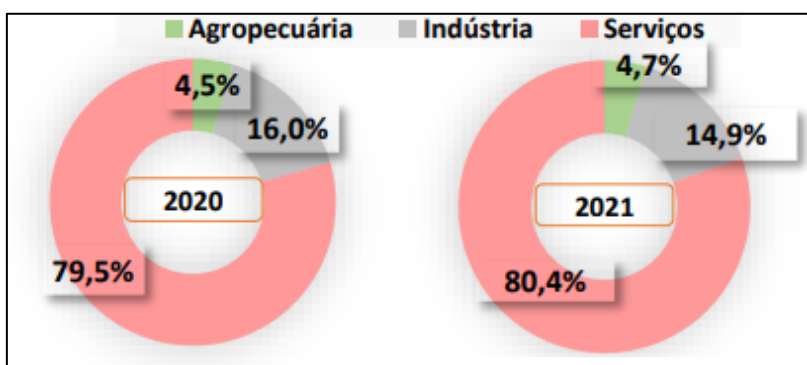
#### 115 - Real and Accumulated Growth (base 2010=100) of GVA and Taxes (%)



Source: IBGE/SEPLAG-PB.

With regard to the composition of the economic sectors in the state's GVA in 2021, Services accounted for 80.4%, traditionally remaining the sector with the greatest weight in the Paraíba economy. Industry took second place, with a 14.9% share, followed by Agriculture, which contributed 4.7% to the state's economy (PARAÍBA, 2023a).

### 116 116 - Composition of GVA by Economic Sector (%)

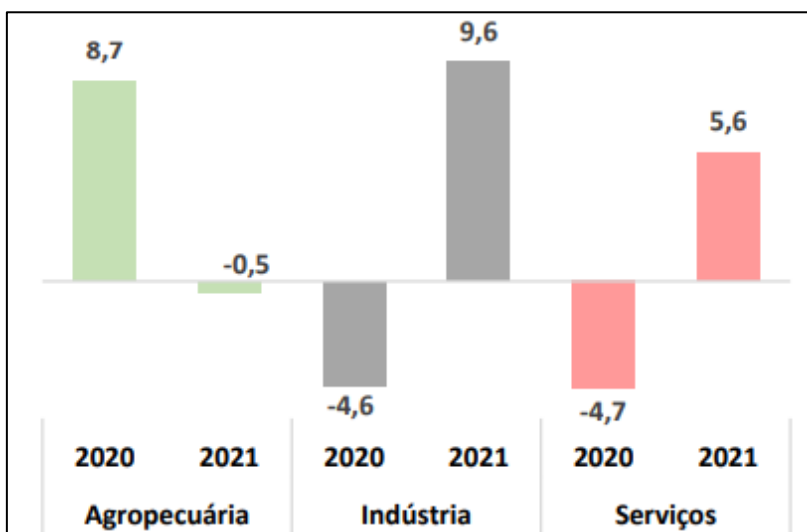


Source: IBGE/SEPLAG-PB.

It is important to note that, in 2021, the Services and Agriculture sectors saw an increase of 0.9 and 0.2 percentage points, respectively, in their share of the state's GVA, while the Industry sector experienced a reduction of 1.1 p.p. in its share of contribution, compared to the previous year (PARAÍBA, 2023).

In terms of real growth, the Industry sector grew the most (9.6%), followed by the Services sector (5.6%) in 2021. Agriculture was the only sector that didn't grow in volume in Paraíba, with a real change of -0.5% (PARAÍBA, 2023a).

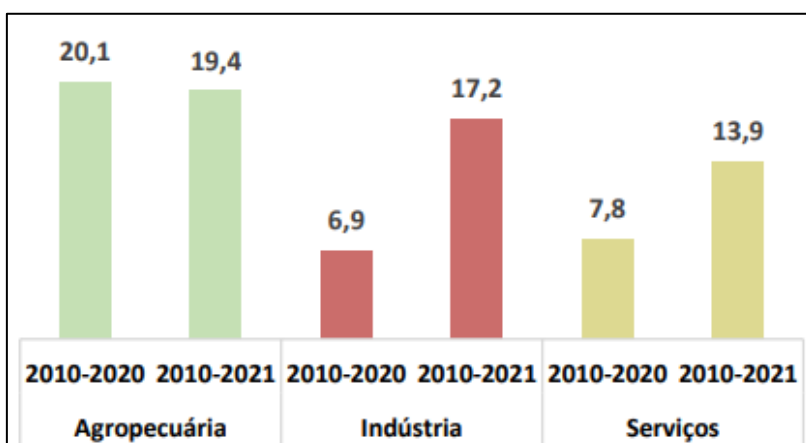
### 117 - Real Sector Growth (%)



Source: IBGE/SEPLAG-PB.

In the 2010-2021 period, Agriculture continued to have the highest accumulated variation (19.4%) among the three sectors, despite the drop in the rate compared to the previous period. Next, Industry and Services accumulated 17.2% and 13.9% growth, with an expansion of 10.3 p.p. and 6.1 p.p., respectively, compared to the previous period (2010-2020) (PARAÍBA, 2023a).

### 118 - Accumulated Real Growth of Sectors (%) (Base 2010=100)



Source: IBGE/SEPLAG-PB.

If we analyse by Rural Territory, we can see that, in 2021, the highest GDPs were recorded in the Mata Sul RT and the Borborema RT, with R\$36.4 billion and R\$16.0 billion, respectively, while the Serra do Teixeira RT (R\$819 million) and the Vale do Maringá RT (R\$936 million) had the lowest values in the same year.

It is worth noting that 61% of the Gross Domestic Product of the Mata Sul RT is represented by João Pessoa, which with R\$22.2 billion is also the municipality with the highest GDP in the state, followed by Campina Grande, Alhandra and Cabedelo, with R\$10.3, R\$3.3 and R\$3.1 billion, respectively. In 2021, the municipalities of Parari, Coxixola and Areia de Baraúnas had the lowest GDPs in Paraíba, with R\$21.4, R\$24.0 and R\$26.0 million, respectively.

However, the Mata Sul RT and the Brejo RT recorded the highest GDP *per capita* among the state's rural territories in 2021, with R\$27,297.95 and R\$19,622.89, respectively, while the Serra do Teixeira RT (R\$10,500.60) and the Curimataú RT (R\$10,918.18) had the lowest figures in the same year.

It's important to note that many the state's municipalities are heavily dependent on public administration in the local economy, reflected in the high share of public administration in their respective GDPs, reaching more than half in 2021 in the Curimataú RT (54.72%) and Serra do Teixeira RT (54.33%). The lowest percentages were recorded in that same year in the Mata Sul RT and the Brejo RT, with 19.44% and 28.38%, respectively.

The following tables show the Total GDP, the sectoral GDP and the percentage share of each of the rural territories in the state of Paraíba in 2021.

**Table 90 - Total GDP, Sector and Percentage Share of the Alto Sertão RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 2.522.302.000,00	-
<b>Agriculture</b>	R\$ 127.253.000,00	5,05%
<b>Industry</b>	R\$ 176.423.000,00	6,99%
<b>Services**</b>	R\$ 986.318.000,00	39,10%
<b>Public Administration</b>	R\$ 994.404.000,00	39,42%
<b>Taxes</b>	R\$ 237.907.000,00	9,43%
<b>GDP per capita</b>	R\$ 14.565,05	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 91 - Total GDP, Sector and Percentage Share of TR Borborema (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 16.011.293.000,00	-
<b>Agriculture</b>	R\$ 818.780.000,00	5,11%
<b>Industry</b>	R\$ 2.443.630.000,00	15,26%
<b>Services**</b>	R\$ 6.199.506.000,00	38,72%
<b>Public Administration</b>	R\$ 4.654.901.000,00	29,07%
<b>Taxes</b>	R\$ 1.894.480.000,00	11,83%
<b>GDP per capita</b>	R\$ 18.279,46	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 92 - Total GDP, Sector and Percentage Share of Brejo RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 2.598.993.000,00	-
<b>Agriculture</b>	R\$ 143.822.000,00	5,53%
<b>Industry</b>	R\$ 255.919.000,00	9,85%
<b>Services**</b>	R\$ 1.133.387.000,00	43,61%
<b>Public Administration</b>	R\$ 737.478.000,00	28,38%
<b>Taxes</b>	R\$ 328.389.000,00	12,64%
<b>GDP per capita</b>	R\$ 19.622,89	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 93 - Total GDP, Sector and Percentage Share of TR Cariri (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.605.556.000,00	-
<b>Agriculture</b>	R\$ 127.905.000,00	7,97%
<b>Industry</b>	R\$ 81.279.000,00	5,06%
<b>Services**</b>	R\$ 619.053.000,00	38,56%
<b>Public Administration</b>	R\$ 692.752.000,00	43,15%
<b>Taxes</b>	R\$ 84.569.000,00	5,27%
<b>GDP per capita</b>	R\$ 14.096,07	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 94 - Total GDP, Sector and Percentage Share of TR Curimataú (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.098.609.000,00	-
<b>Agriculture</b>	R\$ 81.570.000,00	7,42%
<b>Industry</b>	R\$ 50.692.000,00	4,61%
<b>Services**</b>	R\$ 304.222.000,00	27,69%
<b>Public Administration</b>	R\$ 601.189.000,00	54,72%
<b>Taxes</b>	R\$ 60.937.000,00	5,55%
<b>GDP per capita</b>	R\$ 10.918,18	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 95 - Total GDP, Sector and Percentage Share of the Northern Forest RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 2.288.593.000,00	-
<b>Agriculture</b>	R\$ 289.095.000,00	12,63%
<b>Industry</b>	R\$ 287.325.000,00	12,55%
<b>Services**</b>	R\$ 626.470.000,00	27,37%
<b>Public Administration</b>	R\$ 926.966.000,00	40,50%
<b>Taxes</b>	R\$ 158.737.000,00	6,94%
<b>GDP per capita</b>	R\$ 14.253,29	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 96 - Total GDP, Sector and Percentage Share of TR Mata Sul (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 36.465.396.000,00	-
<b>Agriculture</b>	R\$ 421.879.000,00	1,16%
<b>Industry</b>	R\$ 5.311.545.000,00	14,57%
<b>Services**</b>	R\$ 17.871.319.000,00	49,01%
<b>Public Administration</b>	R\$ 7.087.929.000,00	19,44%
<b>Taxes</b>	R\$ 5.772.724.000,00	15,83%
<b>GDP per capita</b>	R\$ 27.297,95	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 97 - Total GDP, Sector and Percentage Share of the Middle Piranhas RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.646.939.000,00	-
<b>Agriculture</b>	R\$ 75.851.000,00	4,61%
<b>Industry</b>	R\$ 134.555.000,00	8,17%
<b>Services**</b>	R\$ 603.747.000,00	36,66%
<b>Public Administration</b>	R\$ 678.718.000,00	41,21%
<b>Taxes</b>	R\$ 154.072.000,00	9,36%
<b>GDP per capita</b>	R\$ 14.519,30	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 98 - Total GDP, Sector and Percentage Share of the Middle Hinterland RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 3.589.594.000,00	-
<b>Agriculture</b>	R\$ 142.434.000,00	3,97%
<b>Industry</b>	R\$ 482.160.000,00	13,43%
<b>Services**</b>	R\$ 1.385.477.000,00	38,60%
<b>Public Administration</b>	R\$ 1.257.616.000,00	35,04%
<b>Taxes</b>	R\$ 321.909.000,00	8,97%
<b>GDP per capita</b>	R\$ 16.521,96	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 99 - Total GDP, Sector and Percentage of Participation of the TR Piemont da Borborema (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.973.154.000,00	-
<b>Agriculture</b>	R\$ 225.470.000,00	11,43%
<b>Industry</b>	R\$ 102.617.000,00	5,20%
<b>Services**</b>	R\$ 545.554.000,00	27,65%
<b>Public Administration</b>	R\$ 978.306.000,00	49,58%
<b>Taxes</b>	R\$ 121.207.000,00	6,14%
<b>GDP per capita</b>	R\$ 11.651,48	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 100 - Total GDP, Sector and Percentage Share of the Serra do Teixeira RT (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 819.320.000,00	-
<b>Agriculture</b>	R\$ 93.897.000,00	11,46%
<b>Industry</b>	R\$ 38.203.000,00	4,66%
<b>Services**</b>	R\$ 201.744.000,00	24,62%
<b>Public Administration</b>	R\$ 445.130.000,00	54,33%
<b>Taxes</b>	R\$ 40.346.000,00	4,92%
<b>GDP per capita</b>	R\$ 10.500,60	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.



\*\* Exclusive of Public Administration.

**Table 101 - Total GDP, Sector and Percentage Share of TR Vale de Piancó (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.723.390.000,00	-
<b>Agriculture</b>	R\$ 149.067.000,00	8,65%
<b>Industry</b>	R\$ 172.677.000,00	10,02%
<b>Services**</b>	R\$ 476.869.000,00	27,67%
<b>Public Administration</b>	R\$ 822.025.000,00	47,70%
<b>Taxes</b>	R\$ 102.750.000,00	5,96%
<b>GDP per capita</b>	R\$ 12.156,07	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 102 - Total GDP, Sector and Percentage Share of the Maringá Valley TR (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 936.283.000,00	-
<b>Agriculture</b>	R\$ 81.811.000,00	8,74%
<b>Industry</b>	R\$ 84.728.000,00	9,05%
<b>Services**</b>	R\$ 300.469.000,00	32,09%
<b>Public Administration</b>	R\$ 408.365.000,00	43,62%
<b>Taxes</b>	R\$ 60.911.000,00	6,51%
<b>GDP per capita</b>	R\$ 13.673,16	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 103 - Total GDP, Sector and Percentage Share of TR Paraíba Valley (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 2.363.873.000,00	-
<b>Agriculture</b>	R\$ 316.694.000,00	13,40%
<b>Industry</b>	R\$ 270.444.000,00	11,44%
<b>Services**</b>	R\$ 587.024.000,00	24,83%
<b>Public Administration</b>	R\$ 1.037.972.000,00	43,91%
<b>Taxes</b>	R\$ 151.744.000,00	6,42%
<b>GDP per capita</b>	R\$ 13.092,48	-

Source: IBGE, Gross Domestic Product of Municipalities, 2021.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

**Table 104 - Total GDP, Sector and Percentage Share of the Piranhas Valley TR (2021)**

Sector	2021	Total GDP Share
<b>Total GDP</b>	R\$ 1.827.034.000,00	-
<b>Agriculture</b>	R\$ 94.944.000,00	5,20%
<b>Industry</b>	R\$ 179.363.000,00	9,82%
<b>Services**</b>	R\$ 735.279.000,00	40,24%
<b>Public Administration</b>	R\$ 604.149.000,00	33,07%
<b>Taxes</b>	R\$ 213.296.000,00	11,67%
<b>GDP per capita</b>	R\$ 16.116,67	-

Source: IBGE, *Gross Domestic Product of Municipalities, 2021*.

\* TGCA - Geometric Annual Growth Rate.

\*\* Exclusive of Public Administration.

### Job market

Jobs in the state of Paraíba are basically concentrated in the tertiary sector (services), which generates 581,751 jobs in the municipalities (2022), equivalent to 80.01% of jobs. It's important to note that 43.24% of jobs in this sector are concentrated in public administration, with 35.98% of the workforce in services and 20.78% in commerce.

The secondary and primary sectors only employ a small proportion of Paraíba's residents, accounting for 17.67% and 2.32%, respectively, of the total opportunities generated.

In total, there are 727,103 formal jobs in 55,532 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the state of Paraíba for the year 2022, highlighting this situation.

**Table 105 - Jobs by Sector in the State of Paraíba (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
1.434	80.248	7.433	40.781	120.876	209.301	251.574	15.456	727.103

Source: Ministry of Labor - RAIS 2022.

**Table 106 - Companies by Sector in the State of Paraíba (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
131	4.261	168	5.118	22.405	21.562	592	1.295	55.532

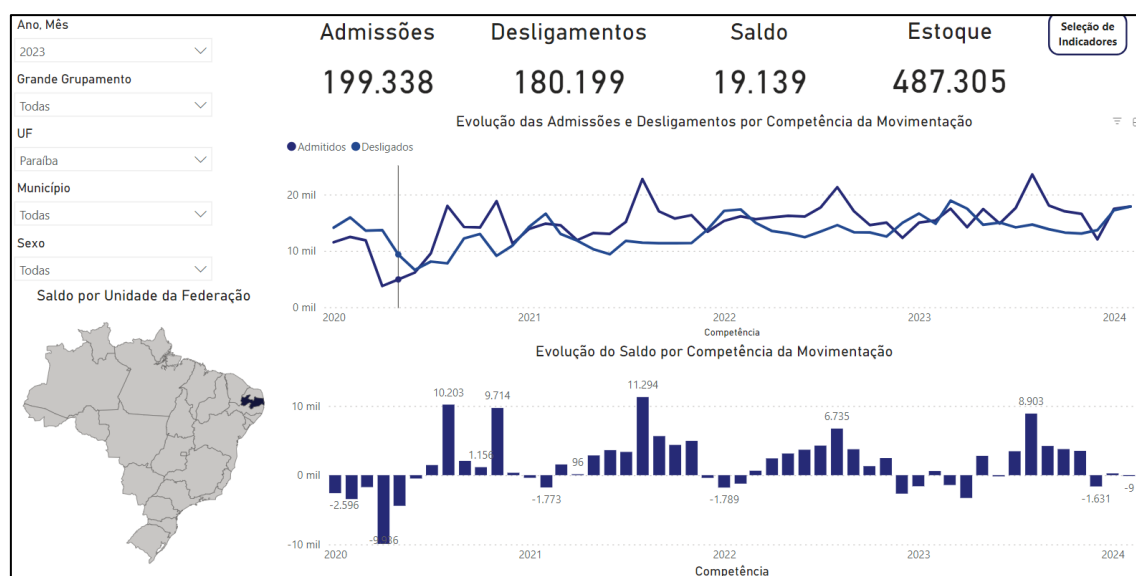
Source: Ministry of Labor - RAIS 2022.

As for the stock of formal jobs in 2023, Paraíba closed the year with a stock of 487,305 formal jobs (positions with a formal contract) and a balance of 19,139, according to data from the Ministry of Economy's Special Secretariat for Social Security and Labor, based on the New General Register of Employed and Unemployed (New Caged). In the twelve months of last year, the state created 199,338 jobs against 180,199 redundancies, an increase of 8.21% in the stock of formal jobs compared to the previous year, which totaled 450,314 (Stock of 2022).

It is worth noting that Paraíba's stock of formal jobs represents 6.40% of the northeast region's stock, which is 7,616,434, with growth in 2023 compared to 2022 of 8.67%.

The following figures show the above data.

**119 119 - Stock of Formal Jobs in Paraíba (2023)**



Source: <http://pdet.mte.gov.br/novo-caged>.

## 120 120 - Stock and Balance of Formal Jobs, by area, in Paraíba and the Northeast, respectively (2023)

Grande Grupamento	Admitidos	Desligados	Saldo	Estoque	Vr. Relativa
☐ Agropecuária	6.890	6.744	146	15.369	0,96%
☐ Indústria	26.062	28.307	-2.245	84.118	-2,60%
☐ Construção	34.841	29.629	5.212	46.883	12,51%
☐ Comércio	50.814	44.869	5.945	124.000	5,04%
☐ Serviços	80.730	70.646	10.084	216.935	4,88%
☐ Não Identificado	1	4	-3	0	
<b>Total</b>	<b>199.338</b>	<b>180.199</b>	<b>19.139</b>	<b>487.305</b>	<b>4,09%</b>

Grande Grupamento	Admitidos	Desligados	Saldo	Estoque	Vr. Relativa
☐ Agropecuária	188.699	176.828	11.871	318.806	3,87%
☐ Indústria	425.939	406.365	19.574	1.201.784	1,66%
☐ Construção	421.279	393.920	27.359	524.155	5,51%
☐ Comércio	755.336	685.918	69.418	1.811.410	3,98%
☐ Serviços	1.359.257	1.191.513	167.744	3.760.279	4,67%
☐ Não Identificado	29	19	10	0	
<b>Total</b>	<b>3.150.539</b>	<b>2.854.563</b>	<b>295.976</b>	<b>7.616.434</b>	<b>4,04%</b>

Source: <http://pdet.mte.gov.br/novo-caged>.

The unemployment rate in Paraíba in the last quarter of 2023 was 9.6%, higher than the national average (7.4%), but slightly lower than the average for the Northeast Region (10.4%), which is the highest among the country's regions, according to the National Continuous Household Sample Survey (PNADC) Quarterly.

Also noteworthy is the informality rate for Paraíba, which stood at 50.8% of the employed population in 2023, practically the same proportion as the previous year (50.9%). Nationally and in the Northeast, the informality rate increased in the 2021-2022 period, from 38.8% and 51.4% to 39.1% and 51.7%, respectively.

### **RT Alto Sertão**

Jobs in TR Alto Sertão are basically concentrated in the tertiary sector, which generates 15,074 jobs in the municipalities (2022), equivalent to 84.16% of jobs. It is important to note that of this sector, 50.67% of jobs are concentrated in public administration, while 27.55% of the workforce is allocated to commerce and 21.78% to services.

The secondary and primary sectors only employ a small proportion of TR residents, accounting for 15.35% and 0.49% respectively of the total opportunities generated.

In total, there are 17,911 formal jobs in 1,892 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the Alto Sertão RT for the year 2022, highlighting this situation.

**Table 107 - Jobs by Sector in TR Alto Sertão (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
16	954	147	1.649	4.153	3.283	7.638	71	17.911

Source: Ministry of Labor - RAIS 2022.

**Table 108 - Companies by Sector in the Alto Sertão RT (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
1	126	7	139	958	579	40	42	1.892

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Alto Sertão municipalities were in Santa Helena and Bom Jesus, with 13.68% and 12.85% respectively, while Carrapateira (1.91%) and Joca Claudino (2.27%) had the lowest percentages in the same year.

### **RT Borborema**

Jobs in RT Borborema are basically concentrated in the tertiary sector, which generates 125,538 jobs in the municipalities (2022), equivalent to 79.88% of jobs. It's important to note that 46.44% of jobs in this sector are concentrated in services, with 31.06% of the workforce in public administration and 22.50% in commerce.

The secondary sector, the second largest contributor to hiring labor, has a share of 18.91%, while the primary sector only accounts for 1.20% of jobs in the TR.

In total, there are 157,157 formal jobs in 12,195 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in TR Borborema for the year 2022, highlighting this situation.

**Table 109 - Jobs by Sector in TR Borborema (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
351	22.188	1.134	6.404	28.249	58.295	38.994	1.542	157.157

Source: Ministry of Labor - RAIS 2022.

**Table 110 - Companies by Sector in TR Borborema (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
37	1.225	38	878	5.245	4.445	86	241	12.195

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Borborema municipalities were in Olivedos and Campina Grande, with 10.72% and 10.70%, respectively, while Barra de São Miguel (0.80%) and Santa Cecília (1.45%) had the lowest percentages in the same year.

### **RT Brejo**

Jobs in the Brejo RT are basically concentrated in the tertiary sector, which generates 11,747 jobs in the municipalities (2022), equivalent to 69.80% of jobs. It's important to note that more than half (52.54%) of the jobs in this sector are in public administration, with 26.27% of the workforce in commerce and 21.19% in services.

The secondary sector, the second largest contributor to hiring labor, has a 23.86% share, while the primary sector only accounts for 6.34% of jobs in the TR.

In total, there are 16,829 formal jobs in 1,580 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in TR Brejo for the year 2022, highlighting this situation.

**Table 111 - Jobs by Sector in TR Brejo (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
4	3.368	216	431	3.086	2.489	6.172	1.063	16.829

Source: Ministry of Labor - RAIS 2022.

**Table 112 - Companies by Sector in TR Brejo (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
3	133	5	123	736	471	26	83	1.580

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Brejo municipalities were in Cuitegi and Mulungu, with 14.19% and 12.66% respectively, while Riachão (3.48%) and Pilõezinhos (3.71%) had the lowest percentages in the same year.

### **RT Cariri**

Jobs in RT Cariri are basically concentrated in the tertiary sector, which generates 9,944 jobs in the municipalities (2022), equivalent to 93.94% of jobs. It is important to note that in this sector, more than half (67.82%) of the jobs are concentrated in public administration, while 17.14% of the workforce is allocated to commerce and 15.04% to services.

The secondary and primary sectors only employ a small proportion of TR residents, accounting for 5.12% and 0.94% respectively of the total opportunities generated.

In total, there are 10,585 formal jobs in 875 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in RT Cariri for the year 2022, highlighting this situation.

**Table 113 - Jobs by Sector in TR Cariri (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
38	225	66	251	1.704	1.496	6.744	61	10.585

Source: Ministry of Labor - RAIS 2022.

**Table 114 - Companies by Sector in TR Cariri (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
3	48	4	53	458	233	46	30	875

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Cariri municipalities were in Amparo and Sumé, with 9.83% and 8.03%, respectively, while São João do Tigre (2.21%) and Caraúbas (2.52%) had the lowest percentages in the same year.

### **RT Curimataú**

Jobs in RT Curimataú are basically concentrated in the tertiary sector, which generates 7,166 jobs in the municipalities (2022), equivalent to 90.96% of jobs. It is important to note that in this sector, a large part of the jobs (78.22%) are concentrated in public administration, with 13.84% of the workforce also allocated to commerce and 7.94% to services.

The secondary and primary sectors only employ a small proportion of TR residents, accounting for 5.46% and 3.58% respectively of the total opportunities generated.

In total, there are 7,878 formal jobs in 667 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in TR Curimataú for the year 2022, highlighting this situation.



**Table 115 - Jobs by Sector in RT Curimataú (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
224	245	37	148	992	569	5.605	58	7.878

Source: Ministry of Labor - RAIS 2022.

**Table 116 - Companies by Sector in TR Curimataú (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
14	34	3	35	390	156	28	7	667

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities of TR Curimataú were in Cubati and Baraúna, with 9.54%% and 6.83%, respectively, while Nova Palmeira (1.74%) and Sossêgo (2.02%) had the lowest percentages in the same year.

### **RT Mata Norte**

Jobs in RT Mata Norte are basically concentrated in the tertiary sector, which generates 12,223 jobs in the municipalities (2022), equivalent to 58.71% of jobs. It is important to note that in this sector, a large part of the jobs (67.39%) are concentrated in public administration, with 19.80% of the workforce in commerce and 12.81% in services.

The primary sector, the second largest contributor to hiring labor, has a share of 21.66%, while the secondary sector also employs a significant proportion (19.64%) of residents in the TR.

In total, there are 20,821 formal jobs in 1,304 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in TR Mata Norte for the year 2022, highlighting this situation.

**Table 117 - Jobs by Sector in RT Mata Norte (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
30	3.820	43	226	2.420	1.566	8.237	4.479	20.821

Source: Ministry of Labor - RAIS 2022.

**Table 118 - Companies by Sector in TR Mata Norte (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
2	74	3	53	620	363	38	151	1.304

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities of TR Mata Norte were in Capim and Cuité de Mamanguape, with 21.23% and 14.57%, respectively, while Curral de Cima (4.04%) and Marcação (4.64%) had the lowest percentages in the same year.

### **RT Mata Sul**

Jobs in RT Mata Sul are basically concentrated in the tertiary sector, which generates 316,544 jobs in the municipalities (2022), equivalent to 80.74% of jobs. It is important to note that of this sector, 40.54% of jobs are concentrated in public administration, while 39.57% of the workforce is allocated to services and 19.89% to commerce.

The secondary sector, the second largest contributor to hiring labor, has a share of 18.05%, while the primary sector only accounts for 1.21% of jobs in the TR.

In total, there are 392,038 formal jobs in 27,325 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in TR Mata Sul for the year 2022, highlighting this situation.

**Table 119 - Jobs by Sector in RT Mata Sul (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
208	38.333	4.859	27.554	62.968	125.253	128.323	4.540	392.038

Source: Ministry of Labor - RAIS 2022.

**Table 120 - Companies by Sector in RT Mata Sul (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
24	1.789	46	2.977	9.394	12.638	93	364	27.325

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities in RT Mata Sul were in Sapé and Alhandra, with 13.09% and 12.85%, respectively, while Riachão do Poço (4.00%) and Pitimbu (6.64%) had the lowest percentages in the same year.

### **RT Middle Piranhas**

Jobs in the RT Médio Piranhas are basically concentrated in the tertiary sector, which generates 8,686 jobs in the municipalities (2022), equivalent to 80.11% of jobs. It is important to note that in this sector, more than half (57.07%) of the jobs are concentrated in public administration, while 24.55% of the workforce is allocated to services and 18.39% to commerce.

The secondary sector, the second largest contributor to hiring labor, has a 19.65% share, while the primary sector only accounts for 0.24% of jobs in the RT.

In total, there are 10,842 formal jobs in 1,072 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the RT Médio Piranhas for the year 2022, highlighting this situation.

**Table 121 - Jobs by Sector in RT Médio Piranhas (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
-	1.692	186	252	1.597	2.132	4.957	26	10.842

Source: Ministry of Labor - RAIS 2022.

**Table 122 - Companies by Sector in the Middle Piranhas RT (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
-	151	9	76	541	259	20	16	1.072

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Médio Piranhas municipalities were in Brejo dos Santos and São José do Brejo do Cruz, with 19.79% and 16.06% respectively, while São Bento (2.65%) and Bom Sucesso (4.46%) had the lowest percentages in the same year.

### **RT Middle Hinterland**

Jobs in the Médio Sertão are basically concentrated in the tertiary sector, which generates 21,639 jobs in the municipalities (2022), equivalent to 82.12% of jobs. It is important to note that 46.79% of jobs in this sector are concentrated in public administration, while 27.06% of the workforce is in commerce and 26.15% in services.

The secondary sector, the second largest contributor to hiring labor, has a share of 15.66%, while the primary sector only accounts for 2.22% of jobs in the TR.

In total, there are 26,352 formal jobs in 2,862 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the TR Médio Sertão for the year 2022, highlighting this situation.

**Table 123 - Jobs by Sector in RT Médio Sertão (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
248	1.941	289	1.898	5.856	5.659	10.124	337	26.352

Source: Ministry of Labor - RAIS 2022.

**Table 124 - Companies by Sector in RT Médio Sertão (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
24	216	11	426	1.244	858	46	37	2.862

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Médio Sertão municipalities were in Quixaba and Catingueira, with 13.33% and 10.80%, respectively, while São José de Espinharas (2.56%) and São José do Sabugi (2.75%) had the lowest percentages in the same year.

### **RT Piemont da Borborema**

Jobs in the RT Piemont da Borborema are basically concentrated in the tertiary sector, which generates 10,807 jobs in the municipalities (2022), equivalent to 87.46% of jobs. It is important to note that in this sector, most of the jobs (68.46%) are concentrated in public administration, while 16.31% of the workforce is allocated to commerce and 15.22% to services.

The secondary sector, the second largest contributor to hiring labor, has a share of 11.10%, while the primary sector only accounts for 1.44% of jobs in the TR.

In total, there are 12,357 formal jobs in 1,041 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the RT Piemont da Borborema for the year 2022, highlighting this situation.

**Table 125 - Jobs by Sector in RT Piemont da Borborema (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
79	782	57	533	1.763	1.645	7.399	99	12.357

Source: Ministry of Labor - RAIS 2022.

**Table 126 - Companies by Sector in RT Piemont da Borborema (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
3	60	8	75	528	282	39	46	1.041

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities of the TR Piemont da Borborema were in Tacima and Belém, with 9.81% and 8.20%, respectively, while Casserengue (2.75%) and Damião (3.59%) had the lowest percentages in the same year.

### **RT Serra do Teixeira**

Jobs in the Serra do Teixeira RT are basically concentrated in the tertiary sector, which generates 4,073 jobs in the municipalities (2022), equivalent to 89.52% of jobs. It is important to note that in this sector, a large part of the jobs (76.92%) are concentrated in public administration, while 15.42% of the workforce is allocated to commerce and 7.66% to services.

The primary sector, the second largest contributor to hiring labor, has a share of 7.80%, while the secondary sector only accounts for 2.68% of jobs in the TR.

In total, there are 4,550 formal jobs in 457 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the Serra do Teixeira RT for the year 2022, highlighting this situation.

**Table 127 - Jobs by Sector in the Serra do Teixeira RT (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
-	34	26	62	628	312	3.133	355	4.550

Source: Ministry of Labor - RAIS 2022.

**Table 128 - Companies by Sector in the Serra do Teixeira RT (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
-	34	3	30	263	115	18	4	457

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the TR Serra do Teixeira municipalities were in Princesa Isabel and Tavares, with 6.51% and 6.44%, respectively, while Manaíra (3.61%) and Imaculada (3.65%) had the lowest percentages in the same year.

### **RT Vale de Piancó**

Jobs in the RT Vale de Piancó are basically concentrated in the tertiary sector, which generates 9,587 jobs in the municipalities (2022), equivalent to 87.77% of jobs. It's important to note that in this sector, most jobs (75.80%) are concentrated in public administration, with 13.23% of the workforce in commerce and 10.97% in services.

The secondary sector, the second largest contributor to hiring labor, has a share of 12.03%, while the primary sector only accounts for 0.20% of jobs in the RT.

In total, there are 10,923 formal jobs in 889 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the Vale de Piancó RT for the year 2022, highlighting this situation.

**Table 129 - Jobs by Sector in RT Vale de Piancó (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
7	951	56	307	1.268	1.052	7.267	15	10.923

Source: Ministry of Labor - RAIS 2022.

**Table 130 - Companies by Sector in RT Vale de Piancó (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
1	76	10	53	437	259	39	14	889

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities in the TR Vale de Piancó were in Pedra Branca and Santa Inês, with 19.14% and 13.82% respectively, while São José de Caiana (3.35%) and Aguiar (4.24%) had the lowest percentages in the same year.

### **RT Maringá Valley**

Jobs in the RT Vale do Maringá are basically concentrated in the tertiary sector, which generates 4,865 jobs in the municipalities (2022), equivalent to 89.09% of jobs. It is important to note that in this sector, most of the jobs (72.54%) are concentrated in public administration, with 15.07% of the workforce in commerce and 12.39% in services.

The secondary sector, the second largest contributor to hiring labor, has a share of 10.20%, while the primary sector only accounts for 0.71% of jobs in the RT.

In total, there are 5,461 formal jobs in 567 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the Maringá Valley RT for the year 2022, highlighting this situation.



**Table 131 - Jobs by Sector in RT Vale do Maringá (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
18	417	25	115	733	603	3.529	21	5.461

Source: Ministry of Labor - RAIS 2022.

**Table 132 - Companies by Sector in RT Vale do Maringá (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
3	73	3	31	279	151	19	8	567

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the RT Vale do Maringá municipalities were in Pombal and Condado, with 7.47%% and 7.38%, respectively, while Cajazeirinhas (1.62%) and Paulista (3.80%) had the lowest percentages in the same year.

### **TR Paraíba Valley**

Jobs in the TR Vale do Paraíba are basically concentrated in the tertiary sector, which generates 13,024 jobs in the municipalities (2022), equivalent to 68.99% of jobs. It's important to note that in this sector, most jobs (70.67%) are concentrated in public administration, with 15.37% of the workforce in commerce and 13.96% in services.

The secondary sector, the second largest contributor to hiring labor, has a share of 20.97%, while the primary sector also employs a significant proportion (15.34%) of residents in the RT.

In total, there are 18,879 formal jobs in 1,311 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the RT Vale do Paraíba for the year 2022, highlighting this situation.

**Table 133 - Jobs by Sector in RT Vale do Paraíba (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
159	3.216	66	677	2.002	1.818	9.204	2.737	18.879

Source: Ministry of Labor - RAIS 2022.

**Table 134 - Companies by Sector in RT Vale do Paraíba (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
15	82	8	61	576	311	31	227	1.311

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities of the TR Vale do Paraíba were in Mogeiro and Pedras de Fogo, with 11.04% and 10.09%, respectively, while São Miguel de Taipu (2.97%) and São José dos Ramos (4.46%) had the lowest percentages in the same year.

### **RT Piranhas Valley**

Jobs in the TR Vale do Piranhas are basically concentrated in the tertiary sector, which generates 10,834 jobs in the municipalities (2022), equivalent to 80.13% of jobs. It is important to note that of this sector, 39.21% of jobs are concentrated in public administration, while 31.91% of the workforce is allocated to commerce and 28.88% to services.

The secondary sector, the second largest contributor to hiring labor, has a share of 19.10%, while the primary sector only accounts for 0.77% of jobs in the TR.

In total, there are 13,520 formal jobs in 1,471 establishments.

The following tables present data from the Ministry of Labor and Employment, with information on formal employment and the number of establishments in the TR Vale do Piranhas for the year 2022, highlighting this situation.

**Table 135 - Jobs by Sector in RT Vale do Piranhas (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
52	2.082	226	274	3.457	3.129	4.248	52	13.520

Source: Ministry of Labor - RAIS 2022.

**Table 136 - Companies by Sector in RT Vale do Piranhas (2022)**

Mineral extraction	Manufacturing industry	Public utility industrial services	Construction	Trade	Services	Public Administration	Agriculture, plant extraction, hunting and fishing	Total
1	149	10	106	724	437	21	23	1.471

Source: Ministry of Labor - RAIS 2022.

In 2010, according to data from the IBGE Demographic Census, the highest unemployment rates among the municipalities of the TR Vale do Piranhas were in Lastro and Sousa, with 20.74% and 9.65%, respectively, while Santa Cruz (3.95%) and São Francisco (4.75%) had the lowest percentages in the same year.

### Agricultural Activities

According to 2017 data from the IBGE's Agricultural Census, in the year of the survey there were 163,218 agricultural establishments in the state of Paraíba, of which 125,489 were family farms, representing 77% of the total.

Data from the 2017 Agricultural Census shows that family farming in Brazil covers an area of 80.9 million hectares, equivalent to 23% of all agricultural establishments in the country. The survey of more than 5 million rural properties showed that 77% of agricultural establishments are classified as family farms. In addition, family farming employed more than 10 million people in September 2017, accounting for 67% of all jobs in agriculture and accounting for 40% of the income of the economically active population (EMBRAPA, 2024).

The sector stands out as a food producer, especially for its production of corn, cassava, dairy cattle, beef cattle, sheep, goats, vegetables, beans, sugar cane, rice, pigs, poultry, coffee, wheat, castor beans, fruit and vegetable crops. In permanent crops, the segment accounts for 48% of the value of coffee and banana production; in temporary crops, 80% of the value of cassava production, 69% of pineapple and 42% of bean production, among others. The Agricultural Census highlights that family farming is the economic base of 90% of Brazilian municipalities with up to 20,000 inhabitants (EMBRAPA, 2024).

The National Policy on Family Farming and Rural Family Enterprises (Law No. 11.326, of July 24, 2006), known as the Family Farming Law, defines family farmers and rural family entrepreneurs as those who carry out activities in rural areas while meeting the following requirements: i) they do not own, in any capacity, an area larger than 4 fiscal modules; ii) they predominantly use their own family's labor force in the economic activities of their establishment or enterprise; iii) their family income predominantly comes from economic activities linked to their own establishment or enterprise; iv) they run their establishment or enterprise with their family. Small rural producers, traditional peoples and communities, agrarian reform settlers, foresters, aquaculturists, extractivists and fishermen are considered family farmers (EMBRAPA, 2024).

Most of the agricultural establishments in Paraíba's Rural Territories are family farms, according to data from the 2017 Agricultural Census, with the Serra do Teixeira and Piemont da Borborema RTs standing out with 85% and 83% family farmers respectively, and the Alto Sertão and Vale do Piranhas RTs with 82% each. The Borborema RT (72%) has the lowest percentage of agricultural establishments dedicated to family farming, as can be seen in the table below.

**Table 137 - Agricultural Establishments in Paraíba by Rural Territory**

Rural Territory	Family farming - no	Family farming - yes	Total	% of family farmers
Alto Sertão	1.835	8.148	9.983	82%
Borborema	11.561	30.137	41.698	72%
Brejo	1.906	5.425	7.331	74%
Cariri	2.785	8.173	10.958	75%
Curimataú	2.163	6.942	9.105	76%
North Mata	1.920	6.283	8.203	77%
Mata Sul	2.465	7.450	9.915	75%
Middle Piranhas	756	2.809	3.565	79%
Middle Hinterland	1.933	6.680	8.613	78%
Piemont da Borborema	2.195	11.018	13.213	83%
Serra do Teixeira	1.182	6.451	7.633	85%
Piancó Valley	2.473	9.378	11.851	79%
Maringá Valley	1.019	2.937	3.956	74%
Paraíba Valley	2.557	9.200	11.757	78%
Piranhas Valley	979	4.458	5.437	82%
<b>State of Paraíba</b>	<b>37.729</b>	<b>125.489</b>	<b>163.218</b>	<b>77%</b>

Source: Agricultural Census/IBGE, 2017. Prepared by: DIEESE.

Of the 125,489 family farming establishments in Paraíba, 90,000 were dedicated to animal production in 2017, which represents 72%, and 104,849 (84%) to plant production, according to data from the Agricultural Census.

Among Paraíba's Rural Territories, the Médio Piranhas and Vale do Maringá RTs had the highest percentage of establishments dedicated to animal production in 2017, 93%

and 91%, respectively, while the lowest percentages were found in the Mata Sul and Mata Norte RTs, with 39% and 42%, respectively.

With regard to establishments dedicated to plant production, the Mata Sul and Vale do Paraíba RTs had the highest percentage in 2017, 94% each. On the other hand, the Cariri and Vale do Maringá TRs had the lowest percentages, with 46% and 58% respectively, as can be seen in the table below.

**Table 138 - Establishments dedicated to Family Farming by type of production in Paraíba by Rural Territory**

Territories	Establishments dedicated to the production of animal origin	Establishments dedicated to the production of plant origin	Total establishments dedicated to family farming	% animal production	% crop production
Alto Sertão	6.786	7.219	8.148	83%	89%
Borborema	23.142	24.652	30.137	77%	82%
Brejo	3.557	4.683	5.425	66%	86%
Cariri	6.765	3.780	8.173	83%	46%
Curimataú	5.582	5.422	6.942	80%	78%
North Mata	2.668	5.706	6.283	42%	91%
Mata Sul	2.917	7.014	7.450	39%	94%
Middle Piranhas	2.599	2.269	2.809	93%	81%
Middle Hinterland	5.211	5.727	6.680	78%	86%
Piemont da Borborema	7.416	10.238	11.018	67%	93%
Serra do Teixeira	5.021	5.984	6.451	78%	93%
Piancó Valley	8.082	8.101	9.378	86%	86%
Maringá Valley	2.687	1.716	2.937	91%	58%
Paraíba Valley	4.142	8.620	9.200	45%	94%
Piranhas Valley	3.425	3.718	4.458	77%	83%
<b>State of Paraíba</b>	<b>90.000</b>	<b>104.849</b>	<b>125.489</b>	<b>72%</b>	<b>84%</b>

Source: Agricultural Census/IBGE, 2017. Prepared by: DIEESE.

As for the value of agricultural production, according to data from the Agricultural Census, the state of Paraíba reached a total of R\$ 2,250,673.00 thousand in 2017, of which less than half R\$ 1,075,959.00 thousand (48%) came from family farming.

In Paraíba's Rural Territories, the ones with the highest percentage of the value of family farming production are the Alto Sertão and Vale de Piancó RTs, with 76% and 74%, respectively, while the Mata Norte and Mata Sul RTs reach only 23% each.

The following table shows the value of agricultural production in Paraíba by Rural Territory and the percentage of this produced by family farming.

**Table 139 - Value of Agricultural Production in Paraíba by Rural Territory**

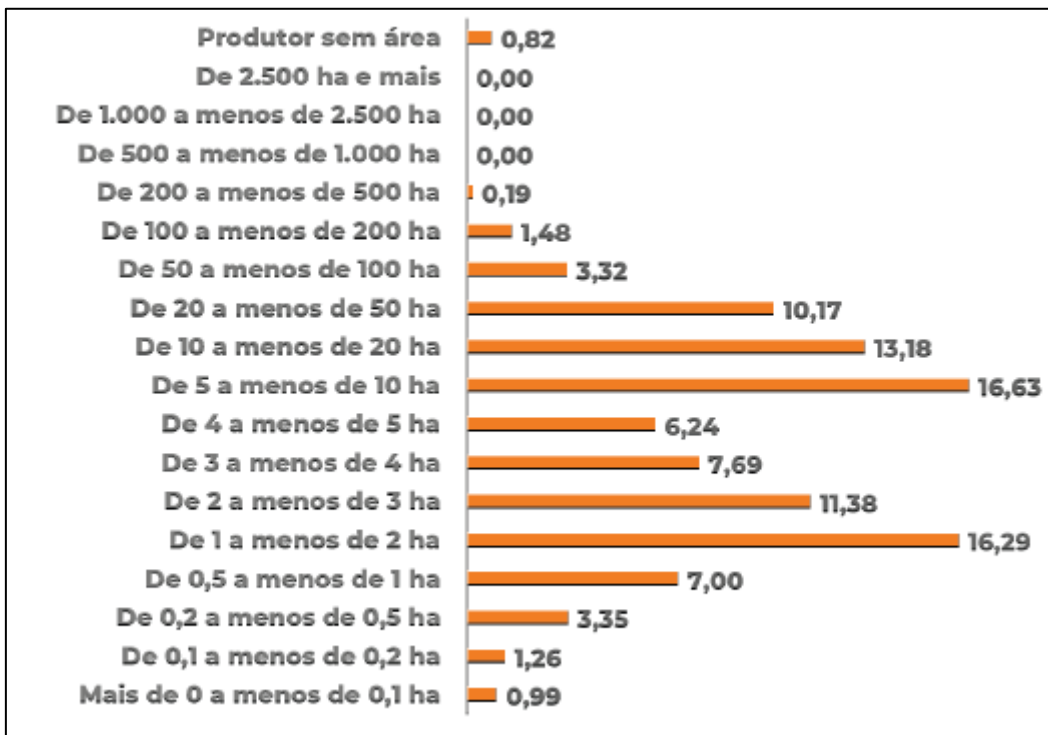
Territories	Value of family farming production (in thousand reais)	Value of non-family farming production (in thousand reais)	Total value of agricultural production (in thousand reais)	% of family farming
Alto Sertão	69.696,00	22.318,00	92.014,00	76%
Borborema	288.470,00	188.037,00	476.507,00	61%
Brejo	55.223,00	56.917,00	112.140,00	49%
Cariri	60.200,00	32.788,00	92.988,00	65%
Curimataú	41.689,00	20.568,00	62.257,00	67%
North Mata	66.842,00	222.717,00	289.559,00	23%
Mata Sul	95.635,00	327.532,00	423.167,00	23%
Middle Piranhas	38.214,00	27.392,00	65.606,00	58%
Middle Hinterland	58.519,00	30.473,00	88.992,00	66%
Piemont da Borborema	67.044,00	29.761,00	96.805,00	69%
Serra do Teixeira	30.914,00	29.155,00	60.069,00	51%
Piancó Valley	75.180,00	26.764,00	101.944,00	74%
Maringá Valley	34.510,00	22.508,00	57.018,00	61%
Paraíba Valley	62.616,00	119.315,00	181.931,00	34%
Piranhas Valley	31.207,00	18.469,00	49.676,00	63%
<b>State of Paraíba</b>	<b>1.075.959,00</b>	<b>1.174.714,00</b>	<b>2.250.673,00</b>	<b>48%</b>

Source: Agricultural Census/IBGE, 2017. Prepared by: DIEESE.

In Paraíba, according to data from the 2017 Agricultural Census, we find a significant concentration of family farming establishments with an area of between 5 and 10 hectares, representing 16.6% of the total. In addition, 16.2% have between 1 and 2 hectares. There is also a significant percentage (13.1%) of establishments with an area of between 10 and 20 hectares.

Another fact that stands out is the presence of a percentage of family farming establishments, albeit small, in larger area groups. A possible explanation for this, according to researcher Antônio Carlos Simões Florido, is related to the presence of establishments whose main economic activity is plant extraction, the extraction process of which is not mechanized. It is therefore plausible that there are family farmers in groups with larger areas, since there is no size limit for these types of establishments (AKSAAM, 2021).

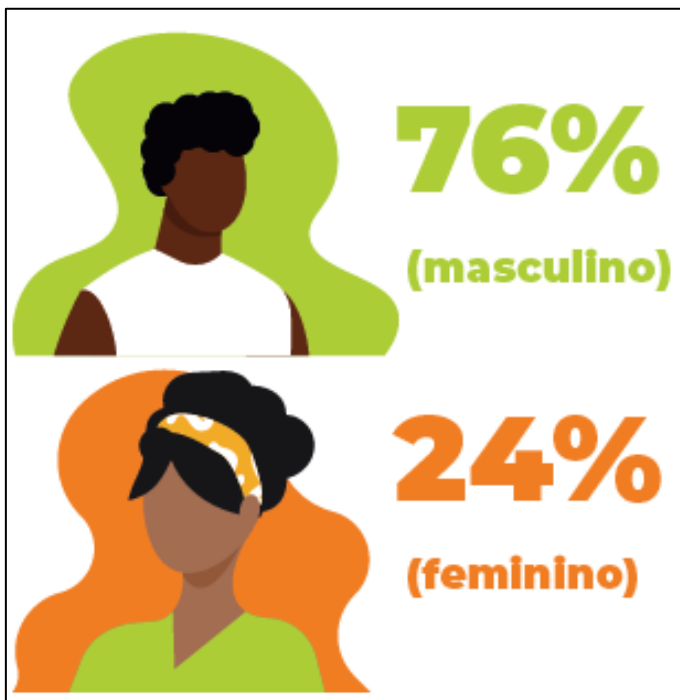
### 121 121 - Percentage of family farming establishments in Paraíba by area group



Source: AKSAAM, 2021.

According to the 2017 Agricultural Census, the majority of managers of establishments classified as family farms are male. In all of Paraíba's mesoregions, this disparity remains (AKSAAM, 2021).

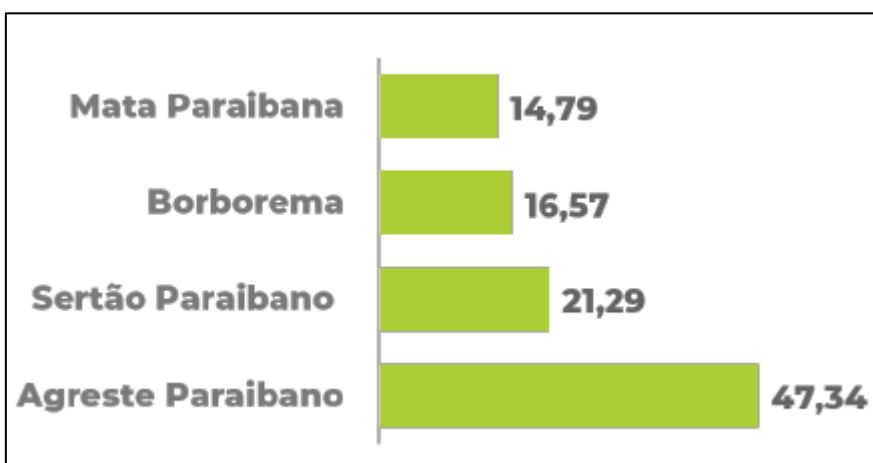
### 122 - Gender of the Responsible Manager



Source: AKSAAM, 2021.

Establishments run by women are concentrated in the Agreste Paraibano and Sertão Paraibano mesoregions, accounting for 68.63%. If we compare the 2006 and 2017 agricultural censuses, we can see that women are increasingly present in the management of establishments, with a decrease in the last census of 8.5% of establishments run by men and an increase of 20.3% of establishments run by women (AKSAAM, 2021).

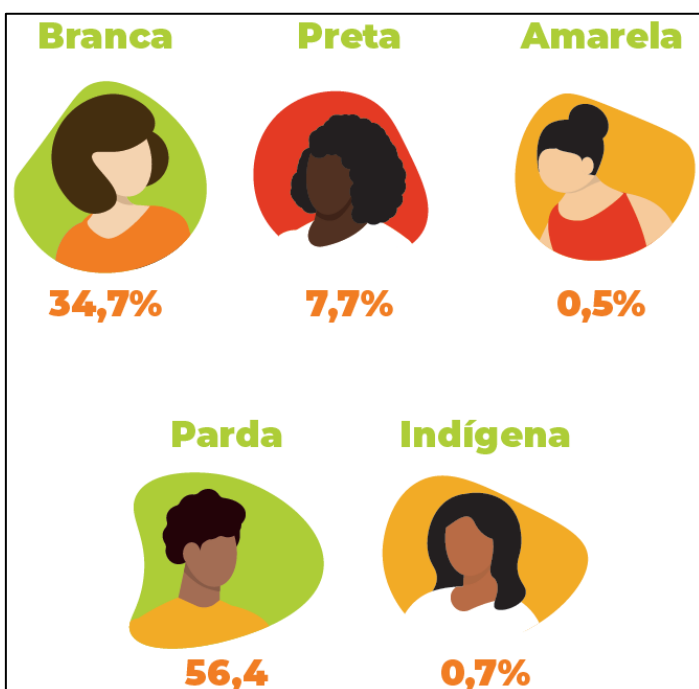
**123 - Percentage of family farming establishments run by women in each mesoregion in relation to the total number of establishments run by women in Paraíba**



Source: AKSAAM, 2021.

According to the 2017 census, slightly more than half of the agricultural establishments owned by family farmers in the state of Paraíba were run by brown farmers, 56.4%, followed by white farmers (34.7%), black farmers (7.7%), indigenous farmers (0.7%) and yellow farmers (0.5%).

**124 124 - Percentage of agricultural establishments owned by family farmers in the state of Paraíba run by the responsible producer according to their color or race**



Source: AKSAAM, 2021.



Data from the 2017 Agricultural Census shows that 59.9% of family farming establishments in Paraíba are run by people aged between 35 and 65, 30.3% by people over 65 and only 9.8% by people under 35 (AKSAAM, 2021).

### 125 125 - Age classes of responsible producers in family farming establishments



Source: AKSAAM, 2021.

A comparative analysis between the 2017 and 2006 censuses shows a significant increase in the number of family farming establishments run by people over 45, while there has been a considerable reduction in those run by people under 35. This trend contrasts with the reality observed in other regions of Brazil, where the presence of young people in the countryside has been decreasing, contributing to the ageing of the rural population (AKSAAM, 2021).

It is therefore clear that family farming faces major challenges in terms of its sustainability and strengthening. It is essential to expand the policies already in place to encourage family succession planning and young people to stay in the countryside. In addition, it is essential to support older farmers, guaranteeing them the right conditions to maintain farming activities on the farm and have a good quality of life (AKSAAM, 2021).

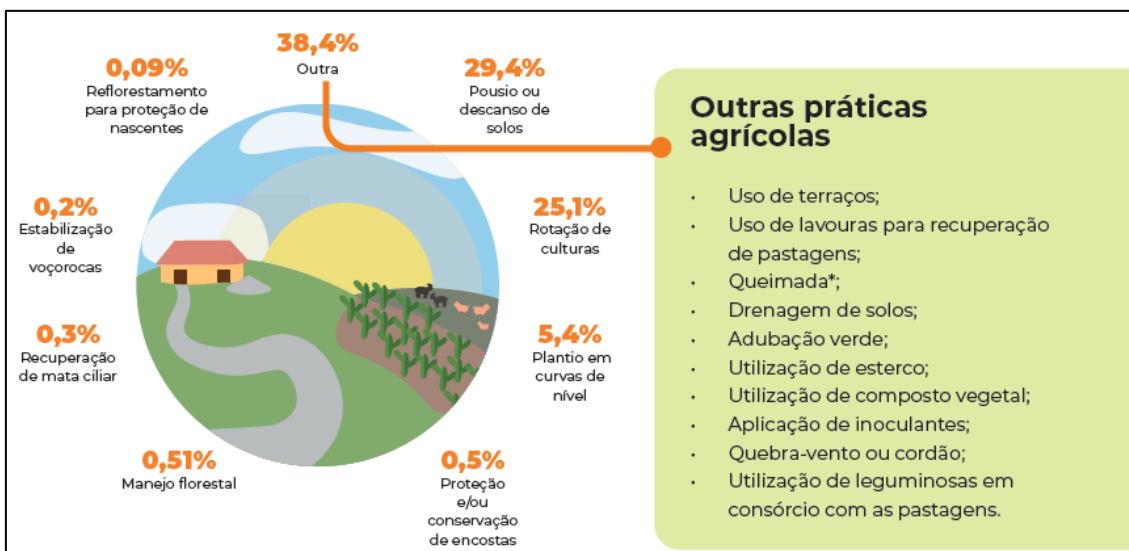
### 126 126 - Variation in the proportion of family farming establishments in each age group between the 2006 and 2017 censuses

Menos de 25 anos	↓ 49,7%	De 45 a 54 anos	↑ 6,5%
De 25 a 34 anos	↓ 38,2%	De 55 a 64 anos	↑ 8,2%
De 35 a 44 anos	↓ 19,4%	Mais de 65 anos	↑ 32,7%

Source: AKSAAM, 2021.

In Paraíba, according to data from the Agricultural Census (IBGE, 2017), 38.7% of family farming establishments have not adopted any type of soil conservation practice (AKSAAM, 2021).

### 127 127 - Adoption of soil conservation agricultural practices by family farmers in Paraíba (2017)



Source: AKSAAM, 2021.

Note: Burning is only considered an agricultural practice and does not qualify as conservation.

Only 33.2% of family farming establishments in the state of Paraíba had applied pesticides. Approximately 89.5% of these establishments were in groups of farming areas of up to 20 hectares. Another fact is that, considering the family farming establishments in Paraíba where pesticides have been applied, in 47.4% of them, the managers responsible for the farming activities cannot read or write. Of the 41,609 family farming establishments in Paraíba where pesticides were applied, 19.6% received technical guidance and 80.4% did not (AKSAAM, 2021).

### Agricultural production

According to 2022 data from the IBGE's Municipal Agricultural Production (PAM), the main temporary crops in the state of Paraíba are sugar cane, with a production that year of 5,762,668 tons, accounting for a total of R\$976,479 thousand. This is followed by pineapple and manioc, with production of 275,095 and 139,239 tons and a production value of R\$ 361,084 thousand and R\$ 113,595 thousand, respectively. It should be noted

that beans (in grain), with a production of 26,749 tons, had a higher value in 2022 than cassava, reaching R\$115,204 thousand.

In terms of permanent crops, the most produced products in 2022 in Paraíba were bananas (142,325 t), coconuts (53,613 t) and papaya (26,429 t), accounting for a production value of R\$ 228,514 thousand, R\$ 50,500 thousand and R\$ 47,080 thousand, respectively.

The following tables show the main products of temporary and permanent crops, in terms of quantity produced and production value in the state of Paraíba in 2022.

**Table 140 - Quantity Produced and Production Value of the First Temporary Crop Products in the State of Paraíba (2022)**

Temporary crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Pineapple	275.095	361.084
Sweet potatoes	42.001	71.843
Sugarcane	5.762.668	976.479
Beans	26.749	115.204
Cassava	139.239	113.595
Corn (grain)	69.495	96.695
Tomato	18.897	39.193

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

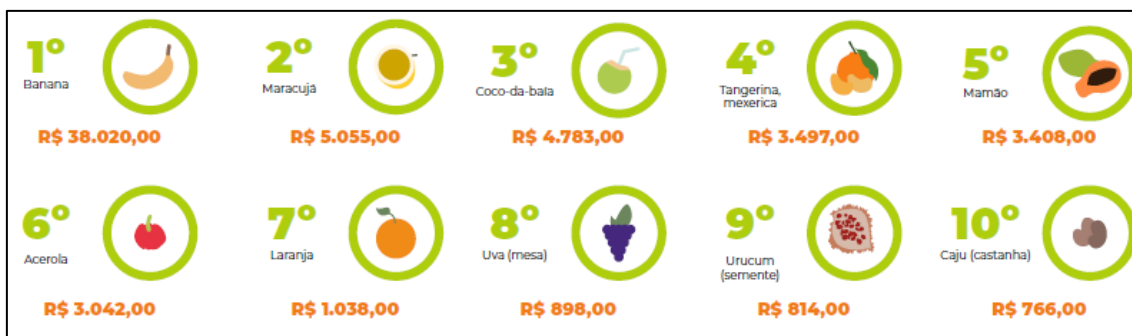
**Table 141 - Quantity Produced and Production Value of the First Permanent Crop Products in the State of Paraíba (2022)**

Product of Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	142.325	228.514
Bay coconut	53.613	50.500
Orange	5.355	5.365
Papaya	26.429	47.080
Mango	7.485	11.018
Passion fruit	10.357	32.391
Tangerine	14.554	16.871

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

As far as family farming is concerned, according to data from the IBGE Agricultural Census (2017), the products that stand out from permanent crops in terms of their production value are bananas (R\$38,020,000), passion fruit (R\$5,055,000) and coconut (R\$4,783,000), as can be seen in the figure below.

**128 128 - Top 10 production values of permanent crops produced by family farming establishments in the state of Paraíba (thousand reais)**



Source: AKSAAM, 2021.

As for temporary crop products in family farming (according to the 2017 Census), pineapple (R\$53,483,000), cassava (R\$52,888,000) and grain corn (R\$30,696,000) stand out for their production value.

**129 129 - Top 10 in the production value of temporary crops produced by family farming establishments in the state of Paraíba (thousand reais)**



Source: AKSAAM, 2021.

**RT Alto Sertão**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Alto Sertão, the most produced agricultural products are corn, coconut and beans, with 8,326, 1,980 and 1,622 tons, respectively. In terms of production value, corn (R\$12,144,000), beans (R\$7,581,000) and bananas (R\$2,532,000) stand out.

Among the municipalities in TR, the biggest banana producer is Santa Helena, with 462 tons produced in 2022; São João do Rio do Peixe, sweet potatoes (400 tons), coconut (1,080 tons) and corn (3,600 tons); and Bonito de Santa Fé, sugar cane (1,350 tons) and beans (216 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in the Alto Sertão RT in 2022.

**Table 142 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Alto Sertão (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	1.445	2.532
Sweet potatoes	730	1.460
Sugarcane	2.275	390
Bay coconut	1.980	1.877
Beans	1.622	7.581
Corn (grain)	8.326	12.144

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Borborema**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Borborema, the most produced agricultural products are sugar cane, bananas and tangerines, with 169,250, 59,250 and 14,491 tons, respectively. In terms of production value, bananas (R\$85,521 thousand), beans (R\$32,462 thousand) and sugar cane (R\$29,255 thousand) stand out.

Among the municipalities in TR, the largest producers of bananas and tangerines are Alagoa Nova, with 24,000 and 6,350 tons produced in 2022, respectively; Lagoa Seca, sweet potatoes (2,100 tons); Alagoa Grande, sugar cane (96,000 tons) and fava beans (500 tons); Esperança, beans (855 tons); Campina Grande, corn (2,000 tons); and Barra de São Miguel, tomatoes (2,100 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in TR Borborema in 2022.

**Table 143 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Borborema (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	59.250	85.521
Sweet potatoes	10.605	17.957
Sugarcane	169.250	29.255
Broad beans	1.941	15.362
Beans	7.392	32.462
Corn (grain)	12.376	17.728
Tangerine	14.491	16.800
Tomato	9.025	18.120

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

Between the municipalities of Lagoa Seca and São Sebastião de Lagoa de Roça, on the Quicé site, are the facilities of the Banco Mãe de Sementes, a project of the Borborema Hub, a structure built with federal and municipal resources.

The Borborema Hub is a collective made up of 13 Rural Workers' Unions in the Borborema territory, plus around 150 community associations, EcoBorborema and CoopBorborema. The latter provides funds to maintain the Mãe de Sementes Bank building.

Wagner Santos, a technician at AS-PTA, a partner organization of the Borborema Pole, which is EcoBorborema's umbrella institution, comments that "In addition to being an association, EcoBorborema is a Social Control Organization (OSC) accredited by the Ministry of Agriculture, Livestock and Supply (MAPA) that guarantees, through participatory certification processes for farming families, that the food sold at the fairs is, in fact, organic".

The Borborema Hub is made up of 13 municipalities. The properties of family farmers are up to 10 hectares in size, and they grow a variety of crops (corn, fava beans, beans, fruit) on small plots of land. Bananas, oranges and jackfruit are grown in the marshlands. All the produce is free from poison and pesticides, and is not transgenic; the products are totally agroecological. The diversification of the fields is a guarantee of success.

There are 13 agro-ecological fairs in the Hub, 3 of them in Campina Grande. In the Lagoa Seca area, there is a lot of renewable energy production, large investments in energy production that conflict with agricultural production and rampant deforestation. This also makes small producers insecure about their pensions.

**Photo 42 - Products sold by EcoBorborema**



Source: Consulting, 2024.

**Photo 43 - Model of property organization**



Source: Consulting, 2024.

In the municipality of Areia, the Chã de Jardim community is next to the Pau Ferro State Park Conservation Unit (the residents were relocated from inside the Conservation Unit to the surrounding area). The community's activities and the presence of the PES are responsible for the increased flow of people and tourism in the town. The community, in the form of Mrs. Neta Lucineide, develops numerous activities and projects such as the sale of organic and pesticide-free fruit pulp (produced by the factory in the community itself), Arte na Mão (a handicraft project made from dried banana straw and produced by women from the community); Restaurante Vó Maria (an enterprise which, using products produced by the community, serves homemade food with typical regional cuisine); Piquenique na Mata (a snack served with typical food is offered to tourists who choose to take the guided walk on the trail in the Mata Pau Ferro Park), Camping and hiking in the Mata do Pau-ferro Park, among many other activities developed by the community.

The community developed after the resettlement with the acerola, cajá and other fruit pulp factory, and with the support, at the start of production, of a professor from Carlos Barreto University. The association is now 18 years old, but the infrastructure was abandoned for 10 years before production took off.

MAPA (Ministry of Agriculture and Livestock) personnel arrived in the region and made demands for the project to be qualified. The community members took qualification courses to improve pulp production and meet MAPA's requirements. They also undertook a Cooperar project which enabled them to buy a cold room, a car, boxes and packaging, which led to a leap in fruit production. In addition, they brought in producers to be partners, removing the middleman from the process.

The community association currently has 35 people, around 20 of whom are women. They sell their products in João Pessoa, Campina Grande and to the PNAE.

According to local information, the rural complex brings together around 300 families who benefit directly and indirectly from fruit production, restaurants and tourism. It has 3 trained guides for the trails.

**Photo 44 - Vó Maria Rural Restaurant, in the Chã de Jardim Community, in the Municipality of Areia**



Source: Consulting, 2024.

The municipality of Remígio is home to the Queimadas settlement, where there is a Procasa project to produce agroecological cotton. There are two associations in the settlement that are part of the Borborema Agroecology Network (RBA), which has been in existence for 10 years. It is the first producer of colored cotton in the region and sells to the French footwear company Vert, and to Flávia Aranha (stylist), a fashion company. There are 6 municipalities in the Network and 90 members, while in the settlement there are between 100 and 150 families. The members produce an average of 12 tons of cotton lint. They are thinking of setting up SAFs to intercrop with cotton, improving resilience. 20% of cotton production goes to the seed bank to guarantee future harvests, as they suffer from pest and drought issues. In 2012 there was a drought and they had to rescue seed from the bank.



**Photo 45 - Agro-ecological cotton production in the Queimadas settlement in the municipality of Remígio**



Source: Consulting, 2024.

### **RT Brejo**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Brejo, the most produced agricultural products are pineapple, sugar cane and cassava, with 88,723, 58,325 and 14,673 tons, respectively. In terms of production value, pineapple (R\$71,065,000), bananas (R\$14,738,000) and cassava (R\$10,747,000) stand out.

Araçagi is the largest producer of pineapple (51,000 tons), sweet potatoes (800 tons), sugar cane (17,500 tons), fava beans (112 tons) and manioc (4,800 tons); Pilõezinhos, bananas (3,700 tons); Riachão, beans (250 tons); and Mulungu, corn (770 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in the Brejo RT in 2022.

**Table 144 - Quantity Produced and Production Value of the First Products of Agricultural Production in RT Brejo (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Pineapple	88.723	71.065
Banana (bunch)	8.284	14.738
Sweet potatoes	2.273	3.858
Sugarcane	58.325	10.410
Broad beans	295	2.451
Beans	958	4.474
Cassava	14.673	10.747
Corn (grain)	2.190	3.237

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Cariri**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Cariri, the most produced agricultural products are tomatoes, onions and corn, with 7,142, 970 and 882 tons, respectively. In terms of production value, tomatoes (R\$15,633,000), beans (R\$2,505,000) and onions (R\$2,181,000) stand out.

Among the municipalities in TR, the biggest producers of sweet potatoes, passion fruit and tomatoes are Congo, with 180, 96 and 2,800 tons produced in 2022, respectively; Sumé, onions (300 tons); Prata, coconuts (160 tons); and Monteiro, beans (213 tons), papaya (220 tons) and corn (400 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in TR Cariri in 2022.

**Table 145 - Quantity Produced and Production Value of the First Products of Agricultural Production in TR Cariri (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Sweet potatoes	580	1.134
Onions	970	2.181
Bay coconut	728	764
Beans	538	2.505
Papaya	482	877
Passion fruit	321	952
Corn (grain)	882	1.323
Tomato	7.142	15.633

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

## RT Curimataú

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Curimataú, the most produced agricultural products are corn, beans and sisal or agave, with 4,302, 1,752 and 1,534 tons, respectively. In terms of production value, beans (R\$7,402,000), corn (R\$5,953,000) and sisal or agave (R\$3,853,000) also stand out.

Among the municipalities in TR, the largest producers of sweet potatoes are Picuí and São Vicente do Seridó, with 70 tons produced in 2022; Cuité, cashew nuts (41 tons); Barra de Santa Rosa, fava beans (85 tons), corn (900 tons) and sisal or agave (1,300 tons); Picuí, beans (550 tons) and passion fruit (600 tons); and Nova Floresta, cassava (190 tons);

The following table shows the top agricultural products in terms of quantity produced and value of production in TR Curimataú in 2022.

**Table 146 - Quantity Produced and Production Value of the First Products of Agricultural Production in RT Curimataú (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Sweet potatoes	176	312
Cashew nuts	82	300
Broad beans	211	1.505
Beans	1.752	7.402
Cassava	445	456
Passion fruit	1.210	2.952
Corn (grain)	4.302	5.953
Sisal or agave (fiber)	1.534	3.853

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

In the São Domingos Settlement, in the municipality of Cubati, there is experience with forage SAF, using moringa, leucena, salt grass (which filters salt from the soil) and thornless mandacaru. On the other hand, the most developed productions include fruit SAF, including products such as cashew, pine cone and seriguela. Organic production is identified, using Creole seeds and soil management (resting the land for 6 months and mowing every 2 years). Normally, there is also animal husbandry (pigs, for example).

Practices to protect cultivation areas using Nature-Based Solutions (NBS) were noted, such as the use of hedges to block poison from neighboring crops. The use of Lannate poison by neighboring producers who do not produce organically was mentioned.

Photo 46 - Information poster on the experience of the farmer from the São Domingos Settlement in the municipality of Cubati



Source: Consulting, 2024.

**Photo 47 - AFS implantation in the São Domingos Settlement, in the municipality of Cubati**



Source: Consulting, 2024.

### **RT Mata Norte**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Mata Norte, the most produced agricultural products are sugarcane, pineapple and manioc, with 1,999,750, 98,160 and 13,926 tons, respectively. In terms of production value, sugar cane (R\$345,016 thousand), pineapple (R\$131,766 thousand) and papaya (R\$19,080 thousand) also stand out.

Among the municipalities in TR, the largest producers of pineapple and manioc are Itapororoca, with 60,000 and 2,500 tons produced in 2022, respectively; Mamanguape, bananas (880 tons), sweet potatoes (1,250 tons), sugar cane (495,000 tons), coconut (3,500 tons), and papaya (7,600 tons); and Marcação, passion fruit (195 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in TR Mata Norte in 2022.

**Table 147 - Quantity Produced and Production Value of the First Products of Agricultural Production in RT Mata Norte (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Pineapple	98.160	131.766
Banana (bunch)	3.514	5.454
Sweet potatoes	4.425	8.399
Sugarcane	1.999.750	345.016
Bay coconut	7.500	7.055
Papaya	11.140	19.080
Cassava	13.926	11.007
Passion fruit	829	2.694

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Mata Sul**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Mata Sul, the most produced agricultural products are sugarcane, manioc and pineapple, with 2,232,550, 46,630 and 34,320 tons, respectively. In terms of production value, sugar cane (R\$380,521 thousand), pineapple (R\$48,315 thousand) and cassava (R\$38,887 thousand) also stand out.

Among the municipalities in TR, the largest producer of sweet potatoes is Sapé, with 1,440 tons produced in 2022; Santa Rita, pineapple (23,400 tons) and sugar cane (786,500 tons); Pitimbu, banana (1,260 tons), coconut (11,700 tons) and papaya (3,200 tons); Alhandra, passion fruit (700 tons); and Mari, cassava (16,300 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in TR Mata Sul in 2022.

**Table 148 - Quantity Produced and Production Value of the First Products of Agricultural Production in RT Mata Sul (2022)**

Proceeds from Temporary and Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Pineapple	34.320	48.315
Banana (bunch)	4.001	6.362
Sweet potatoes	6.676	11.170
Sugarcane	2.232.550	380.521
Bay coconut	30.953	29.233
Papaya	10.916	21.262
Cassava	46.630	38.887
Passion fruit	1.862	6.101

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Middle Piranhas**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Médio Piranhas, the most produced agricultural products are corn, beans and sweet potatoes, with 1,915, 658 and 176 tons, respectively. In terms of production value, beans (R\$3,130,000), corn (R\$2,842,000) and sweet potatoes (R\$253,000) stand out.

Among the municipalities in TR, the largest producer of sweet potatoes is São Bento, with 64 tons produced in 2022; Riacho dos Cavalos, of coconut (36 tons) and corn (480 tons); Catolé do Rocha, of herbaceous cotton (14 tons), bananas (36 tons), beans (120 tons) and mangoes (30 tons); and Bom Sucesso, the only producer of guava (7 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in the TR Médio Piranhas in 2022.

**Table 149 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Médio Piranhas (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Herbaceous cotton (seed)	41	188
Banana (bunch)	36	54
Sweet potatoes	176	253
Bay coconut	76	84
Beans	658	3.130
Guava	7	14
Mango	54	70
Corn (grain)	1.915	2.842

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Middle Hinterland**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in the TR Médio Sertão, the most produced agricultural products are corn, beans and watermelon, with 6,566, 3,546 and 1,936 tons, respectively. In terms of production value, beans (R\$13,238,000), corn (R\$8,379,000) and sweet potatoes (R\$2,369,000) stand out.

Among the municipalities in TR, the largest producer of fava beans is Maturéia, with 46 tons produced in 2022; Patos, sweet potatoes (210 tons) and papaya (264 tons); Teixeira, beans (690 tons) and corn (840 tons); Santa Teresinha, mangoes (465 tons); São José de Espinharas, watermelon (600 tons); and Junco do Seridó, tomatoes (240 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in the TR Médio Sertão in 2022.

**Table 150 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Médio Sertão (2022)**

<b>Proceeds from Temporary and Permanent Crops</b>	<b>Quantity produced (Tons)</b>	<b>Production Value (Thousand Reais)</b>
<b>Sweet potatoes</b>	1.277	2.369
<b>Broad beans</b>	117	936
<b>Beans</b>	3.546	13.238
<b>Papaya</b>	528	801
<b>Mango</b>	820	1.684
<b>Watermelon</b>	1.936	1.615
<b>Corn (grain)</b>	6.566	8.379
<b>Tomato</b>	780	1.524

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Piemont da Borborema**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Piemont da Borborema, the most produced agricultural products are bananas, sugar cane and manioc, with 56,330, 27,500 and 18,670 tons, respectively. In terms of production value, bananas (R\$98,541 thousand), cassava (R\$14,161 thousand) and beans (R\$14,053 thousand) also stand out.

Among the municipalities in TR, the biggest banana producer is Pilões, with 21,000 tons produced in 2022; Caiçara, sweet potatoes (400 tons); Serraria, sugar cane (12,500 tons); Araruna, fava beans (56 tons) and passion fruit (2,700 tons); Casserengue, beans (495 tons) and corn (1,080 tons); and Bananeiras, cassava (3,240 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in the Piemont da Borborema RT in 2022.



**Table 151 - Quantity Produced and Value of Production of the First Products of Agricultural Production in the TR Piemont da Borborema (2022)**

Proceeds from Temporary and Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	56.330	98.541
Sweet potatoes	2.275	3.884
Sugarcane	27.500	4.757
Broad beans	407	3.257
Beans	2.991	14.053
Cassava	18.670	14.161
Passion fruit	3.729	11.939
Corn (grain)	6.379	9.694

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Serra do Teixeira**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Serra do Teixeira, the most produced agricultural products are corn, cassava and sugar cane, with 7,905, 4,504 and 3,164 tons, respectively. In terms of production value, corn (R\$9,624,000), beans (R\$9,331,000) and cassava (R\$3,596,000) also stand out.

Among the municipalities in TR, the largest cassava producer is Princesa Isabel, with 2,700 tons produced in 2022; São José de Princesa, bananas (300 tons) and sugar cane (1,600 tons); Juru, sweet potatoes (360 tons), passion fruit (200 tons) and tomatoes (500 tons); and Tavares, beans (577 tons) and corn (2,520 tons).

The following table shows the top agricultural products, in terms of quantity produced and value of production in the Serra do Teixeira RT in 2022.

**Table 152 - Quantity Produced and Production Value of the First Products of Agricultural Production in the Serra do Teixeira RT (2022)**

Proceeds from temporary and permanent crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	749	1.055
Sweet potatoes	560	834
Sugarcane	3.164	497
Beans	2.425	9.331
Cassava	4.504	3.596
Passion fruit	266	840
Corn (grain)	7.905	9.624
Tomato	1.195	2.107

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Vale de Piancó**

According to 2022 data from the IBGE's Municipal Agricultural Production (PAM), in the TR Vale de Piancó, the most produced agricultural products are corn, sweet potatoes and sugar cane, with 6,335, 4,553 and 3,705 tons, respectively. In terms of production value, corn (R\$8,047,000), beans (R\$7,271,000) and sweet potatoes (R\$6,428,000) also stand out.

Among the municipalities in RT, the biggest producers of bananas, coconuts and mangoes are Itaporanga, with 112, 160 and 70 tons produced in 2022, respectively; and Conceição, sweet potatoes (2,760 tons), sugar cane (1,000 tons), beans (360 tons), corn (900 tons) and tomatoes (125 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in the Vale de Piancó RT in 2022.

**Table 153 - Quantity Produced and Value of Production of the First Products of Agricultural Production in the TR Vale de Piancó (2022)**

<b>Proceeds from temporary and permanent crops</b>	<b>Quantity produced (Tons)</b>	<b>Production Value (Thousand Reais)</b>
<b>Banana (bunch)</b>	343	504
<b>Sweet potatoes</b>	4.553	6.428
<b>Sugarcane</b>	3.705	573
<b>Bay coconut</b>	536	626
<b>Beans</b>	1.844	7.271
<b>Mango</b>	286	386
<b>Corn (grain)</b>	6.335	8.047
<b>Tomato</b>	169	291

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Maringá Valley**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in TR Vale do Maringá, the most produced agricultural products are bananas, sugar cane and corn, with 828, 600 and 549 tons, respectively. In terms of production value, beans (R\$1,288,000), bananas (R\$1,134,000) and sweet potatoes (R\$742,000) stand out.

Among the municipalities in TR, the biggest corn producer is São Bentinho, with 92 tons produced in 2022; Pombal, bananas (540 tons) and mangoes (60 tons); Paulista, sweet potatoes (320 tons), sugar cane (600 tons), coconut (120 tons) and guava (18 tons); and Cajazeirinhas, beans (51 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in the Maringá Valley RT in 2022.

**Table 154 - Quantity Produced and Production Value of the First Products of Agricultural Production in the Maringá Valley RT (2022)**

Proceeds from Temporary and Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Banana (bunch)	828	1.134
Sweet potatoes	504	742
Sugarcane	600	90
Bay coconut	288	310
Beans	270	1.288
Guava	30	54
Mango	96	112
Corn (grain)	549	674

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **TR Paraíba Valley**

According to 2022 data from IBGE's Municipal Agricultural Production (PAM), in the TR Vale do Paraíba, the most produced agricultural products are sugarcane, pineapple and manioc, with 1,260,900, 71,250 and 24,775 tons, respectively. In terms of production value, sugar cane (R\$ 204,180 thousand), pineapple (R\$ 91,680 thousand) and manioc (R\$ 20,328 thousand) also stand out.

Among the municipalities in TR, the biggest corn producer is Itatuba, with 3,000 tons produced in 2022; Mogeiro, beans (507 t); and Pedras de Fogo, pineapple (60,000 t), sweet potato (4,200 t), sugar cane (1,017,500 t), coconut (525 t), papaya (1,200 t) and cassava (12,150 t).

The following table shows the top agricultural products in terms of quantity produced and production value in the Vale do Paraíba RT in 2022.

**Table 155 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Vale do Paraíba (2022)**

Proceeds from Temporary and Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Pineapple	71.250	91.680
Sweet potatoes	6.589	12.051
Sugarcane	1.260.900	204.180
Bay coconut	1.207	1.086
Beans	1.542	6.892
Papaya	1.200	1.680
Cassava	24.775	20.328
Corn (grain)	8.563	12.300

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

### **RT Piranhas Valley**

According to 2022 data from the IBGE's Municipal Agricultural Production (PAM), in the RT Vale do Piranhas, the most produced agricultural products are coconut, bananas and sugar cane, with 7,748, 6,773 and 3,430 tons, respectively. In terms of production value, bananas (R\$11,236,000), coconuts (R\$6,841,000) and corn (R\$3,973,000) stand out.

Among the municipalities in TR, the largest producer of sweet potatoes is Nazarezinho, with 480 tons produced in 2022; Santa Cruz, sugar cane (1,350 tons); and, Sousa, herbaceous cotton (600 tons), bananas (4,625 tons), coconut (5,600 tons), beans (184 tons), guava (261 tons) and corn (1,425 tons).

The following table shows the top agricultural products in terms of quantity produced and value of production in the Piranhas Valley RT in 2022.

**Table 156 - Quantity Produced and Production Value of the First Products of Agricultural Production in the TR Vale do Piranhas (2022)**

Proceeds from Temporary and Permanent Crops	Quantity produced (Tons)	Production Value (Thousand Reais)
Herbaceous cotton (seed)	606	1.699
Banana (bunch)	6.773	11.236
Sweet potatoes	567	942
Sugarcane	3.430	608
Bay coconut	7.748	6.841
Beans	688	3.291
Guava	421	924
Corn (grain)	2.625	3.973

Source: IBGE - Municipal Agricultural Production (PAM), 2022.

## Livestock

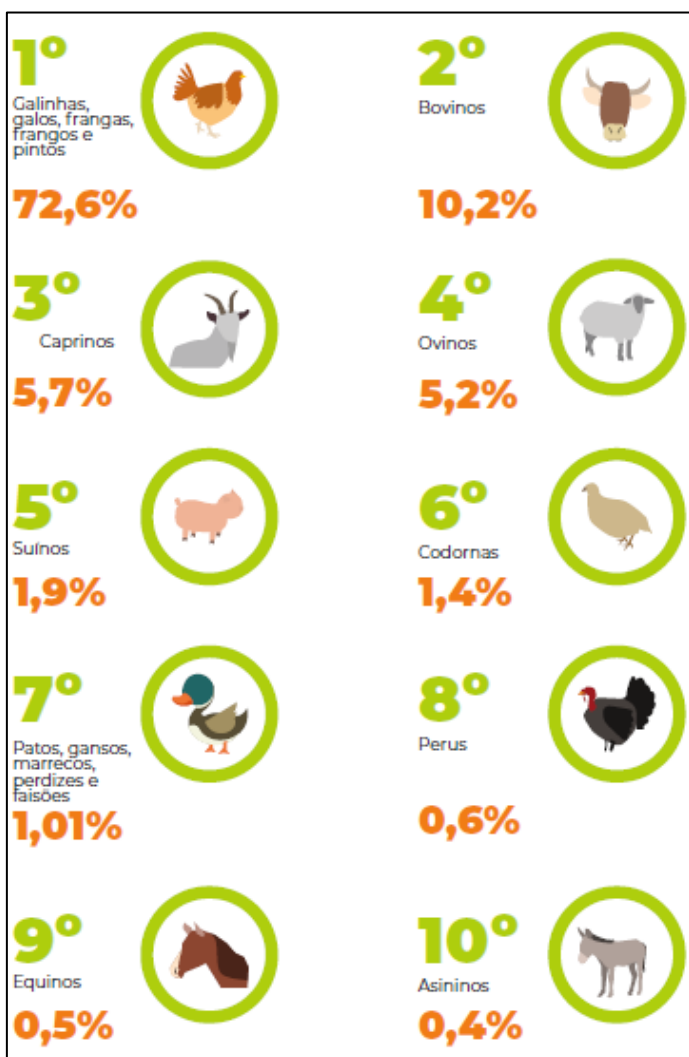
According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in Paraíba reached 1,371,566 heads, while the buffalo herd had 698 heads; horses, 69,555; pigs, 288,360; goats, 796,472; and sheep, 777,790.

Following the same proportion, the total number of chickens was 12,669,505, while the number of quails was 189,204.

In general, livestock farming is considered to be of little importance to Paraíba's rural economy, and therefore its share of the country's production is also minimal. The most significant shares involve goats (8.26%) and sheep (3.62%).

With regard to family farming establishments in Paraíba that are engaged in livestock farming, according to data from the IBGE Agricultural Census (2017), the largest numbers were hens, roosters, pullets, chickens and chicks, with a percentage of 72.6%, followed by cattle with 10.2% and goats and sheep with 5.7% and 5.2%, respectively, as can be seen in the figure below.

### 130 130 - Top 10 of the Number of Livestock in Family Farming Establishments in Paraíba



Source: AKSAAM, 2021.

Among the products of animal origin, the one that stands out most in Paraíba is hen's eggs, whose production in 2022 was 59,601 thousand dozen, which represented 1.22% of national production.

According to data from the IBGE Agricultural Census (2017), 772 family farming establishments in Paraíba carry out beekeeping. This corresponds to 0.6% of all family farming establishments in the state. In 55.4% of the family farming establishments in Paraíba that keep bees, they sell honey, in 1.9% they sell royal jelly, propolis and pollen, and in 4.0% they sell beeswax. The mesoregion where beekeeping is most practiced is Agreste Paraibano (64.25%), followed by Sertão Paraibano (20.34%), Mata Paraibana (10.106) and Borborema (5.31%) (AKSAAM, 2021).

### **RT Alto Sertão**

According to 2022 data from the IBGE's Municipal Livestock Survey (*PPM*), the cattle herd in RT Alto Sertão totaled 102,722 head, while the buffalo herd totaled 93 head; horses, 4,100; pigs, 18,635; goats, 17,064; and sheep, 33,660. Following the same proportion, the total number of chickens was 171,132.

The most prominent share in state production involves the buffalo herd, with 13.32%, followed by cattle (7.49%) and pigs (6.46%).

Among the municipalities in TR, the largest number of cattle, buffalo and horses is concentrated in São João do Rio do Peixe, with 17,222, 81 and 590 head in 2022, respectively. Cachoeira dos Índios stands out for having the largest number of pigs (2,812); Bonito de Santa Fé, goats (2,500); Cajazeirinhas, sheep (5,317); and Uiraúna, chickens (40,155).

Among animal products, the ones that stand out most in RT Alto Sertão are bee honey and milk, whose production in 2022 was 72,617 kilograms and 34,614 thousand liters, which represented 20.31% and 11.88%, respectively, of the state's production.

Cajazeiras stands out as the largest producer of milk and chicken eggs among the municipalities of the CA, with a production in 2022 of 7,333 thousand liters and 62 thousand dozen, respectively; and Triunfo, of bee honey, with 27,000 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 3,638 agricultural establishments in the Alto Sertão RT produced cow's milk, of which 3,144 (86%) were family farms. The amount produced that year in the RT was 20,325 thousand liters, reaching 26,458 thousand reais in production value. Of this total, family farming contributed 14,856,000 liters (73%), which represented 19,339,000 reais in production value.

Of the 22 agricultural establishments that produced goat's milk in the Alto Sertão RT, 18, almost all (82%), were family farms in 2017. This year, the amount of goat's milk produced in the region was 11,000 liters, 7,000 of them by family farmers, equivalent to 64% of the total. The value of production that year was R\$18,000, of which R\$14,000 (78%) came from family farming.

### **RT Borborema**

According to 2022 data from the IBGE's Municipal Livestock Survey (*PPM*), the cattle herd in TR Borborema totaled 210,239 heads, while the buffalo herd totaled 258 heads; horses, 15,365; pigs, 93,861; goats, 196,748; and sheep, 189,508. Following the same

proportion, the total number of chickens was 4,234,765, while the number of quails was 12,970.

A large part of the state's livestock production is found in the municipalities of this TR, especially in the buffalo, pig and chicken sectors, accounting for 36.96%, 33.42% and 32.55% of the state's share.

Among the municipalities in TR, the largest numbers of buffalo and horses are concentrated in Campina Grande, with 145 and 2,000 head in 2022, respectively. Alagoa Grande stands out for having the largest cattle herd (19,000); Queimadas for pigs (8,225); Soledade for goats (25,000) and sheep (22,000); Pocinhos for chickens (987,650); and Puxinanã for quails (4,500).

Among animal products, the ones that stand out most in TR Borborema are milk and hen's eggs, whose production in 2022 was 71,169 thousand liters and 10,318 thousand dozen, representing 24.43% and 17.31%, respectively, of the state's production.

Queimadas stands out as the largest producer of milk among the municipalities of RT, with a production in 2022 of 8,200 thousand liters; Esperança, of chicken eggs, with 3,621 thousand dozen; Puxinanã, of quail eggs, with 32 thousand dozen; and Alagoa Grande, of bee honey, with 4,500 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 9,395 agricultural establishments in TR Borborema produced cow's milk, of which 7,588 (81%) were family farms. The amount produced that year in the RT was 66,223 thousand liters, reaching 89,218 thousand reais in production value. Of this total, family farming contributed 45,499 thousand liters (69%) produced, which represented 61,236 thousand reais in production value.

Of the 950 agricultural establishments producing goat's milk in the Borborema RT, 724 (76%) were family farms in 2017. This year, goat's milk produced in the region amounted to 1,652,000 liters, 986,000 of them by family farmers, equivalent to 60% of the total. The value of production that year was R\$3,255,000, of which R\$1,789,000 (55%) came from family farming.

In the municipality of Cabaceiras, one of the most practiced activities is goat and sheep farming, due to the ability of these animals to adapt to the dry climate of the semi-arid region. In 1996, the region's goat farmers, seeking to find a new way of generating income for rural workers, entered into a partnership with Cabaceiras City Hall and the Technical Assistance Company of Paraíba, formerly EMATER and now EMPAER, and founded the Association of Goat and Sheep Breeders of the Municipality of Cabaceiras (ASCOMCAB) (PARAÍBA, 2022).

In 2001, the Cabaceiras Goat Milk Processing Plant was officially inaugurated, working mainly to produce milk for the poorest families in the region. In 2006, ASCOMCAB managed to make the plant official as a cooperative, renaming it the Cooperativa dos Capribovinocultores de Cabaceiras e Região - Capribov (PARAÍBA, 2022).

In the Serra do Monte settlement in Cabaceiras, family farmers raise poultry, cows, dairy goats and sheep and sell their produce to the state government's PAA Milk Program. Even on a small scale, they raise beef cattle and sheep, which supply the region's butchers (PARAÍBA, 2022).

The cooperative has a series of requirements so that small producers can receive benefits. One of the complaints from producers in the Serra do Monte settlement is that

it takes a long time to get paid. They are paid almost 4 reais a liter for goat's milk, while many of them also work with cow's milk, receiving 1.8 reais a liter for this product. The average daily production is 2 liters of milk per producer and they usually use a semi-intensive system and feed their goats with palm. Other crops are corn and beans.

According to information from Capribov and a producer in the region, there is a need to improve the infrastructure for milk production on the properties, for example, with suitable places for milking and storing the herd. Another issue is the competition with the leather crafts hub, where young people from the community end up going to work in leather crafts in a nearby town.

**Photo 48 - Goat farming in the Serra do Monte settlement in the municipality of Cabaceiras**



Source: Consulting, 2024.



**Photo 49 - Capribov trucks on the Cooperative's premises**



Source: Consulting, 2024.

### **RT Brejo**

According to 2022 data from the IBGE's Municipal Livestock Survey (*PPM*), the cattle herd in RT Brejo totaled 71,580 head, while the buffalo herd totaled 31 head; horses, 3,979; pigs, 14,493; goats, 5,593; sheep, 9,779. Following the same proportion, the total number of chickens was 1,196,001, while the number of quails was 22,150.

The most prominent share in state production involves quails, with 11.71%, followed by chickens (9.44%) and cattle (5.22%).

Among the municipalities in TR, the largest number of cattle, goats and sheep is concentrated in Mulungu, with 16,700, 1,255 and 3,894 head in 2022, respectively. Guarabira stands out for having the largest number of head of buffalo (22), horses (790), pigs (5,300) and chickens (780,700); and Araçagi for quails (10,500).

Among animal products, the TR Brejo stands out most for quail eggs, whose production in 2022 was 393,000 dozen, representing 16.93% of the state's production.

Araçagi stands out as the largest producer of milk, quail eggs and bee honey among the municipalities of the CA, with a production in 2022 of 1,853,000 liters, 213,000 dozen and 2,520 kilograms, respectively; and Pilõesinhos, of chicken eggs, with 671,000 dozen.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 952 agricultural establishments in the Brejo RT produced cow's milk, of which

700 (74%) were family farms. The amount produced that year in the RT was 5,365 thousand liters, reaching 8,436 thousand reais in production value. Of this total, family farming contributed with 2,379,000 liters (44%) produced, which represented 4,191,000 reais in production value.

Of the 73 agricultural establishments producing goat's milk in the Brejo RT, 57 (78%) were family farms in 2017. This year, 23,000 liters of goat's milk were produced in the RT, 15,000 of them by family farmers, equivalent to 65% of the total. The value of production that year was R\$59,000, of which R\$33,000 (56%) came from family farming.

### **RT Cariri**

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in RT Cariri amounted to 78,178 head, while the equine herd numbered 4,957 head; pigs, 15,420; goats, 301,519; and sheep, 178,154. Following the same proportion, the total number of chickens was 494,893 head.

Goats account for 37.86% of the state's production, followed by sheep (22.91%) and horses (7.13%).

Among the municipalities in RT, the largest number of cattle, horses and goats is concentrated in Monteiro, with 21,300, 681 and 36,915 head in 2022, respectively. Sumé stands out for having the largest number of pigs (3,080), sheep (28,782) and chickens (97,730).

Among animal products, the one that stands out most in RT Cariri is milk, whose production in 2022 was 16,345 thousand liters, representing 5.61% of state production.

Monteiro stands out as the largest producer of milk among the municipalities of RT, with a production in 2022 of 5,007 thousand liters; Sumé, of chicken eggs, with 500 thousand dozen; and Prata, of bee honey, with 2,884 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,807 agricultural establishments in the Cariri RT produced cow's milk, of which 2,282 (81%) were family farms. The amount produced that year in the RT was 9,631 thousand liters, reaching 14,270 thousand reais in production value. Of this total, family farming contributed with 7,211 thousand liters (75%) produced, which represented 10,732 thousand reais in production value.

Of the 1,004 agricultural establishments producing goat's milk in the Cariri RT, 805 (80%) were family farms in 2017. This year, goat's milk produced in the region amounted to 3,317,000 liters, 2,721,000 of them by family farmers, equivalent to 82% of the total. The value of production that year was 6,308 thousand reais, of which 5,162 thousand reais (82%) came from family farming.

### **RT Curimataú**

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in RT Curimataú stood at 45,830 head, while the equine herd stood at 2,166 head; pigs, 11,746; goats, 33,610; and sheep, 58,065. Following the same proportion, the total number of chickens was 419,242 head.

The most prominent share in state production involves sheep, with 7.47%, followed by pigs (4.07%) and cattle (3.34%).

Among the municipalities in RT, the largest cattle and chicken herds are concentrated in Cuité, with 10,450 and 210,500 head in 2022, respectively. Barra de Santa Rosa stands out for having the largest equine (430), goat (12,700) and sheep (22,800) herds; and Cubati for pigs (2,580).

Among animal products, TR Curimataú stands out for chicken eggs, whose production in 2022 amounted to 4,572,000 dozen, representing 7.67% of the state's production.

Cuité stands out as the largest producer of milk and chicken eggs among the municipalities in the RT, with production in 2022 of 1,998,000 liters and 4,110,000 dozen, respectively; and São Vicente do Seridó is the only producer of bee honey in the RT, with 2,435 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,184 agricultural establishments in the Curimataú region produced cow's milk, of which 1,766 (81%) were family farms. The amount produced that year in the RT was 4,913,000 liters, reaching 8,127,000 reais in production value. Of this total, family farming contributed 3,544,000 liters (72%), which represented 5,998,000 reais in production value.

Of the 96 agricultural establishments producing goat's milk in the Curimataú RT, 73 (76%) were family farms in 2017. This year, 124,000 liters of goat's milk were produced in the region, 66,000 of them by family farmers, equivalent to 53% of the total. The value of production that year was R\$243,000, of which R\$129,000 (53%) came from family farming.

### ***RT Mata Norte***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in TR Mata Norte totaled 44,450 head, while the equine herd totaled 2,898 head; pigs, 4,865; goats, 3,671; and sheep, 3,580. Following the same proportion, the total number of chickens was 1,045,568.

The most prominent share of the state's production is accounted for by chickens, with 8.25%, followed by horses (4.17%) and cattle (3.24%).

Among the municipalities in TR, the largest cattle herds are concentrated in Itapororoca and Lagoa de Dentro, with 7,500 head in 2022 in each of them. Lagoa de Dentro also stands out for having the largest number of sheep (578); Jacaraú, horses (380) and goats (660); and Mamanguape, pigs (805) and chickens (815,000).

Among animal products, the one that stands out the most in RT Mata Norte is hen's eggs, whose production in 2022 was 10,379 thousand dozen, representing 17.41% of state production.

Lagoa de Dentro stands out as the largest producer of milk among the municipalities of TR, with a production in 2022 of 526,000 liters; Mamanguape, of chicken eggs, with 10,214 dozen; and Jacaraú, of bee honey, with 4,000 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 265 agricultural establishments in the Mata Norte RT produced cow's milk, of which 202 (76%) were family farms. The amount produced that year in the RT was 1,083,000 liters, with a production value of 1,603,000 reais. Of this total, family farming contributed with 488,000 liters (45%) produced, which represented 777,000 reais in production value.

Of the 28 agricultural establishments producing goat's milk in the Mata Norte RT, 22 (79%) were family farms in 2017. This year, goat's milk produced in the region amounted to 15,000 liters, 11,000 of them by family farmers, equivalent to 73% of the total. The value of production that year was 45,000 reais, of which 37,000 reais (82%) came from family farming.

### **RT Mata Sul**

According to 2022 data from the IBGE's Municipal Livestock Survey (*PPM*), the cattle herd in TR Mata Sul totaled 42,386 heads, while the buffalo herd totaled 215 heads; horses, 3,828; pigs, 12,776; goats, 5,231; and sheep, 7,907. Following the same proportion, the total number of chickens was 1,718,430, while the number of quails was 150,400.

The most prominent share in the state's production involves quails, which account for a large part of total production (79.49%), followed by buffaloes (30.80%) and chickens (13.56%).

Among the municipalities in RT, the largest cattle and sheep herds are concentrated in Mari, with 11,800 and 2,000 head in 2022, respectively. Sapé stands out for having the highest number of buffalo (205) and goat (936) heads; João Pessoa for horses (705) and pigs (2,996); Caaporã for chickens (700,000); and Santa Rita for quails (52,000).

Among animal products, the one that stands out most in TR Mata Sul is quail eggs, whose production in 2022 was 1,769,000 dozen, representing 76.18% of the state's production.

Sapé stands out as the largest producer of milk among the municipalities of TR, with a production in 2022 of 385,000 liters; João Pessoa, of chicken eggs, with 48,000 dozen; Conde, of quail eggs, with 855,000 dozen; and Mari, of bee honey, with 1,600 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 308 agricultural establishments in the Mata Sul RT produced cow's milk, of which 231 (75%) were family farms. The amount produced that year in the RT was 2,733,000 liters, with a production value of 4,067,000 reais. Of this total, family farming contributed 951,000 liters (35%) produced, which represented 1,601,000 reais in production value.

Of the 19 agricultural establishments that produced goat's milk in the Mata Sul RT, 17, almost all (90%), were family farms in 2017. This year, 7,000 liters of goat's milk were produced in the RT, all by family farmers, equivalent to 100% of the total. The value of production that year was 16,000 reais, all of which came from family farming.

### **RT Middle Piranhas**

According to 2022 data from the IBGE's Municipal Livestock Survey (*PPM*), the cattle herd in the TR Médio Piranhas amounted to 85,279 head, while the equine herd numbered 3,157 head; pigs, 6,287; goats, 13,156; and sheep, 33,707. Following the same proportion, the total number of chickens was 144,202 head.

The most prominent share in the state's production involves cattle, with 6.22%, followed by horses (4.54%) and sheep (4.33%).

Among the municipalities in RT, the largest number of sheep is concentrated in Belém do Brejo do Cruz, with 9,105 head in 2022. Catolé do Rocha stands out for having the

most cattle (15,000), horses (650), pigs (1,509) and goats (3,025); and Bom Sucesso for chickens (36,797).

Among animal products, the one that stands out the most in the RT Médio Piranhas is bee honey, whose production in 2022 was 85,810 kilograms, representing 24.00% of state production.

Catolé do Rocha stands out as the largest producer of milk, chicken eggs and bee honey among the municipalities of the RT, with a production in 2022 of 385,000 liters, 103,000 dozens and 66,000 kilograms, respectively.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,161 agricultural establishments in the Middle Piranhas RT produced cow's milk, of which 1,742 (81%) were family farms. The amount produced that year in the RT was 16,567 thousand liters, reaching 19,895 thousand reais in production value. Of this total, family farming contributed with 9,485 thousand liters (57%) produced, which represented 11,718 thousand reais in production value.

Of the 8 agricultural establishments that produced goat's milk in the Middle Piranhas RT, all were family farms in 2017. This year, the amount of goat's milk produced in the RT was 5,000 liters, reaching a production value of 14,000 reais.

### ***RT Middle Hinterland***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in the RT Médio Sertão amounted to 111,111 head, while the equine herd numbered 4,269 head; pigs, 17,497; goats, 80,802; and sheep, 54,301. Following the same proportion, the total number of chickens was 259,787 head.

The most prominent share in state production involves goats, with 10.14%, followed by cattle (8.10%) and sheep (6.98%).

Among the municipalities in RT, the largest number of cattle is concentrated in São José de Espinharas, with 17,300 head in 2022. São Mamede stands out for having the largest equine herd (624); Patos for pigs (1,963); Catingueira for goats (8,772) and sheep (8,500); and Teixeira for chickens (32,053).

Among animal products, the one that stands out most in the RT Médio Sertão is milk, whose production in 2022 was 28,433 thousand liters, representing 9.76% of the state's production.

São Mamede stands out as the largest producer of milk among the municipalities of RT, with a production in 2022 of 3,600 thousand liters; Teixeira, of chicken eggs, with 58 thousand dozen; and Santa Teresinha, of bee honey, with 5,270 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,932 agricultural establishments in the Médio Sertão RT produced cow's milk, of which 2,257 (77%) were family farms. The amount produced that year in the RT was 20,825 thousand liters, reaching 27,923 thousand reais in production value. Of this total, family farming contributed with 12,335 thousand liters (59%) produced, which represented 17,209 thousand reais in production value.

Of the 179 agricultural establishments producing goat's milk in the Médio Sertão RT, 148 (83%) were family farms in 2017. This year, goat's milk produced in the region amounted to 189,000 liters, 109,000 of them by family farmers, equivalent to 58% of the total. The

value of production that year was R\$381,000, of which R\$225,000 (59%) came from family farming.

### ***RT Piemont da Borborema***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in TR Piemont da Borborema amounted to 101,960 head, while the buffalo herd numbered 16 head; horses, 5. Following the same proportion, the total number of chickens was 219,602, while the number of quails was 1,024.

The most prominent share in the state's production involves horses, with 7.89%, followed by cattle (7.43%) and pigs (5.20%).

Among the municipalities in RT, the largest number of goats is concentrated in Araruna, with 1,500 head in 2022. Bananeiras stands out for having the largest number of cattle (14,700), horses (810), pigs (2,300) and quails (900); Solânea, for concentrating all the buffalo (16); Damião, sheep (3,952); and Dona Inês, chickens (23,400).

Among the products of animal origin in the RT Piemont da Borborema the one that stands out the most is milk, whose production in 2022 was 9,529,000 liters, representing 3.27% of state production.

Bananeiras stands out as the largest producer of milk, hen's eggs and quail's eggs among the municipalities of RT, with a production in 2022 of 1,800 thousand liters, 46 thousand dozens and 26 thousand dozens, respectively; and Arara, of bee honey, with 1,500 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 1,850 agricultural establishments in the Piemont da Borborema RT produced cow's milk, of which 1,582 (86%) were family farms. The amount produced that year in the RT was 5,939,000 liters, reaching 9,356,000 reais in production value. Of this total, family farming contributed 3,522,000 liters (59%), which represented 6,144,000 reais in production value.

Of the 91 agricultural establishments producing goat's milk in the Piemont da Borborema RT, 75 (82%) were family farms in 2017. This year, goat's milk produced in the RT amounted to 51,000 liters, 29,000 of them by family farmers, equivalent to 57% of the total. The value of production that year was R\$113,000, of which R\$60,000 (53%) came from family farming.

### ***RT Serra do Teixeira***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in TR Serra do Teixeira amounted to 72,406 head, while the equine herd numbered 2,088 head; pigs, 16,784; goats, 31,543; and sheep, 20,536. Following the same proportion, the total number of chickens was 598,748.

The most prominent share in state production involves pigs, with 5.82%, followed by cattle (5.28%) and chickens (4.73%).

Among the municipalities in RT, the largest number of cattle is in Tavares, with 14,580 head in 2022. Princesa Isabel stands out for having the largest number of head of horses (603), pigs (5,910), sheep (5,524) and chickens (519,698); and Manaíra, goats (8,047).

Among the products of animal origin, the RT Serra do Teixeira stands out most for its chicken eggs, whose production in 2022 was 9,691,000 dozen, representing 16.26% of the state's production.

Princesa Isabel stands out as the largest producer of milk and chicken eggs among the municipalities of the RT, with a production in 2022 of 2,781 thousand liters and 9,544 thousand dozen, respectively; and Água Branca, of bee honey, with 4,100 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 1,712 agricultural establishments in the Serra do Teixeira RT produced cow's milk, of which 1,483 (87%) were family farms. The amount produced that year in the RT was 4,040 thousand liters, reaching 7,097 thousand reais in production value. Of this total, family farming contributed 3,393,000 liters (84%) produced, which represented 6,074,000 reais in production value.

Of the 66 agricultural establishments producing goat's milk in the Serra do Teixeira RT, 56 (85%) were family farms in 2017. This year, goat's milk produced in the RT amounted to 24,000 liters, 22,000 of them by family farmers, equivalent to 92% of the total. The value of production that year was R\$55,000, of which R\$51,000 (93%) came from family farming.

### ***RT Vale de Piancó***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in the RT Vale de Piancó amounted to 143,656 head, while the buffalo herd numbered 22 head; horses, 4,522; pigs, 22,209; goats, 38,084; and sheep, 48,456. Following the same proportion, the total number of chickens was 234,289 head.

Cattle account for the largest share of the state's production, with 10.47%, followed by pigs (7.70%) and horses (6.50%).

Among the municipalities in RT, the largest number of cattle is concentrated in Piancó, with 21,560 head in 2022. Itaporanga stands out for having the largest equine herd (606); Coremas has all the buffalo (22); and Conceição has pigs (3,547), goats (6,253), sheep (6,205) and chickens (33,955).

Among the products of animal origin, the RT Vale de Piancó stands out most for its milk, whose production in 2022 was 31,163 thousand liters, representing 10.70% of the state's production.

Piancó stands out as the largest producer of milk among the municipalities of RT, with a production in 2022 of 4,599 thousand liters; and Conceição, of chicken eggs and bee honey, with 92 thousand dozen and 1,578 kilograms, respectively.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 4,972 agricultural establishments in the Vale de Piancó RT produced cow's milk, of which 4,154 (84%) were family farms. The amount produced that year in the RT was 21,999 thousand liters, with a production value of 29,872 thousand reais. Of this total, family farming contributed 16,906,000 liters (77%), which represented 23,052,000 reais in production value.

Of the 27 agricultural establishments producing goat's milk in the Vale de Piancó RT, 20 (74%) were family farms in 2017. This year, goat's milk produced in the RT amounted to 20,000 liters, 16,000 of them by family farmers, equivalent to 80% of the total. The value

of production that year was 41,000 reais, of which 31,000 reais (76%) came from family farming.

### ***RT Maringá Valley***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in RT Vale do Maringá totaled 90,512 head, while the buffalo herd numbered 63 head; horses, 2,214; pigs, 8,117; goats, 17,815; and sheep, 54,096. Following the same proportion, the total number of chickens was 78,189 head.

The most prominent share in the state's production involves the buffalo herd, with 9.03%, followed by sheep (6.96%) and cattle (6.60%).

Among the municipalities in RT, the largest numbers of horses and pigs are concentrated in Paulista, with 631 and 3,521 head in 2022, respectively. Pombal stands out for having the largest number of cattle (29,800), buffalo (34), goats (6,100), sheep (23,304) and chickens (30,984).

Among animal products, the RT Vale do Maringá stands out most for its milk, which in 2022 produced 21,486 thousand liters, representing 7.38% of state production.

Pombal stands out as the largest producer of milk and chicken eggs among the municipalities of the RT, with a production in 2022 of 6,649 thousand liters and 99 thousand dozen, respectively; and São Bento, of bee honey, with 3,000 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,326 agricultural establishments in the Vale do Maringá RT produced cow's milk, of which 1,819 (78%) were family farms. The amount produced that year in the RT was 21,633 thousand liters, with a production value of 25,432 thousand reais. Of this total, family farming contributed with 12,708 thousand liters (59%) produced, which represented 15,021 thousand reais in production value.

Of the 7 agricultural establishments producing goat's milk in the Maringá Valley RT, 5 (71%) were family farms in 2017. This year, goat's milk produced in the RT amounted to 14,000 liters, 13,000 of them by family farmers, equivalent to 93% of the total. The value of production that year was 21,000 reais, of which 19,000 reais (91%) came from family farming.

### ***RT Paraíba Valley***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in TR Vale do Paraíba totaled 92,145 head, while the buffalo herd totaled 12 head; horses, 7,624; pigs, 15,539; goats, 24,050; sheep, 28,505. Following the same proportion, the total number of chickens was 1,683,057, while the number of quails was 2,660.

The most prominent share of the state's production is accounted for by chickens, with 13.28%, followed by horses (10.96%) and cattle (6.72%).

Among the municipalities in RT, the largest number of cattle and sheep is concentrated in Gurinhém, with 17,000 and 5,000 head in 2022, respectively. Mogeiro stands out for having the largest number of buffalo (12), horses (1,050) and quails (1,500); Itabaiana, pigs (2,500) and goats (4,180); and Pedras de Fogo, chickens (1,084,087).



Among animal products, the ones that stand out most in the RT Vale do Paraíba are hen's eggs and bee honey, whose production in 2022 was 18,845 thousand dozen and 66,620 kilograms, representing 31.62% and 18.63%, respectively, of the state's production.

Gurinhém stands out as the largest producer of milk among the municipalities of RT, with a production in 2022 of 1,600 thousand liters; Pedras de Fogo, of chicken eggs, with 18,043 thousand dozen; Mogeiro, of quail eggs, with 17 thousand dozen: and Salgado de São Félix, of bee honey, with 25,000 kilograms.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 908 agricultural establishments in the Vale do Paraíba RT produced cow's milk, of which 708 (78%) were family farms. The amount produced that year in the RT was 3,926,000 liters, with a production value of 6,148,000 reais. Of this total, family farming contributed 1,995,000 liters (51%) produced, which represented 3,443,000 reais in production value.

Of the 102 agricultural establishments producing goat's milk in the Vale do Paraíba RT, 79 (78%) were family farms in 2017. This year, 47,000 liters of goat's milk were produced in the RT, 37,000 of them by family farmers, equivalent to 79% of the total. The value of production that year was 126,000 reais, of which 99,000 reais (79%) came from family farming.

### ***RT Piranhas Valley***

According to 2022 data from the IBGE's Municipal Livestock Survey (PPM), the cattle herd in RT Vale do Piranhas totaled 70,648 head, while the equine herd numbered 2,191 head; pigs, 9,540; goats, 17,191; and sheep, 37,105. Following the same proportion, the total number of chickens was 139,510.

The most prominent share of the state's production involves cattle, with 5.15%, followed by sheep (4.77%) and pigs (3.31%).

Among the municipalities in RT, the largest number of goats is concentrated in São José da Lagoa Tapada, with 4,700 head in 2022. Sousa stands out for having the largest number of cattle (27,055), horses (610), pigs (3,200), sheep (22,000) and chickens (88,200).

Among the products of animal origin, the one that stands out most in the RT Vale do Piranhas is bee honey, whose production in 2022 was 30,250 kilograms, representing 8.46% of the state's production.

Sousa stands out as the largest producer of milk and chicken eggs among the municipalities of the CA, with a production in 2022 of 9,935,000 liters and 207,000 dozen, respectively; and São José da Lagoa Tapada, of bee honey, with 16,000 kilograms.

The following tables show herd numbers, animal production by type of product and the number of establishments, quantity produced and value of cow's and goat's milk production in Paraíba's Rural Territories.

According to 2017 data from the IBGE Agricultural Census, in the year of the survey a total of 2,326 agricultural establishments in the Piranhas Valley RT produced cow's milk, of which 1,999 (86%) were family farms. The amount produced that year in the RT was 13,097 thousand liters, with a production value of 16,112 thousand reais. Of this total,

family farming contributed with 8,615 thousand liters (66%) produced, which represented 10,697 thousand reais in production value.

Of the 5 agricultural establishments that produced goat's milk in the Piranhas Valley RT, 2 (40%) were family farms in 2017. This year, 5,000 liters of goat's milk were produced in the RT, 1,000 of them by family farmers, equivalent to 20% of the total. The value of production that year was 7,000 reais, of which 1,000 reais (14%) came from family farming.

**Table 157 - Herd Numbers by Type of Herd in the Rural Territories of Paraíba (2022)**

Rural Territories and UF	Type of Herd (Heads)							
	Cattle	Bubalino	Equine	Swine	Goat	Sheep	Chickens	Quail
TR Alto Sertão	102.722	93	4.100	18.635	17.064	33.660	171.132	-
TR Borborema	210.239	258	15.365	93.861	196.748	189.508	4.234.765	12.970
TR Brejo	71.580	31	3.979	14.493	5.545	9.718	1.196.001	22.150
TR Cariri	78.178	-	4.957	15.420	301.519	178.154	494.893	-
TR Curimataú	45.830	-	2.166	11.746	33.610	58.065	419.242	-
TR Mata Norte	44.450	-	2.898	4.865	3.671	3.580	1.045.568	-
TR Mata Sul	42.386	215	3.828	12.776	5.231	7.907	1.718.430	150.400
TR Middle Piranhas	85.279	-	3.157	6.287	13.156	33.707	144.202	-
TR Middle Hinterland	111.111	-	4.269	17.497	80.802	54.301	259.787	-
TR Piemont da Borborema	101.960	16	5.487	14.995	9.717	22.714	219.602	1.024
TR Serra do Teixeira	72.406	-	2.088	16.784	31.543	20.536	598.748	-
TR Vale de Piancó	143.656	22	4.522	22.209	38.084	48.456	234.289	-
TR Maringá Valley	90.512	63	2.214	8.117	17.815	54.096	78.189	-
TR Paraíba Valley	92.145	12	7.624	15.534	24.050	28.502	1.683.057	2.660
TR Piranhas Valley	70.648	-	2.191	9.540	17.191	37.105	139.510	-
<b>Paraíba</b>	<b>1.371.566</b>	<b>698</b>	<b>69.555</b>	<b>288.360</b>	<b>796.472</b>	<b>777.790</b>	<b>12.669.505</b>	<b>189.204</b>

Source: IBGE - Municipal Livestock Survey (PPM), 2022.

**Table 158 - Production of Animal Origin by Type of Product in the Rural Territories of Paraíba (2022)**

Rural Territories and UF	Animal production - 2022			
	Milk (thousand liters)	Chicken eggs (a thousand dozen)	Quail eggs (a thousand dozen)	Bee honey (kilograms)
TR Alto Sertão	34.614	329	-	72.617
TR Borborema	71.169	10.318	97	22.491
TR Brejo	8.615	1.513	393	5.705
TR Cariri	16.345	1.264	-	12.260
TR Curimataú	9.600	4.572	-	2.435
TR Mata Norte	1.778	10.379	-	18.950
TR Mata Sul	2.039	289	1.769	7.560
TR Middle Piranhas	18.683	290	-	85.810
TR Middle Hinterland	28.433	462	-	13.074
TR Piemont da Borborema	9.529	436	27	5.538
TR Serra do Teixeira	11.248	9.691	-	5.947
TR Vale de Piancó	31.163	664	-	3.887
TR Maringá Valley	21.486	261	-	4.950
TR Paraíba Valley	7.979	18.845	37	66.620
TR Piranhas Valley	19.827	315	-	30.250
<b>Paraíba</b>	<b>291.275</b>	<b>59.601</b>	<b>2.322</b>	<b>357.594</b>

Source: IBGE - Municipal Livestock Survey (PPM), 2022.

**Table 159 - Number of Establishments, Quantity Produced and Value of Cow's Milk Production in the Rural Territories of Paraíba (2017)**

Rural Territories and UF	No. of agricultural establishments that produced cow's milk			Quantity of cow's milk produced (thousand liters)			Value of cow's milk production (thousand Reais)		
	Total	Family Farming	% of family farming	Total	Family Farming	% of family farming	Total	Family Farming	% of family farming
TR Alto Sertão	3.638	3.114	86%	20.325	14.856	73%	26.458	19.339	73%
TR Borborema	9.395	7.588	81%	66.223	45.499	69%	89.218	61.236	69%
TR Brejo	952	700	74%	5.365	2.379	44%	8.436	4.191	50%
TR Cariri	2.807	2.282	81%	9.631	7.211	75%	14.270	10.732	75%
TR Curimataú	2.184	1.766	81%	4.913	3.544	72%	8.127	5.998	74%
TR Mata Norte	265	202	76%	1.083	488	45%	1.603	777	48%
TR Mata Sul	308	231	75%	2.733	951	35%	4.067	1.601	39%
TR Middle Piranhas	2.161	1.742	81%	16.567	9.485	57%	19.895	11.718	59%
TR Middle Hinterland	2.932	2.257	77%	20.825	12.335	59%	27.923	17.209	62%
TR Piemont da Borborema	1.850	1.582	86%	5.939	3.522	59%	9.356	6.144	66%
Serra do Teixeira	1.712	1.483	87%	4.040	3.393	84%	7.097	6.074	86%
Piancó Valley	4.972	4.154	84%	21.999	16.906	77%	29.872	23.052	77%
Maringá Valley	2.326	1.819	78%	21.633	12.708	59%	25.432	15.021	59%
Paraíba Valley	908	708	78%	3.926	1.995	51%	6.148	3.443	56%
Piranhas Valley	2.326	1.999	86%	13.097	8.615	66%	16.112	10.697	66%
<b>Total</b>	<b>38.736</b>	<b>31.627</b>	<b>82%</b>	<b>218.299</b>	<b>143.887</b>	<b>66%</b>	<b>294.014</b>	<b>197.232</b>	<b>67%</b>

Source: Agricultural Census/IBGE, 2017. Prepared by: DIEESE.

**Table 160 - Number of Establishments, Quantity Produced and Value of Goat's Milk Production in the Rural Territories of Paraíba (2017)**

Rural Territories and UF	No. of agricultural establishments that produced goat's milk			Quantity of goat's milk produced (thousand liters)			Value of goat's milk production (thousand Reais)		
	Total	Family Farming	% of family farming	Total	Family Farming	% of family farming	Total	Family Farming	% of family farming
TR Alto Sertão	22	18	82%	11	7	64%	18	14	78%
TR Borborema	950	724	76%	1.652	986	60%	3.255	1.789	55%
TR Brejo	73	57	78%	23	15	65%	59	33	56%
TR Cariri	1.004	805	80%	3.317	2.721	82%	6.308	5.162	82%
TR Curimataú	96	73	76%	124	66	53%	243	129	53%
TR Mata Norte	28	22	79%	15	11	73%	45	37	82%
TR Mata Sul	19	17	90%	7	7	100%	16	16	100%
TR Middle Piranhas	8	8	100%	5	5	100%	14	14	100%
TR Middle Hinterland	179	148	83%	189	109	58%	381	225	59%
TR Piemont da Borborema	91	75	82%	51	29	57%	113	60	53%
Serra do Teixeira	66	56	85%	24	22	92%	55	51	93%
Piancó Valley	27	20	74%	20	16	80%	41	31	76%
Maringá Valley	7	5	71%	14	13	93%	21	19	91%
Paraíba Valley	102	79	78%	47	37	79%	126	99	79%
Piranhas Valley	5	2	40%	5	1	20%	7	1	14%
<b>Total</b>	<b>2.677</b>	<b>2.109</b>	<b>79%</b>	<b>5.504</b>	<b>4.045</b>	<b>74%</b>	<b>10.702</b>	<b>7.680</b>	<b>72%</b>

Source: Agricultural Census/IBGE, 2017. Prepared by: DIEESE.

### **Plant Extraction**

According to the Plant Extraction and Forestry Production Survey (PEVS), in 2022 the value of plant extraction production in Brazil totaled R\$6.2 billion.

The type of extractive product that contributed the most value to plant extraction production was roundwood, totaling R\$2.7 billion, or 44.19% of the total value.

As for the state of Paraíba, plant extraction reached R\$23.8 million in 2022, with firewood extraction contributing the most, with R\$16.9 million, 71.00% of the total value.

As far as family farming is concerned, according to data from the 2017 IBGE Agricultural Census, 18,864 establishments were engaged in plant extraction of some kind that year. This corresponded to 15.05% of all family farming establishments in the state. The value of plant extraction production achieved by family farmers' establishments in Paraíba was R\$35,512 thousand in 2017.

In the Agricultural and Livestock Census, extractivism refers to plant extraction in the reference period, from non-planted (native) plant species. It can be seen in the figure below that among the products of plant extraction, firewood is the most important in the state. Agreste Paraibano is the mesoregion that extracted the most of this product in 2017.

**Figure131 - Production value of plant extraction products produced in family farming establishments in Paraíba (in thousand reais)**

<b>Carnaúba (pó de palha)</b>	<b>R\$ 12,00</b>
<b>Cajarana</b>	<b>R\$ 55,00</b>
<b>Outros produtos</b>	<b>R\$ 73,00</b>
<b>Imbú ou umbú</b>	<b>R\$ 115,00</b>
<b>Mangaba (fruto)</b>	<b>R\$ 536,00</b>
<b>Madeira em toras outra finalidade</b>	<b>R\$ 1.772,00</b>
<b>Lenha</b>	<b>R\$ 32.943,00</b>

Source: AKSAAM, 2021.

#### **4.3.5 Education**

The information expressed in this item includes data on the educational level of the population of the state of Paraíba, as well as its literacy and school attendance rates, among others.

According to data from INEP (2022), there are 4,723 basic education institutions in Paraíba, 3,287 of which are early childhood education institutions, as well as 3,741 primary education institutions and 658 secondary education institutions. Of this number, most (2,917) are in the urban area of the municipality, equivalent to 61.76% of the total, leaving 1,806 units (38.24%) in rural areas.

In Paraíba, there are 1,966 crèches, 1,148 in urban areas and 818 in rural areas. Of these, most are private (622) in the urban area, and in the rural area, municipal (810).

The state government is responsible for 1,025 elementary school and 9 nursery schools. Secondary education has 462 state-run institutions.

The following table shows the distribution of the number of school units by school level and administrative level in Paraíba.

**Table 161 - Number of School Units by School Level in the State of Paraíba (2022)**

School Level	Grand Total	Urban					Rural				
		Total	Federal	State	Municipal	Private	Total	Federal	State	Municipal	Private
Medium	658	613	18	419	1	175	45	1	43	1	-
Fundamental	3.741	2.097	1	318	956	822	1.644	-	57	1.582	5
Children	3.287	1.744	2	2	960	780	1.543	-	7	1.531	5
Pre-schools	3.093	1.592	2	2	814	774	1.501	-	7	1.489	5
Kindergartens	1.966	1.148	2	1	523	622	818	-	5	810	3
Basic	4.723	2.917	25	569	1.435	888	1.806	1	73	1.727	5

Source: INEP, 2022.

In Paraíba, there are 47,792 elementary school teachers who teach a total of 967,833 students, resulting in an enrollment rate of 20 per staff member. There are an average of 16 pupils per teacher in early childhood education (15 in nursery schools and 16 in pre-schools), 18 in primary education and 13 in secondary education.

The following table shows the number of teachers in Paraíba and then the number of enrolments by school level and administrative level.



**Table 162 - Number of Teachers by School Level in the State of Paraíba (2022)**

School Level	Grand Total	Urban					Rural				
		Total	Federal	State	Municipal	Private	Total	Federal	State	Municipal	Private
Medium	10.976	10.417	926	7.568	13	2.098	622	40	574	8	-
Fundamental	28.872	23.730	10	4.105	13.295	7.672	6.154	-	612	5.536	39
Children	10.130	8.328	16	3	5.619	2.788	1.858	-	21	1.825	12
Pre-schools	5.906	4.591	9	2	2.762	1.850	1.342	-	14	1.318	10
Kindergartens	4.605	4.076	7	1	2.955	1.134	536	-	7	526	3
<b>Basic</b>	<b>47.792</b>	<b>40.002</b>	<b>1.131</b>	<b>11.145</b>	<b>19.889</b>	<b>10.878</b>	<b>9.432</b>	<b>65</b>	<b>1.081</b>	<b>8.310</b>	<b>48</b>

Source: INEP, 2022.

**Table 163 - Number of School Enrolments by School Level in the State of Paraíba (2022)**

School Level	Grand Total	Urban					Rural				
		Total	Federal	State	Municipal	Private	Total	Federal	State	Municipal	Private
Medium	144.453	137.918	7.674	111.951	99	18.194	6.535	124	6.314	97	-
Fundamental	534.889	451.949	116	56.795	283.919	111.119	82.940	-	6.238	76.199	503
Children	167.041	136.648	140	31	93.327	43.150	30.393	-	249	29.941	203
Pre-schools	96.475	76.625	76	18	48.519	28.012	19.850	-	166	19.536	148
Kindergartens	70.566	60.023	64	13	44.808	15.138	10.543	-	83	10.405	55
<b>Basic</b>	<b>967.833</b>	<b>817.249</b>	<b>12.065</b>	<b>209.465</b>	<b>414.308</b>	<b>181.411</b>	<b>150.584</b>	<b>561</b>	<b>17.620</b>	<b>131.697</b>	<b>706</b>

Source: INEP, 2022.

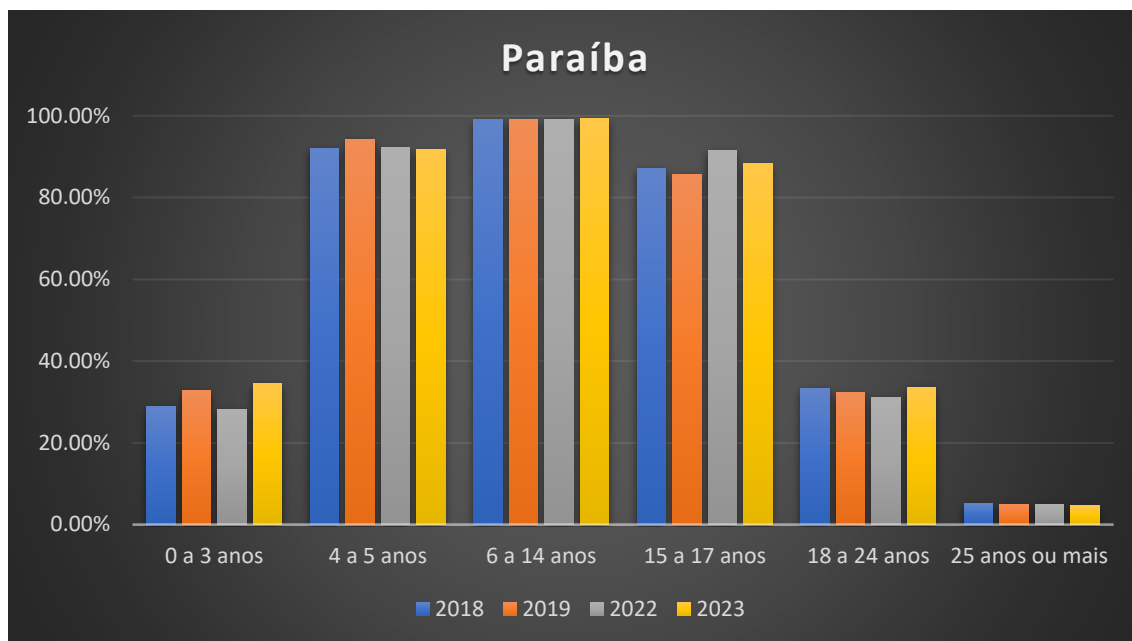
According to data from the IBGE's Continuous PNAD (2018), in Paraíba, the proportion of children aged 0 to 3 in school was 28.80% in 2018. In the same year, the schooling rate for children aged 4 to 5 was 92.10%; for children aged 6 to 14, 99.10%; for young people aged 15 to 17, 87.20%; for young people aged 18 to 24, 33.30%; and for people aged 25 or over, only 5.10%.

By 2023, using data from the Continuous PNAD for that year, the proportion of children aged 0 to 3 in school was 34.50%. In the same year, the schooling rate for children aged 4 to 5 was 91.70%; for children aged 6 to 14, 99.30%; for young people aged 15 to 17,

88.30%; for young people aged 18 to 24, 33.60%; and for people aged 25 and over, 4.60%.

The above data can be seen in the figure below, which shows the schooling rate by age group in Paraíba in 2018, 2019, 2022 and 2023.

**Figure132 - Schooling Rate by Age Group in Paraíba - 2018, 2019, 2022 and 2023**



Source: IBGE - Continuous PNAD 2018, 2019, 2022 and 2023.

In 2010, approximately 28 out of every 100 children in Paraíba were 2 years or more behind in their first years of elementary school. By 2023, this percentage had fallen to 10.5%. The rate of age-grade distortion<sup>39</sup> in the final years of elementary school was 42.3% in 2010, and fell to 23.8% in 2023, a decrease of 18.5 percentage points. In turn, the age-grade distortion rate in secondary education fell significantly (16.6%) between 2010-2023, reaching a rate of 25.1% in the latter year.

In 2022, the highest rates of age-grade distortion in the first years of elementary school, among Paraíba's municipalities, were in Alagoa Grande (31.8%), São Miguel de Taipu (24.7%) and Santa Rita (24.3%), while Frei Martinho (0.6%), São José do Sabugi (0.8%) and Baraúna (0.8%) had the lowest rates.

In the final years of elementary school, in the same year, the municipalities with the highest age-grade distortion rates were Pedro Régis (49.4%), Poço Dantas (48.1%) and Marcação (45.8%), while the lowest rates were in Dona Inês (4.0%), Zabelê (7.1%) and Monteiro (10.0%).

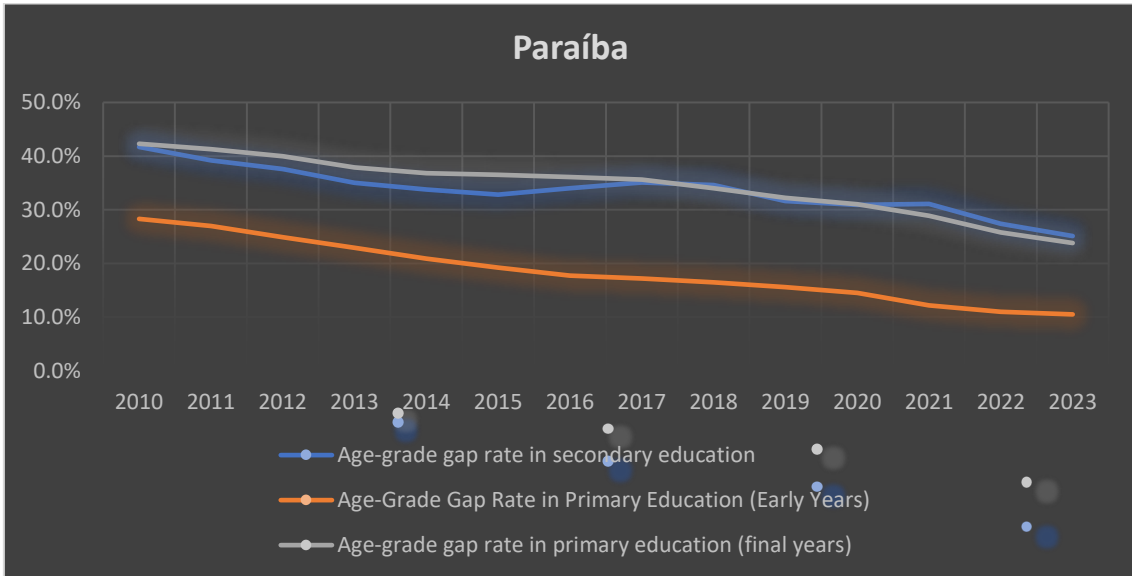
However, in 2022, Cachoeira dos Índios (59.2%), Marcação (55.1%) and São José dos Ramos (50.7%) had the highest rates of age-grade distortion in secondary education, while Ouro Velho (11.8%), São Bentinho (13.5%) and dona Inês (13.9%) had the lowest rates.

<sup>39</sup> Age-grade distortion rate: Age-grade distortion is the proportion of students who are more than two years behind in school. In Brazil, children must enter the first year of elementary school at the age of 6, remaining in elementary school until the 9th year, with the expectation that they will complete their studies in this mode by the age of 14. The calculation of age-grade distortion is based on data collected in the School Census.

The figure below shows the evolution of the age-grade distortion rate over the period 2010-2023 in primary and secondary education in Paraíba.

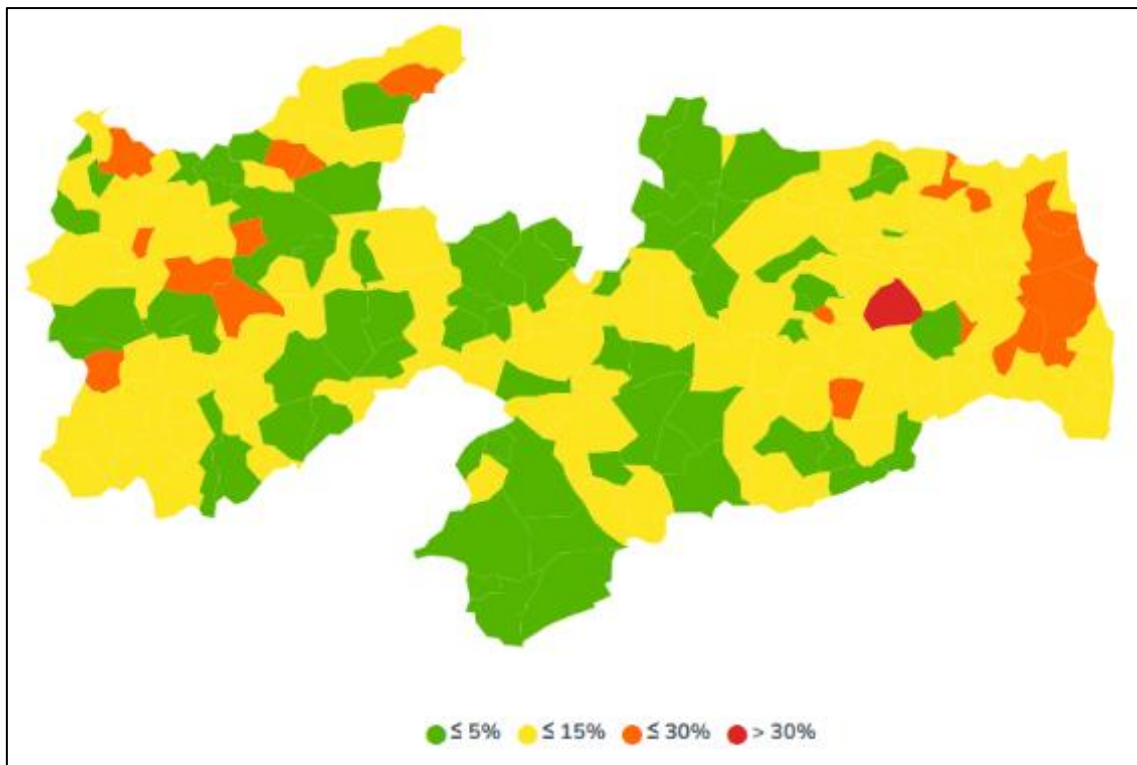
The figures below show the age-grade distortion maps for Paraíba's municipalities, for the initial and final years of elementary school and for secondary school, in 2022.

**Figure133 - Age-Grade Gap Rate in Primary and Secondary Education in Paraíba (2010-2023)**



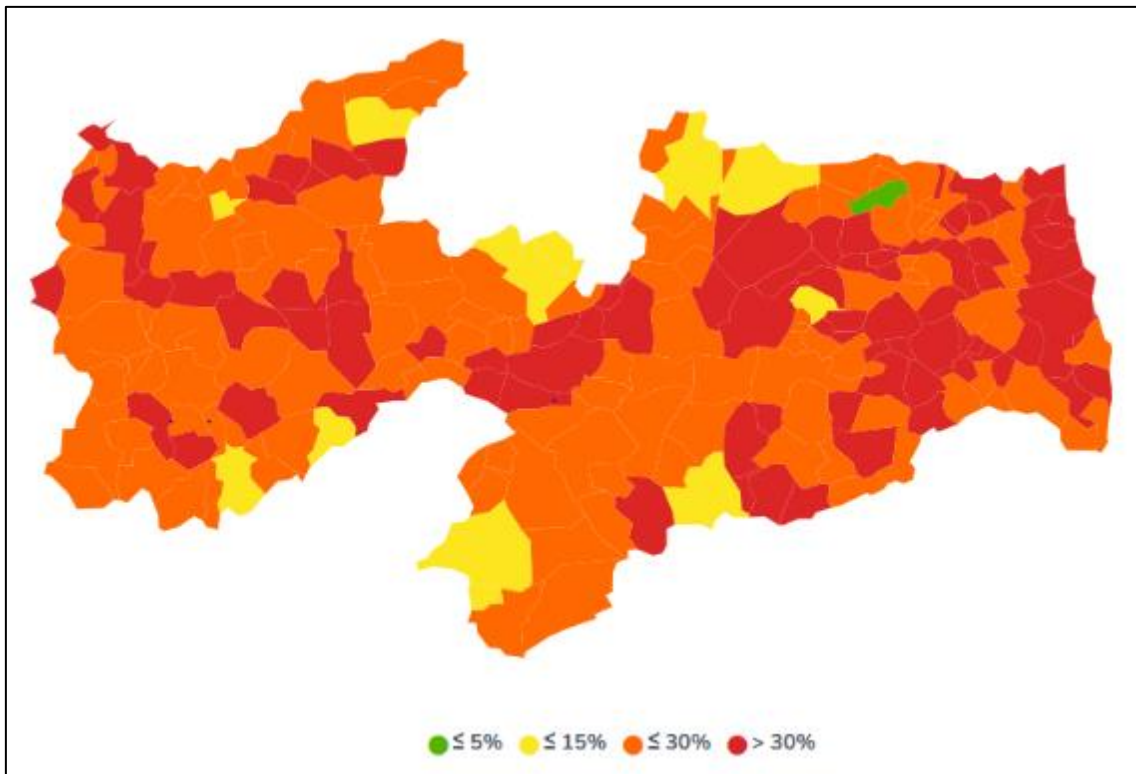
Source: INEP, 2010-2022.

**Figure134 - Map of age-grade distortion (Early Years - Elementary School) of the Municipalities of Paraíba (2022)**



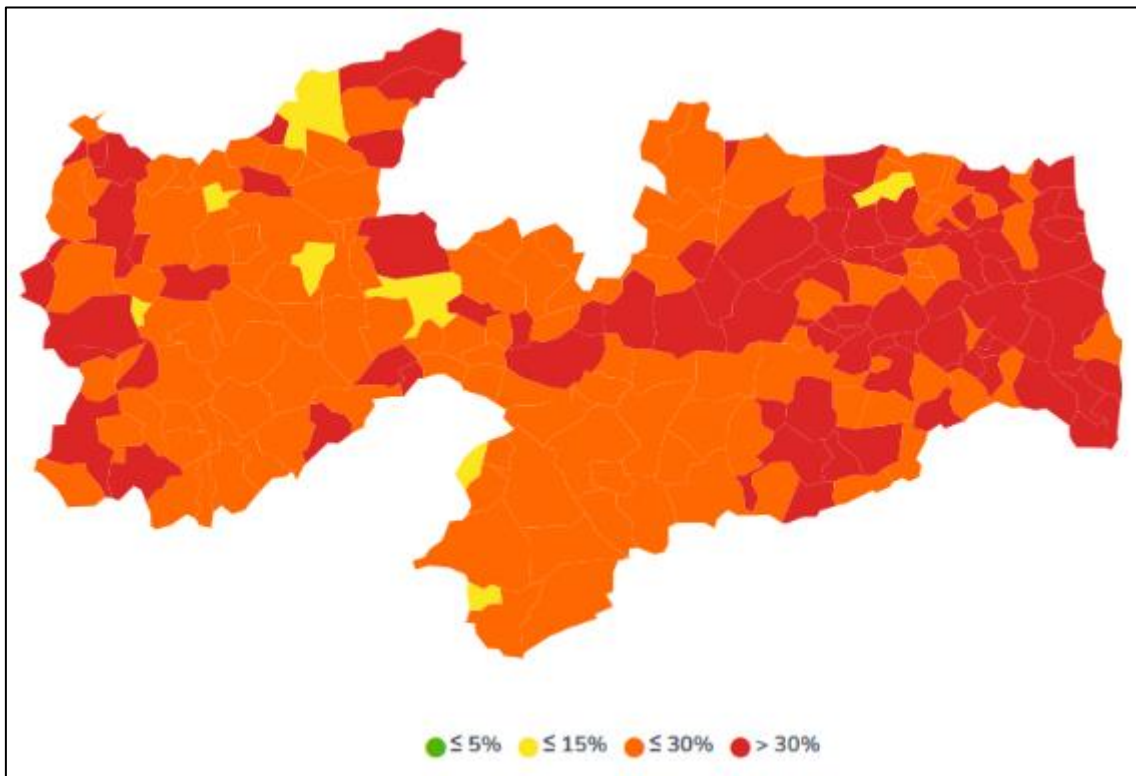
Source: Qedu Platform, 2022.

**Figure135 - Map of age-grade distortion (Final Years - Elementary School) of the Municipalities of Paraíba (2022)**



Source: Qedu Platform, 2022.

**Figure136 - Map of age-grade distortion (High School) in the municipalities of Paraíba (2022)**

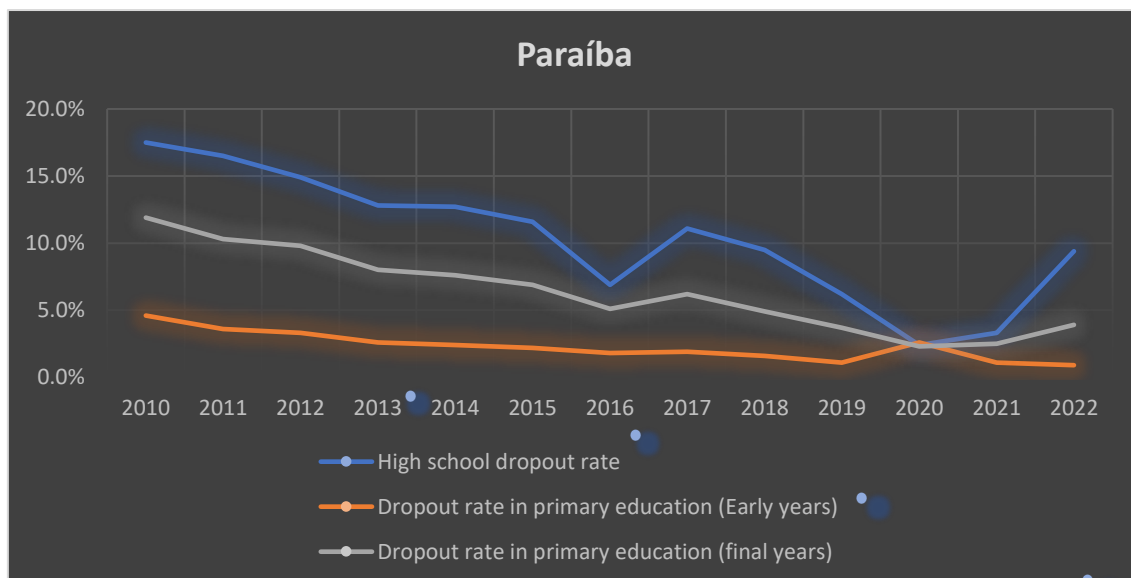


Source: Qedu Platform, 2022.

However, in 2010, 16,284 students dropped out of elementary school in Paraíba, which represents a dropout rate<sup>40</sup> of 4.6%. By 2022, this percentage had dropped considerably to 0.9%. The dropout rates in the final years of elementary school and in secondary school also fell significantly in the 2010-2022 period, by 6.4 and 8.1 percentage points respectively.

It should be noted that between 2021 and 2022 there was a considerable increase in the high school rate, from 3.3% to 9.4% over this period of time, as can be seen in the figure below.

**Figure137 - Dropout Rate in Primary and Secondary Education in Paraíba (2010-2022)**



Source: INEP, 2010-2022.

Among Paraíba's municipalities, the highest dropout rates in the first years of elementary school in 2022 were in Mato Grosso (6.6%), São Miguel de Taipu (5.7%) and Lagoa (4.5%); in the final years of elementary school, in Solânea (15.2%), Araçagi (13.2%) and Lagoa de Dentro (12.9%); and in secondary school, in Areia de Baraúnas (29.7%), Monte Horebe (25.4%) and Lucena (24.9%).

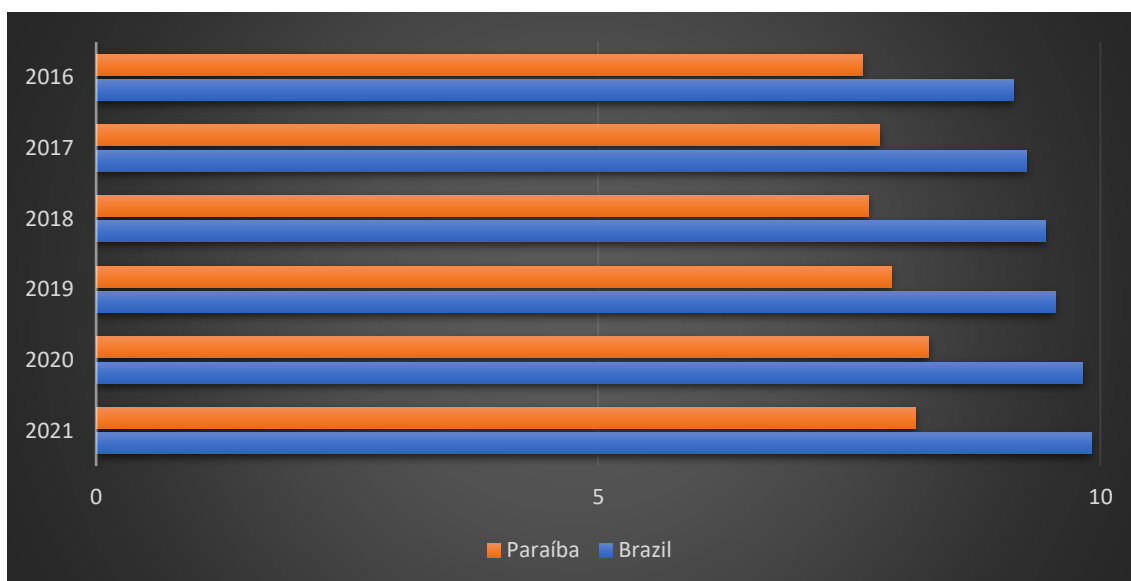
Another educational indicator is the expected years of study, which also summarizes the school attendance of the school-age population. More precisely, it indicates the average number of years of study that a child starting school in the reference year should complete by the time they reach the age of 18.

In 2016, according to information from the Continuous PNAD, this average was 7.63 years in Paraíba and in 2021, it was 8.16 years, which represents an increase over this period of 0.53 years. In the country, in the same period, it increased by 0.78 years, from 9.13 years in 2016 to 9.91 years in 2021.

In the figure below we can see the evolution of the expectation of years of study in Paraíba in the period 2016-2021.

<sup>40</sup> Dropout rate: Indicates the percentage of students enrolled in the stage of education who stop attending school during the school term. It represents the condition of the student who stops attending school during the course of the school year, but re-enrolls the following year, as opposed to "school dropout", when the student does not return the following school term.

**Figure138 - Expected years of schooling in Paraíba - 2016 to 2021**



Source: UNDP - Atlas of Human Development in Brazil, 2022.

In terms of illiteracy, in 1991 in Paraíba, 37.95% of children aged 11 to 14 were illiterate, 30.93% of young people aged 15 to 17 and 29.99% of adults aged 18 to 24 were also illiterate. In 2000, these rates fell considerably, a phenomenon resulting from investments in education: 12.82% in the 11-14 age group, 11.06% in the 15-17 age group and 16.55% among adults aged 18-24. By 2010, a large part of Paraíba's population in these age groups was literate (84.72%).

For people over 25, the illiteracy rate is falling, but at a slower rate than the other age groups. In 1991, almost half of Paraíba's inhabitants over the age of 25 were illiterate (47.14%), in 2000 this figure fell to 36.18%, and in 2010 to 27.42%, which although still a considerable amount shows the municipality's progress in education.

In 2010, among Paraíba's municipalities, the ones with the highest illiteracy rates were Casserengue (42.20%), São José da Lagoa Tapada (42.10%) and Pedro Régis (41.50%), while the lowest rates were found in João Pessoa (7.70%), Campina Grande (11.10%) and Cabedelo (11.50%).

In 2023, a large part of the population aged 15 and over in Paraíba was literate, 86.8% in fact, according to data from the Continuous PNAD (2023). The data shows a gradual reduction in the state's illiteracy rate over the years. In 2016, the rate was 15.4% and, since 2022 (13.6%), it has been below 15%, reaching its lowest point in 2023 (13.2%).

Despite this evolution, the percentage of illiteracy in Paraíba is still the third highest in the country, only surpassed by the rates in Alagoas (14.2%) and Piauí (13.3%), and above the averages for Brazil (5.4%) and the Northeast (11.2%).

According to the IBGE, in 2023 there were around 417,000 illiterate people in Paraíba, with a much higher rate among men (16.1%) than among women (10.5%). The proportion was also higher among black or brown people (14.4%) than among white people (10.6%).

In terms of age groups, the survey shows that in the 60 and over age group, the illiteracy rate (33.1%) was more than double the state average. Despite this, the indicator for this

age group was, in 2023, the lowest recorded in the historical series, well below that seen in 2016 (42.2%), the start of the series.

Another important indicator to analyze is functional illiteracy, defined as follows by UNESCO (United Nations Educational, Scientific and Cultural Organization): "A person is considered to be functionally illiterate if, even if he or she can read and write a simple statement, such as a note, for example, he or she still does not have the reading, writing and calculation skills necessary to participate in social life in its various dimensions: in the community, in the world of work and in politics, for example." In Brazil, there are approximately 14 million absolute illiterates and just over 35 million functional illiterates, according to official statistics. The 2010 IBGE census showed that one in four people are functionally illiterate (the percentage is 20.3%). The biggest problem is in the Northeast, where the rate reaches 30.8%.

In 2012, the Paulo Montenegro Institute and the NGO Ação Educativa published the Functional Illiteracy Indicator (INAF) among university students in Brazil, which stands at 38.0%, reflecting the significant growth in low-quality universities over the last decade. In some developed countries, this rate is less than 10%, as in Sweden, for example.

According to data from the Continuous PNAD (2021), Paraíba registered a rate of 22.9% of functional illiterates that year, the highest rate in the country and more than double the national average for that year (11.4%).

**Table 164 - Illiteracy Rate in Paraíba (1991, 2000 and 2010 )**

Age group (years)	Illiteracy rate (%)		
	1991	2000	2010
11 a 14	37,95	12,82	5,39
15 a 17	30,93	11,06	4,12
18 a 24	29,99	16,55	5,77
25 years or older	47,14	36,18	27,42

Source: UNDP - Atlas of Human Development in Brazil, 2022.

The IDEB is an important index, widely used today, which measures the quality of education in public and private education networks at national level, in states and municipalities, through the approval and average performance of students assessed in the Saeb and Prova Brasil tests, also consolidating the projection of annual development goals.

In the first years of elementary school, the state of Paraíba has been meeting the targets set for public education since 2007.

Moving on to the second cycle of elementary school, the public school system in Paraíba saw an increase in the indices between 2007 and 2011, but from 2013 to 2019 they did not improve, meaning that the municipality did not reach the projected targets for these years. In the final year, 2021, it managed to meet the targets again, equaling the projected target for that year.

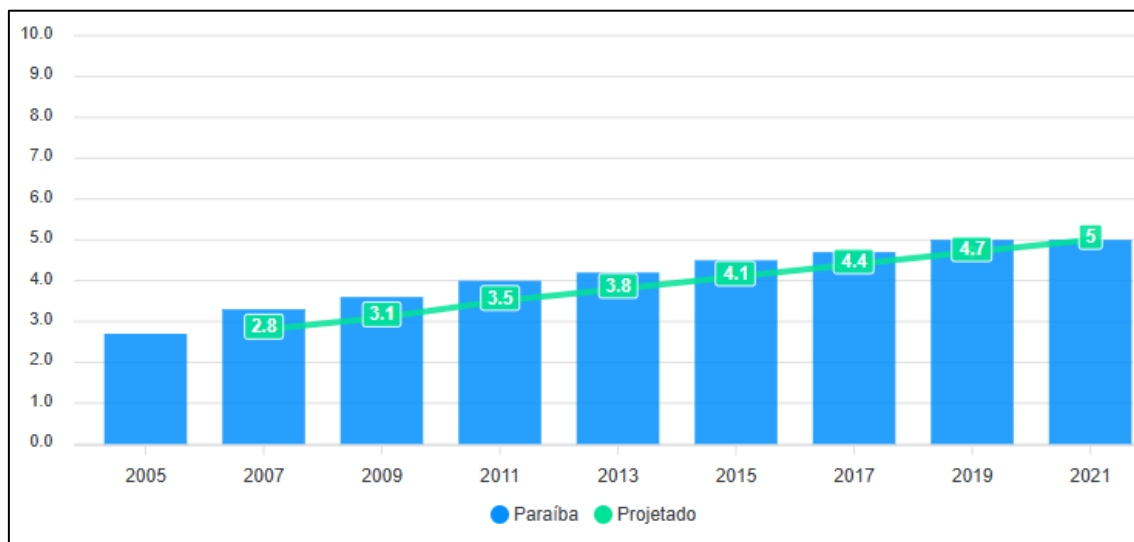
The data from the IDEB indices in the public school system in the state of Paraíba are shown in the table below. The figures below show the evolution of the IDEB in the public school system in Paraíba between 2007 and 2021.

**Table 165 - IDEB in the Public Network in the Municipality of Porto Alegre**

Observed IDEB									
Cycle	State	2007	2009	2011	2013	2015	2017	2019	2021
4th grade/5th year	Paraíba	3,3	3,6	4,0	4,2	4,5	4,7	5,0	5,0
8th grade / 9th year		2,8	2,9	3,1	3,2	3,5	3,6	3,9	4,5
Projected targets									
Cycle	State	2007	2009	2011	2013	2015	2017	2019	2021
4th grade/5th year	Paraíba	2,8	3,1	3,5	3,8	4,1	4,4	4,7	5,0
8th grade / 9th year		2,5	2,7	2,9	3,3	3,7	4,0	4,2	4,5

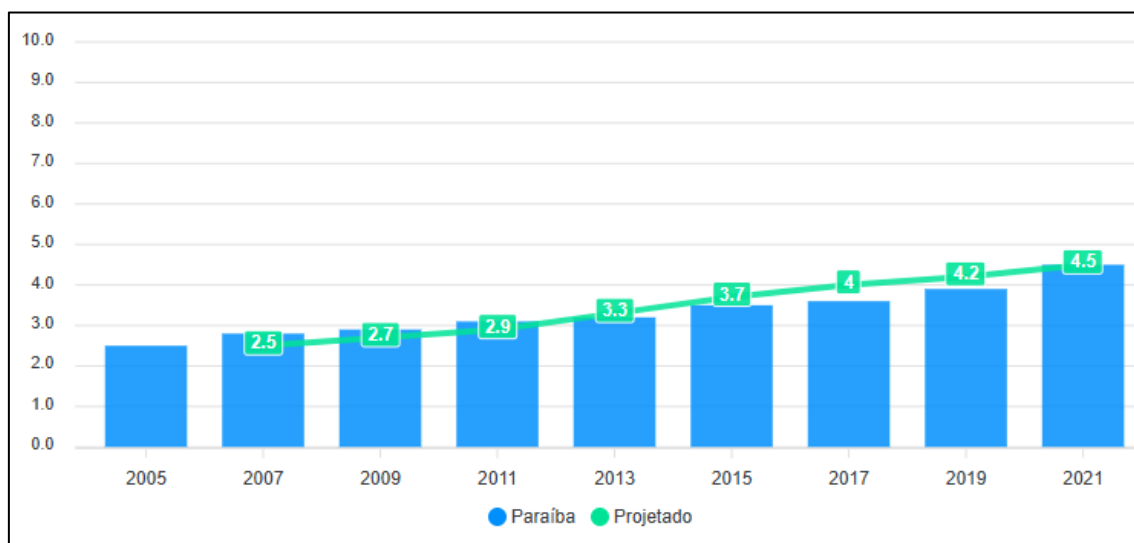
Source: Ministry of Education, National Institute for Educational Studies and Research - INEP. The results marked in green refer to the Ideb that reached the target.

**Figure139 - Evolution of IDEB (Initial Years of Elementary School) in the Public Network in Paraíba**



Source: Qedu Platform, 2022.

**Figure140 - Evolution of IDEB (Final Years of Elementary School) in the Public Network in Paraíba**





Source: Qedu Platform, 2022.

#### 4.3.6 Health

Health indicators are summary measures which include information related to certain attributes and dimensions of health status, as well as the performance of the system in the area in question. The combined analysis of these indicators should reflect the health status of a given population and is important for monitoring health conditions.

The production and use of health information in Brazil involves government structures at the three levels of management (federal, state and municipal) of the Unified Health System (SUS), as well as the IBGE and other sectors of the public administration that produce data and information of commitment to health; teaching and research institutions; technical-scientific associations and those that bring together professional or functional categories; and non-governmental organizations.

The local health system must have health units distributed according to the different levels of complexity of services and according to local and regional realities.

The following description of the data is based on the Strategic Information of the Unified Health System. According to the Ministry of Health, the strategy adopted in the country recognizes the municipality as being primarily responsible for the health of its population. Under the 2006 Pact for Health, the municipal manager signs a term of commitment to fully assume the actions and services in their territory.

Municipalities have specific departments for health management. Municipal managers must use their own resources and those passed on by the federal government and the state.

The municipality formulates its own health policies and is one of the partners in implementing national and state health policies. It coordinates and plans the SUS at municipal level, respecting federal regulations and state planning. It can establish partnerships with other municipalities to guarantee full service for its population, for complex procedures that are above those it can offer.

According to the Ministry of Health, basic health care is a key factor in ensuring an adequate standard of living. That's why it's worth looking at some of the definitions formulated by the same body<sup>41</sup> :

##### Health center

"It is a health unit that provides care to a specific population, estimated at up to 2,000 inhabitants, using appropriate techniques and standardized care schemes. This unit does not have senior professionals on its permanent staff, and care is provided by mid-level or elementary professionals, with the support and supervision of the health centers it is linked to."

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<sup>41</sup> Definitions adopted by the Health Care Secretariat, 1990.

## Health center

"It is the unit designed to provide health care to a specific population, with a permanent interdisciplinary health team of general practitioners and/or specialists. Its complexity and physical dimensions vary according to the characteristics of the population to be served, the health problems to be solved and according to its size and resolution capacity."

## Local hospital

"It is the health establishment designed to provide inpatient and emergency medical care, in basic medical specialties, for a population in a specific geographical area. For municipalities with clusters of more than 20,000 inhabitants, the local hospital is the first point of reference for hospitalization. The inpatient units of this establishment are sized to provide care in the basic specialties (medical clinic, obstetrics gynecology, pediatrics and surgical clinic) for patients referred from the health centers in its delimited area, as well as providing coverage for emergency care in the same area. Other medical specialties may be developed at the local hospital according to the peculiarities of the local epidemiological situation, but the limitations of the level of complexity of the services offered by this type of health unit must be taken into account."

"The hospital should also have the minimum infrastructure necessary for its operation. As diagnostic support, it should have a clinical pathology and radiodiagnostic laboratory."

## Regional hospital

"It is the health establishment designed to provide inpatient and emergency medical care in basic medical specialties, associated with those considered strategic and necessary for its area of coverage."

The sizing of hospital beds must be taken into account:

- Mixed unit or local hospital - Two beds/1,000 inhabitants in the delimited area, plus one bed/1,000 inhabitants to meet demand from other areas.
- Regional hospital - Two beds/1,000 inhabitants of the defined area, plus one bed/1,000 rural inhabitants of the municipality, plus one bed/1,000 inhabitants of clusters outside the municipality, plus 0.5 bed/1,000 dispersed inhabitants of the programmatic area, outside the municipality. The minimum population of the urban area where a regional hospital is located must not be less than 20,000 inhabitants.

The following table shows the number of establishments according to the type of care provided and by type of agreement in Paraíba, according to DATASUS (2023).

It should be noted that a large part of the services provided were provided by SUS and private health insurance.

**Table 166 - Number of Establishments by Type of Agreement according to Type of Service Provided in Paraíba**

Service provided	SUS	Private	Health insurance	
			Public	Private
Hospitalization	178	59	1	40
Outpatient	3.211	3.673	41	2.157
Urgency	333	60	-	29
Diagnosis and therapy	552	655	12	248
Epidemiological and health surveillance	525	-	-	-
Pharmacy or cooperative	305	120	-	9

Source: MS/DATASUS/CNES. Status of the national database in March 2024. Accessed April 2024.

However, according to standards set by the WHO (World Health Organization), the classic indicator of health care and infrastructure is the number of beds per thousand inhabitants. To meet the necessary demand, the WHO recommends a minimum of 5 beds per thousand inhabitants, while the Ministry of Health estimates the need for beds per thousand inhabitants at 2.5 to 3. It's important to note that health management today is also done on a territorial basis, in which more complex care is allocated regionally to better serve the population.

In 2022, Paraíba had 2.3 beds per thousand inhabitants, taking into account SUS beds (1.8) and beds in private establishments (0.5). Therefore, the state does not meet municipal public health policies or international standards, according to data analyzed from DATASUS (MS, CNES, 2022).

With regard to the number of doctors and nurses per inhabitant, the WHO recommends a ratio of 1 doctor per 1,000 inhabitants as the ideal parameter for health care for the population. For centers with a well-structured service network, experts advocate increasing this parameter. According to information from the study Medical Demography (2023), carried out in partnership between the Brazilian Medical Association (AMB) and the USP School of Medicine (FMUSP), in 2022 the state of Paraíba had 11,396 doctors in various specialties, with a ratio of 2.81 doctors per 1,000 inhabitants, which is above the established recommendations.

But even though Paraíba has enough doctors and meets the WHO recommendations, the problem is the distribution of professionals. In 2023, only the state capital, João Pessoa, concentrated 60.1% of Paraíba's doctors (6,853). As a result, the capital had 8.30 doctors per 1,000 inhabitants that year, more than three times the state average.

### Health problems

The studies carried out on mortality are based on the International Classification of Diseases (ICD), drawn up by the WHO. This is made up of a very large number of diseases, including their variants and complications. As such, health diagnoses are

limited to analysing the situation and trends of a few large groups of causes of morbidity and mortality.

The diagnosis made in this study deals with the analysis of mortality and, to this end, one of the most commonly used indicators is the proportion of deaths by cause group, in relation to the total number of deaths that occurred in a given period, which is known as proportional mortality by defined cause.

On the same theoretical basis, the percentage distribution of hospitalizations by group of causes is also analysed, thus providing a more detailed and plausible diagnosis.

In terms of morbidity rates, the main cause of hospitalizations in Paraíba in 2023 is naturally complications during pregnancy, childbirth and the puerperium, with a percentage of 19.79%. The number of hospitalizations for diseases of the digestive system, at 11.77%, and for diseases of the respiratory system, at 11.28%, are also quite evident. Also noteworthy is the significant incidence of injuries, poisoning and some other consequences of external causes, which account for 9.33% of hospitalizations. Diseases of the circulatory system are the fifth biggest cause with 8.10%.

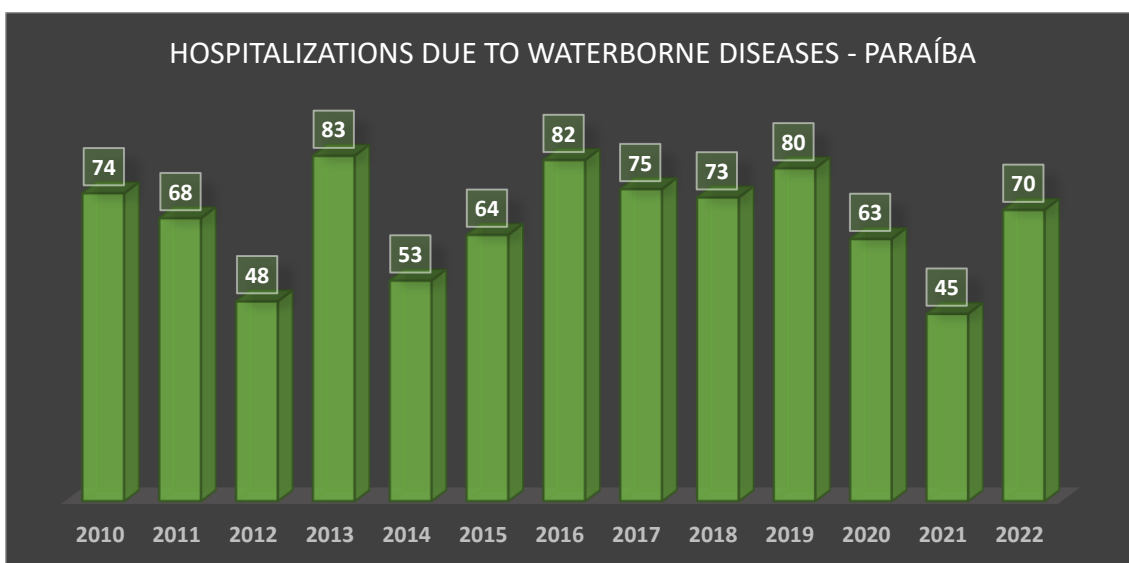
In 2022, the most frequent deaths in Paraíba were linked to diseases of the circulatory system, accounting for 26.61% of all deaths in the state, followed by neoplasms (tumors) with 13.85% of all deaths. There was also a worrying number of deaths from infectious and parasitic diseases, accounting for 8.29% of all deaths in the state.

It is also worth noting that infectious and parasitic diseases can often be related to deficiencies in the provision of basic sanitation services, allowing the proliferation of vectors and waterborne diseases.

Waterborne diseases are characterized by the presence of pathogenic microorganisms in water used for different purposes. The pathogens can be bacteria, such as Salmonella, or viruses, such as rotavirus, and parasites such as Giardia lamblia. Eventually, these diseases can affect a larger number of people, causing outbreaks and, to an even greater extent, epidemics.

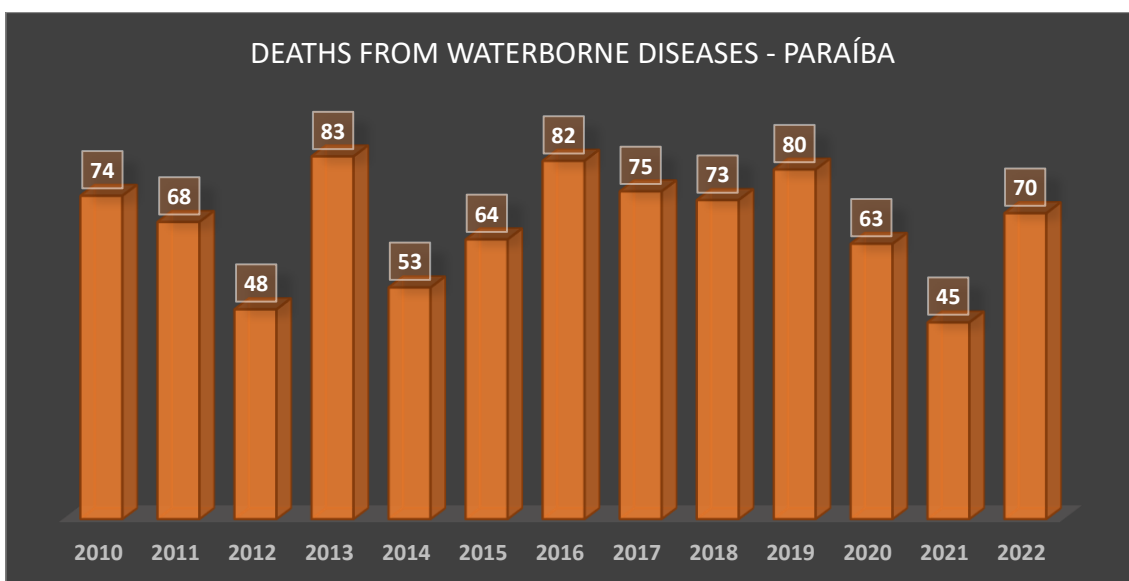
The following figures show the evolution of total hospitalizations and deaths from waterborne diseases in Paraíba between 2010 and 2022. Next, the tables show the percentage distribution of hospitalizations and deaths by group of causes (ICD-10 category) in the Rural Territories and in the state of Paraíba as a whole.

**Figure141 - Evolution of Total Hospitalizations due to Waterborne Diseases in Paraíba**



Source: Ministry of Health, Department of Informatics of the Unified Health System - DATASUS 2022.

**Figure142 - Evolution of Total Deaths from Waterborne Diseases in Paraíba**



Source: Ministry of Health, Department of Informatics of the Unified Health System - DATASUS 2022.

**Table 167 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the State of Paraíba**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	19,79	Diseases of the circulatory system	26,61
Diseases of the digestive system	11,77	Neoplasms (tumors)	13,85
Diseases of the respiratory system	11,28	Diseases of the respiratory system	12,42
Injuries, poisoning and some other consequences of external causes	9,33	External causes of morbidity and mortality	9,47
Diseases of the circulatory system	8,10	Some infectious and parasitic diseases	8,29
Neoplasms (tumors)	8,07	Nutritional and metabolic endocrine diseases	7,78
Diseases of the genitourinary system	7,75	Symptoms, signs and abnormal clinical and laboratory findings	5,70
Some infectious and parasitic diseases	6,07	Diseases of the digestive system	4,69
Other	17,84	Other defined causes	11,18

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 168 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Alto Sertão RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Diseases of the respiratory system	19,73	Diseases of the circulatory system	24,23
Pregnancy, childbirth and the puerperium	16,12	Neoplasms (tumors)	13,17
Diseases of the digestive system	11,87	Some infectious and parasitic diseases	12,31
Some infectious and parasitic diseases	11,26	Diseases of the respiratory system	12,92
Diseases of the circulatory system	8,84	External causes of morbidity and mortality	10,07
Diseases of the genitourinary system	7,75	Symptoms, signs and abnormal clinical and laboratory findings	6,91
Injuries, poisoning and some other consequences of external causes	6,99	Nutritional and metabolic endocrine diseases	5,40
Neoplasms (tumors)	5,82	Diseases of the digestive system	4,87
Other	11,61	Other defined causes	11,13

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 169 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the RT Borborema**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	20,42	Diseases of the circulatory system	27,52
Diseases of the digestive system	11,92	Neoplasms (tumors)	14,01
Diseases of the respiratory system	11,86	Diseases of the respiratory system	12,56
Diseases of the genitourinary system	8,90	Nutritional and metabolic endocrine diseases	8,65
Neoplasms (tumors)	8,34	External causes of morbidity and mortality	8,13
Diseases of the circulatory system	7,24	Some infectious and parasitic diseases	7,49
Injuries, poisoning and some other consequences of external causes	7,01	Symptoms, signs and abnormal clinical and laboratory findings	6,38
Some infectious and parasitic diseases	4,52	Diseases of the genitourinary system	4,26
Other	19,79	Other defined causes	11,01

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 170 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Brejo RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	24,31	Diseases of the circulatory system	29,54
Diseases of the digestive system	16,39	Neoplasms (tumors)	11,82
Injuries, poisoning and some other consequences of external causes	9,14	Diseases of the respiratory system	11,30
Diseases of the circulatory system	8,13	Nutritional and metabolic endocrine diseases	10,02
Neoplasms (tumors)	7,89	Some infectious and parasitic diseases	8,22
Diseases of the genitourinary system	7,36	External causes of morbidity and mortality	7,28
Diseases of the respiratory system	6,84	Symptoms, signs and abnormal clinical and laboratory findings	5,39
Some infectious and parasitic diseases	4,55	Diseases of the digestive system	5,22
Other	15,39	Other defined causes	11,22

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 171 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Cariri RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	16,92	Diseases of the circulatory system	30,42
Diseases of the respiratory system	13,98	Neoplasms (tumors)	14,50
Diseases of the digestive system	10,85	Diseases of the respiratory system	13,17
Diseases of the circulatory system	9,10	External causes of morbidity and mortality	9,90
Injuries, poisoning and some other consequences of external causes	7,66	Nutritional and metabolic endocrine diseases	6,90
Diseases of the genitourinary system	7,61	Some infectious and parasitic diseases	5,75
Neoplasms (tumors)	6,28	Symptoms, signs and abnormal clinical and laboratory findings	4,86
Symptoms, signs and abnormal clinical and laboratory findings	6,18	Diseases of the digestive system	4,33
Other	21,42	Other defined causes	10,17

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 172 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Curimataú RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	17,94	Diseases of the circulatory system	30,57
Diseases of the digestive system	12,79	Neoplasms (tumors)	13,03
Neoplasms (tumors)	11,27	Diseases of the respiratory system	12,23
Diseases of the respiratory system	10,52	External causes of morbidity and mortality	9,69
Diseases of the genitourinary system	9,69	Symptoms, signs and abnormal clinical and laboratory findings	9,57
Injuries, poisoning and some other consequences of external causes	8,02	Nutritional and metabolic endocrine diseases	7,15
Diseases of the circulatory system	6,45	Diseases of the digestive system	4,27
Some infectious and parasitic diseases	5,37	Some infectious and parasitic diseases	4,04
Other	17,94	Other defined causes	9,46

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.



**Table 173 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Northern Forest RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	18,39	Diseases of the circulatory system	27,13
Diseases of the digestive system	13,14	Diseases of the respiratory system	13,49
Injuries, poisoning and some other consequences of external causes	10,83	External causes of morbidity and mortality	10,77
Symptoms, signs and abnormal clinical and laboratory findings	8,64	Neoplasms (tumors)	9,66
Diseases of the respiratory system	8,45	Some infectious and parasitic diseases	7,34
Diseases of the circulatory system	7,77	Nutritional and metabolic endocrine diseases	7,18
Diseases of the genitourinary system	6,70	Diseases of the digestive system	5,27
Neoplasms (tumors)	6,02	Symptoms, signs and abnormal clinical and laboratory findings	5,27
Other	20,07	Other defined causes	13,89

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 174 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Mata Sul RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	19,11	Diseases of the circulatory system	25,55
Injuries, poisoning and some other consequences of external causes	11,70	Neoplasms (tumors)	15,18
Diseases of the digestive system	10,24	Diseases of the respiratory system	11,65
Diseases of the respiratory system	9,53	Some infectious and parasitic diseases	10,13
Diseases of the circulatory system	8,72	External causes of morbidity and mortality	9,44
Neoplasms (tumors)	7,97	Nutritional and metabolic endocrine diseases	8,03
Some infectious and parasitic diseases	7,48	Diseases of the digestive system	5,07
Diseases of the genitourinary system	7,28	Diseases of the nervous system	3,64
Other	17,97	Other defined causes	11,32

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 175 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Middle Piranhas RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	20,87	Diseases of the circulatory system	23,79
Diseases of the respiratory system	14,01	External causes of morbidity and mortality	16,72
Diseases of the digestive system	11,28	Neoplasms (tumors)	15,01
Neoplasms (tumors)	9,37	Diseases of the respiratory system	12,86
Injuries, poisoning and some other consequences of external causes	9,25	Nutritional and metabolic endocrine diseases	6,86
Diseases of the circulatory system	8,22	Some infectious and parasitic diseases	6,54
Contacts with health services	6,58	Symptoms, signs and abnormal clinical and laboratory findings	4,39
Diseases of the genitourinary system	6,53	Diseases of the digestive system	4,18
Other	13,88	Other defined causes	9,65

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 176 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Médio Sertão RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	25,81	Diseases of the circulatory system	23,92
Diseases of the digestive system	11,55	Neoplasms (tumors)	14,04
Neoplasms (tumors)	11,38	Diseases of the respiratory system	13,70
Diseases of the respiratory system	9,70	External causes of morbidity and mortality	10,22
Injuries, poisoning and some other consequences of external causes	9,05	Symptoms, signs and abnormal clinical and laboratory findings	8,48
Diseases of the genitourinary system	7,27	Some infectious and parasitic diseases	7,97
Diseases of the circulatory system	7,26	Diseases of the digestive system	5,50
Some infectious and parasitic diseases	4,09	Nutritional and metabolic endocrine diseases	5,00
Other	13,88	Other defined causes	11,17

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 177 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Piemont da Borborema RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	23,54	Diseases of the circulatory system	25,67
Diseases of the digestive system	16,76	Symptoms, signs and abnormal clinical and laboratory findings	16,05
Injuries, poisoning and some other consequences of external causes	10,90	Diseases of the respiratory system	10,64
Diseases of the respiratory system	8,56	Nutritional and metabolic endocrine diseases	10,57
Diseases of the respiratory system	7,78	Neoplasms (tumors)	10,06
Neoplasms (tumors)	7,21	External causes of morbidity and mortality	7,20
Diseases of the genitourinary system	6,92	Some infectious and parasitic diseases	6,88
Some infectious and parasitic diseases	4,79	Diseases of the digestive system	5,16
Other	13,55	Other defined causes	7,77

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 178 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Serra do Teixeira RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	17,78	Diseases of the circulatory system	29,77
Symptoms, signs and abnormal clinical and laboratory findings	12,68	Neoplasms (tumors)	15,06
Diseases of the respiratory system	12,39	External causes of morbidity and mortality	11,73
Diseases of the digestive system	9,25	Nutritional and metabolic endocrine diseases	9,28
Some infectious and parasitic diseases	9,12	Diseases of the respiratory system	9,28
Diseases of the circulatory system	7,35	Symptoms, signs and abnormal clinical and laboratory findings	5,25
Diseases of the genitourinary system	7,31	Diseases of the digestive system	5,08
Injuries, poisoning and some other consequences of external causes	6,04	Some infectious and parasitic diseases	4,03
Other	18,07	Other defined causes	10,51

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 179 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Vale de Piancó RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	17,57	Diseases of the circulatory system	28,83
Diseases of the respiratory system	13,71	Neoplasms (tumors)	13,98
Diseases of the digestive system	13,51	Diseases of the respiratory system	12,94
Neoplasms (tumors)	8,82	External causes of morbidity and mortality	10,78
Injuries, poisoning and some other consequences of external causes	8,43	Symptoms, signs and abnormal clinical and laboratory findings	9,27
Diseases of the circulatory system	7,57	Some infectious and parasitic diseases	6,79
Diseases of the genitourinary system	7,15	Nutritional and metabolic endocrine diseases	6,47
Some infectious and parasitic diseases	5,41	Diseases of the digestive system	4,55
Other	17,83	Other defined causes	6,39

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 180 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Maringá Valley RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	17,96	Diseases of the circulatory system	28,55
Diseases of the respiratory system	13,50	Diseases of the respiratory system	14,97
Diseases of the digestive system	12,52	Neoplasms (tumors)	14,81
Diseases of the circulatory system	10,61	External causes of morbidity and mortality	8,49
Injuries, poisoning and some other consequences of external causes	9,92	Some infectious and parasitic diseases	7,41
Neoplasms (tumors)	9,40	Symptoms, signs and abnormal clinical and laboratory findings	6,79
Diseases of the genitourinary system	8,63	Nutritional and metabolic endocrine diseases	6,17
Some infectious and parasitic diseases	4,06	Diseases of the digestive system	4,32
Other	13,41	Other defined causes	8,49

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 181 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Vale do Paraíba RR**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	19,69	Diseases of the circulatory system	28,29
Diseases of the digestive system	15,54	Diseases of the respiratory system	13,16
Diseases of the respiratory system	9,75	Neoplasms (tumors)	12,57
Injuries, poisoning and some other consequences of external causes	9,42	External causes of morbidity and mortality	11,38
Diseases of the genitourinary system	8,63	Nutritional and metabolic endocrine diseases	8,42
Neoplasms (tumors)	8,35	Some infectious and parasitic diseases	6,78
Diseases of the circulatory system	7,63	Diseases of the digestive system	4,93
Some infectious and parasitic diseases	3,98	Symptoms, signs and abnormal clinical and laboratory findings	4,01
Other	17,01	Other defined causes	10,46

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

**Table 182 - Percentage Distribution of Major Hospitalizations and Deaths by Cause Group in the Piranhas Valley RT**

Percentage Distribution of Hospitalizations/Group of Causes 2023*		Proportional Mortality / Group of Causes 2022**	
Cause	%	Cause	%
Pregnancy, childbirth and the puerperium	21,14	Diseases of the circulatory system	23,18
Diseases of the respiratory system	20,99	Diseases of the respiratory system	17,62
Diseases of the circulatory system	10,08	Neoplasms (tumors)	13,60
Diseases of the digestive system	8,23	Some infectious and parasitic diseases	9,48
Injuries, poisoning and some other consequences of external causes	7,99	External causes of morbidity and mortality	8,05
Some infectious and parasitic diseases	7,72	Symptoms, signs and abnormal clinical and laboratory findings	7,66
Neoplasms (tumors)	7,03	Diseases of the nervous system	5,46
Diseases of the genitourinary system	5,56	Nutritional and metabolic endocrine diseases	4,79
Other	11,26	Other defined causes	10,15

Source: \*Ministry of Health - SUS Hospital Information System (SIH/SUS). Accessed April, 2024.  
 \*\*MS/SVS/CGIAE - Mortality Information System - SIM. Accessed April 2024.

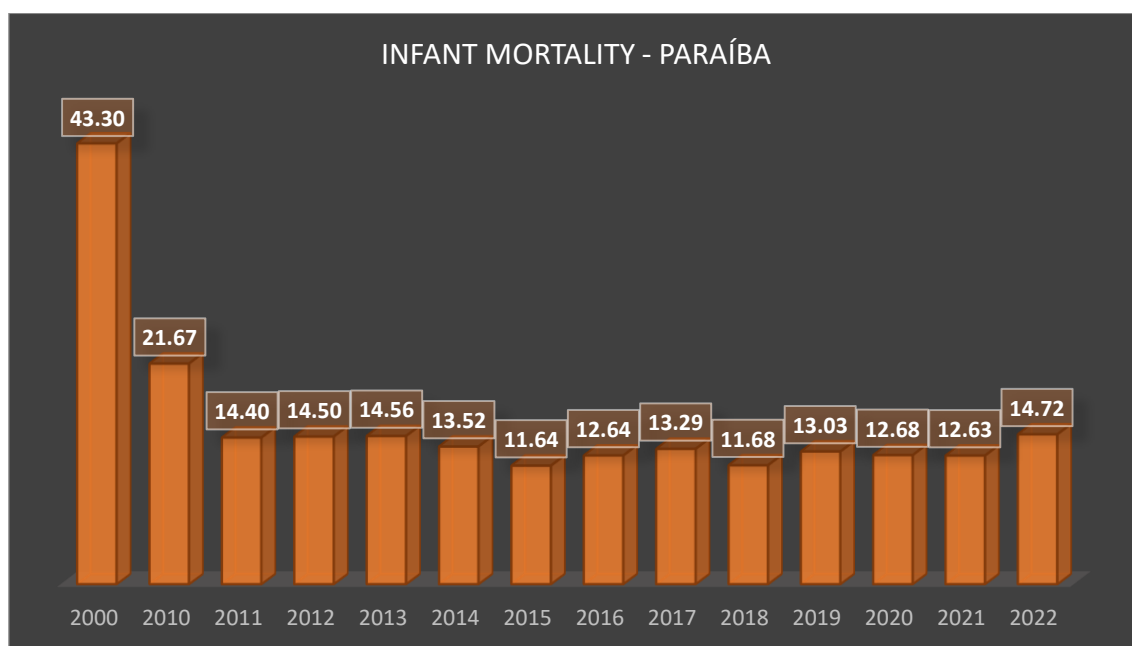
One of the summary indicators of the population's health and well-being is expressed in the Infant Mortality Rate, represented by the number of infant deaths (children up to 1 year of age) per thousand live births. With this indicator it is possible, among other conclusions, to obtain information on the quality of life, sanitation and health of the inhabitants of a certain region. The WHO establishes that the maximum acceptable levels for this indicator are between 6 and 7.

Between 2000 and 2010, the infant mortality rate fell significantly in the state of Paraíba, from 43.30 per thousand live births in 2000 to 21.67 per thousand live births in 2010. In 2022 this rate was reduced to 14.72, showing that there has been a significant improvement in this indicator, consequently motivated by improvements in health and education infrastructure in the state's municipalities. By comparison, in Brazil, the infant mortality rate was 12.59 in 2022, according to the most recent data released by DATASUS (2022). Despite the significant drop in the indicator, Paraíba is still well above the parameters set by the WHO, as well as having a slightly higher rate than the national average.

With the rate observed in 2022, Paraíba also fails to meet target 3.2 of the United Nations Sustainable Development Goals (SDGs), according to which infant mortality in the country should be below 12 deaths per 1,000 live births by 2030.

In the figure below, which shows the evolution of the Infant Mortality Rate in Paraíba, we can see that, despite the reduction experienced in recent years, the rate recorded in 2022 is the highest since 2011, the lowest being in 2015 (11.64).

**Figure 143 - Evolution of the Infant Mortality Rate in Paraíba**



Source: Ministry of Health, Department of Informatics of the Unified Health System - DATASUS 2022.

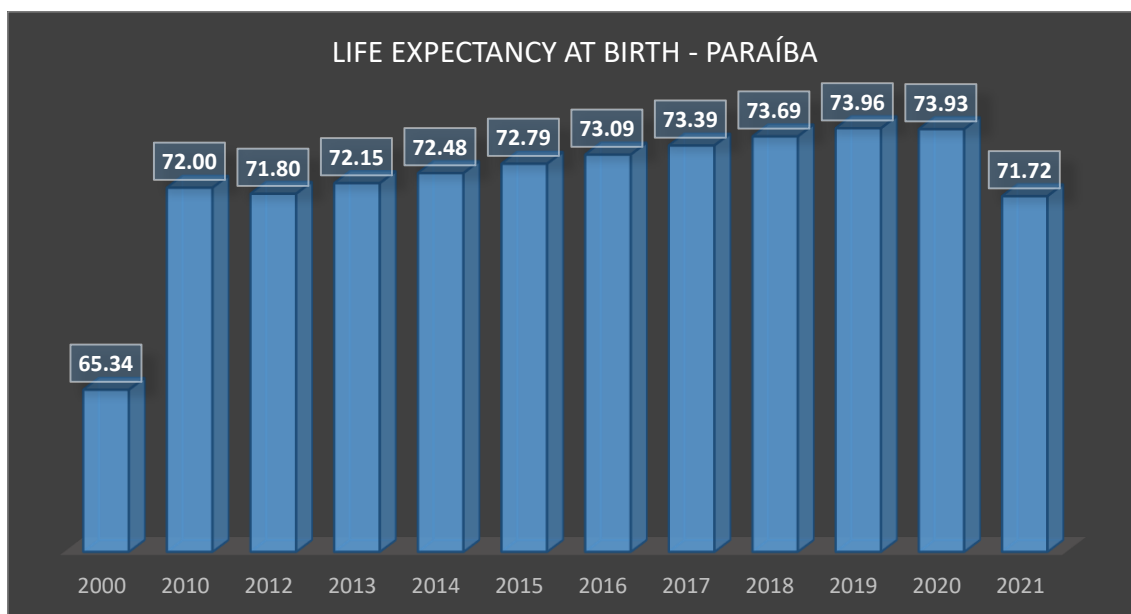
In 2022, the highest infant mortality rates among Paraíba's municipalities were found in Lagoa de Dentro (54.95), Barra de Santa Rosa (53.10) and Duas Estradas (50.00), while Bananeiras (3.37), Cuité (4.59) and Teixeira (4.98) had the lowest rates.

## Health quality indicators

In its studies on human development, the UNDP (United Nations Development Program) looks at two other indicators of health and well-being: life expectancy at birth and the total fertility rate. The former is based on an individual's life expectancy from birth and the latter on the average number of children per woman.

In Paraíba, life expectancy at birth increased by 8.59 years between 2000 and 2020, rising from 65.34 years in 2000 to 72.00 years in 2010, and to 73.93 years in 2020. However, between 2020 and 2021 the indicator experienced a significant drop, reaching a rate (71.72 years) in the latter year, even below that shown in 2010. By comparison, in 2021, the average life expectancy at birth for the country was 74.16 years.

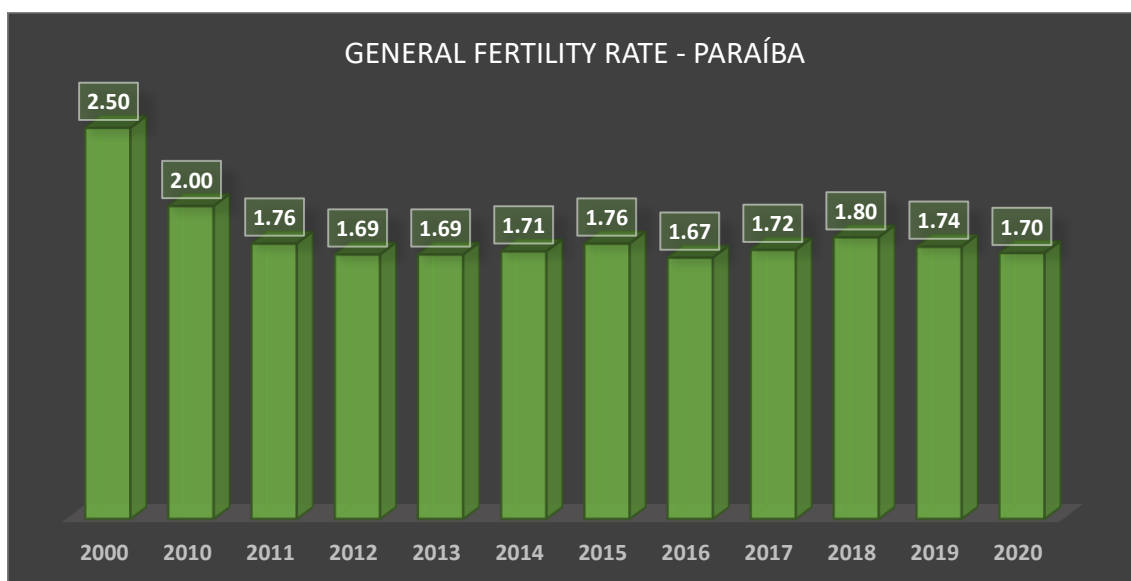
**Figure144 - Evolution of Life Expectancy at Birth in Paraíba**



Source: UNDP - Atlas of Human Development in Brazil, 2022.

The total fertility rate, meanwhile, has dropped considerably in recent years in Paraíba, falling from 2.50 in 2000 to 1.70 in 2020, as can be seen in the figure below.

Figure145 - Evolution of the General Fertility Rate in Paraíba



Source: Ministry of Health, Department of Informatics of the Unified Health System - DATASUS 2022.

#### 4.3.7 Basic Sanitation

Article 3 of Law No. 14.026/2020 considers Basic Sanitation to be a set of public services, infrastructures and operational facilities:

- **drinking water supply:** consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the public supply of drinking water, from collection to building connections and their measuring instruments;
- **sanitary sewage:** consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the proper collection, transportation, treatment and final disposal of sanitary sewage, from building connections to its final destination for the production of reuse water or its proper disposal into the environment;
- **urban cleaning and solid waste management:** consisting of activities and the provision and maintenance of infrastructures and operational facilities for the collection, manual and mechanized sweeping, urban cleaning and conservation, transportation, transshipment, treatment and environmentally appropriate final disposal of household solid waste and urban cleaning waste; and
- **Drainage and management of urban rainwater:** consisting of the activities, infrastructure and operational facilities for rainwater drainage, transport, detention or retention to dampen flood flows, treatment and final disposal of drained rainwater, including cleaning and preventive monitoring of networks.

Point XVII of the main section of this article defines an individual alternative sanitation system as a basic sanitation action or the removal and final disposal of sewage, when the location is not directly served by the public network.

According to the SNIS - National Sanitation Information System (2022), 32,037,802 million people have no access to water supply and 90,276,796 million have no total



sewage service/collection in the country, which represents 15.8% and 44.5% of the total population, respectively.

A large part of this population is in the Northeast, specifically 13,319,098 million people without access to water supply, equivalent to 24.4% of the total population of this region, and 37,793,421 million without sewage collection, which represents a significant 69.1%, more than half of the population.

In Paraíba, the percentages are also very high, with 25.2% of the population in 2022 without access to water (1,002,814 people) and 61.1% without sewage collection (2,429,749).

The figure below shows the population of Paraíba without water and sewage, according to the indicators of the Brazil Sanitation Panel available on the Trata Institute website.

**Figure146 - Population of Paraíba without Water and Sewerage**



Source: Brazil Sanitation Panel. Instituto Trata Brasil.

In order to comply with Brazil's New Basic Sanitation Framework (Law No. 14.026/2020) and to seek universalization of the service, Paraíba regionalized its 223 municipalities into 4 Water and Sewage Micro-regions by means of Complementary Law No. 168/2021:

- 1-MSB - Alto Piranhas micro-region:** Aparecida; Belém do Brejo do Cruz; Bernardino Batista; Bom Jesus; Bom Sucesso; Bonito de Santa Fé; Brejo do Cruz; Brejo dos Santos; Cachoeira dos Índios; Cajazeiras; Carrapateira; Catolé do Rocha; Jericó; Joca Claudino; Lagoa; Lastro; Marizópolis; Mato Grosso; Monte Horebe; Nazarezinho; Paulista; Poço Dantas; Poço de José de Moura; Riacho dos Cavalos; Santa Cruz; Santa Helena; São Bento; São Domingos; São Francisco; São João do Rio do Peixe; São José da Lagoa Tapada; São José de Piranhas; São José do Brejo do Cruz; Sousa; Triunfo; Uiraúna; Vieirópolis and Vista Serrana.
- 2-MSB - Espinharas micro-region:** Água Branca; Aguiar; Areia de Baraúnas; Boa Ventura; Cacimba de Areia; Cajazeirinhas; Catingueira; Conceição; Condado; Coremas; Curral Velho; Diamante; Emas; Ibiara; Igaracy; Imaculada; Itaporanga; Juru; Mãe D'Água; Malta; Manaíra; Nova Olinda; Olho d'Água; Passagem; Patos; Pedra Branca; Piancó; Pombal; Princesa Isabel; Quixaba; Salgadinho; Santa Inês; Santa Luzia; Santana de Mangueira; Santana dos Garrotes; Santa Teresinha; São Bentinho; São José de Caiana; São José de Espinharas; São José de Princesa; São José do Bonfim; São José do Sabugi; São Mamede; Serra Grande; Tavares and Várzea.
- 3-MSB - Borborema micro-region:** Alagoa Grande; Alagoa Nova; Alcantil; Algodão de Jandaíra; Amparo; Arara; Araruna; Areial; Aroeiras; Assunção; Bananeiras; Baraúna; Barra de Santana; Barra de Santa Rosa; Barra de São

Miguel; Boa Vista; Boqueirão; Cabaceiras; Cacimba de Dentro; Cacimbas; Camalaú; Campina Grande; Caraúbas; Casserengue; Caturité; Congo; Coxixola; Cubati; Cuité; Damião; Desterro; Dona Inês; Esperança; Fagundes; Frei Martinho; Gado Bravo; Gurjão; Juazeirinho; Junco do Seridó; Lagoa Seca; Livramento; Massaranduba; Matinhas; Maturéia; Montadas; Monteiro; Natuba; Nova Floresta; Nova Palmeira; Olivedos; Ouro Velho; Parari; Pedra Lavrada; Picuí; Pocinhos; Prata; Puxinanã; Queimadas; Remígio; Riachão; Riachão do Bacamarte; Riacho de Santo Antônio; Santa Cecília; Santo André; São Domingos do Cariri; São João do Cariri; São João do Tigre; São José dos Cordeiros; São Sebastião de Lagoa de Roça; São Sebastião do Umbuzeiro; São Vicente do Seridó; Serra Branca; Serra Redonda; Serraria; Solânea; Soledade; Sossêgo; Sumé; Tacima; Taperoá; Teixeira; Tenório; Umbuzeiro and Zabelê.

- **4-MSB - Coastal Microregion:** Alagoinha; Alhandra; Araçagi; Areia; Baía da Traição; Bayeux; Belém; Borborema; Caaporã; Cabedelo; Caiçara; Caldas Brandão; Capim; Conde; Cruz do Espírito Santo; Cuité de Mamanguape; Cuitegi; Curral de Cima; Duas Estradas; Guarabira; Gurinhém; Ingá; Itabaiana; Itapororoca; Itatuba; Jacaraú; João Pessoa; Juarez Távora; Juripiranga; Lagoa de Dentro; Logradouro; Lucena; Mamanguape; Marcação; Mari; Mataraca; Mogeiro; Mulungu; Pedras de Fogo; Pedro Régis; Pilar; Pilões; Pilõezinhos; Pirpirituba; Pitimbu; Riachão do Poço; Rio Tinto; Salgado de São Félix; Santa Rita; São José dos Ramos; São Miguel de Taipu; Sapé; Serra da Raiz; Sertãozinho and Sobrado.

Figure147 - Map of Paraíba's Basic Sanitation Microregions



Source: Water and Sewerage Microregions of the State of Paraíba. Fundace, 2021.

According to the Instituto Água e Saneamento (Water and Sanitation Institute)<sup>42</sup>, of the 223 municipalities, 30 have drawn up Basic Sanitation Plans, 42 are in the process of doing so and 151 have no plan.

With regard to basic sanitation services, of the 223 municipalities in Paraíba, 200 are served by the Paraíba Water and Sewage Company - CAGEPA, whose service, according to the company's official website, benefits 2,789,463 people with water service and 1,177,816 with sewage throughout the state, which is equivalent to a coverage rate of 92.39% and 41.65%, respectively.

## Water Supply

CONAMA Resolution 357/2005 establishes the classification of water depending on its use. As a result, the Type of Water Treatment goes from a strict level of requirements to a less demanding level, as can be seen in the table below.

**Table 183 - Water Class and Type of Treatment**

CLASS	TYPE OF TREATMENT
Special	FILTRATION AND DISINFECTION
Class 1	Simplified treatment
Class 2	Conventional treatment
Class 3	Conventional or advanced treatment
Class 4	For less demanding uses such as browsing

Source: Product 2-Preliminary Diagnostic Report. Support in the Studies and Proposals for the Implementation of the Paraíba Sustainable Rural Development Project - Procasa II (Br-L 1623), specifically, in the Actions of Component 2- Resilient Productive Systems for the Treatment of Poverty, 27/03/2024.

The types of water treatment will depend on the water's potability standards in terms of its use, for human consumption Ordinance GM/MS No. 2,472/2021, in its article 2, states that for human consumption the water must come from: Water Supply Systems (SAA), Alternative Collective Water Supply Solution (SAC), Alternative Individual Water Supply Solution (SAI) and water tanker<sup>43</sup>, and all water distributed collectively by SAA, SAC or water tanker must be subject to water control<sup>44</sup> and surveillance<sup>45</sup>, while those from SAI must be subject to surveillance, as shown in the table below (DE LIMA, 2024).

<sup>42</sup> Instituto Água e Saneamento is a platform to facilitate access to information on sanitation in Brazil's 5,570 municipalities. <https://www.aguaesaneamento.org.br/es/>.

<sup>43</sup> Water tanker: a vehicle equipped with a tank used exclusively for distributing and transporting water for consumption.

<sup>44</sup> Control of the quality of water for human consumption: set of activities carried out regularly by the person responsible for the system or alternative collective water supply solution, aimed at verifying that the water supplied to the population is potable, in order to ensure that this condition is maintained.

<sup>45</sup> Surveillance of the quality of water for human consumption: a set of actions adopted regularly by the public health authority to verify compliance and assess whether the water consumed by the population presents a health risk.

**Table 184 - Characteristics of Water Supply Modalities**

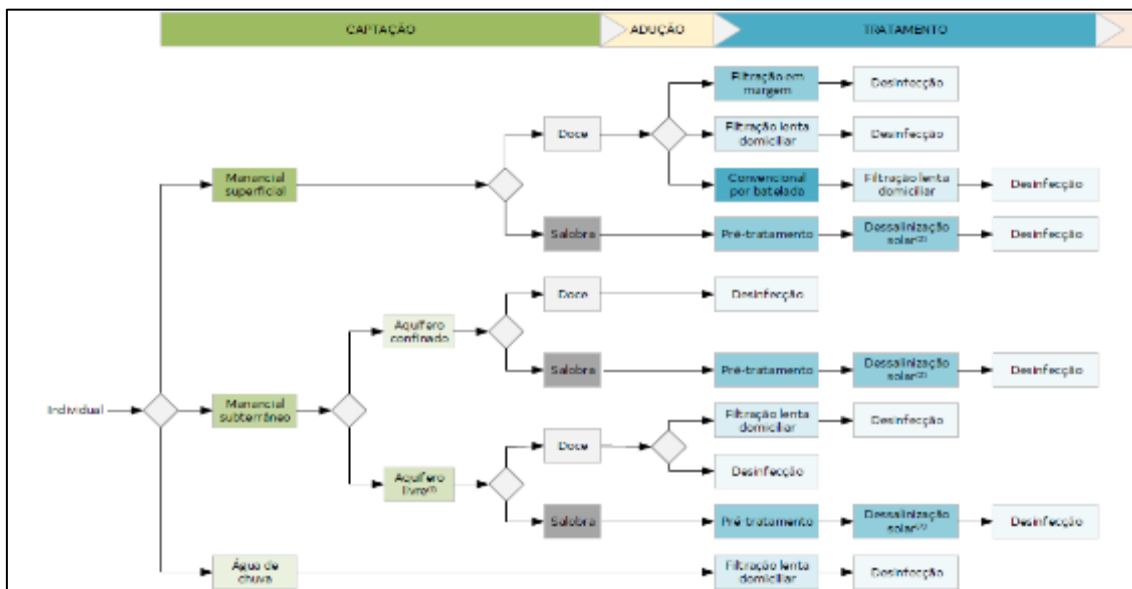
Mode of Supply	Scope	Distribution	Example
<b>1-Individual Alternative Solution - IAS</b>	Single-family	Simple piping	Direct abstraction from springs and wells
<b>2-Collective Alternative Solution- SAC</b>	Press conference	Single pipe and reservoir	Collection, supply and reservoir (fountain)
<b>4-Water Supply System - WSS</b>	Press conference	Distribution Network	Collection, adduction, reservoir and distribution network and building connections

Source: Product 2-Preliminary Diagnostic Report. Support in the Studies and Proposals for the Implementation of the Paraíba Sustainable Rural Development Project - Procasa II (Br-L 1623), specifically, in the Actions of Component 2- Resilient Productive Systems for the Treatment of Poverty, 27/03/2024.

The Water Supply Solution or System is implemented in areas where water is supplied from surface or underground sources. The SACs and SAAs must have a qualified technician responsible for the operation, with the respective ART issued by the Class Council (DE LIMA, 2024).

Individual water supplies can be provided in two ways: by Alternative Individual Water Solutions (SAI) or by rainwater, both of which must be treated by disinfection and filtration, as can be seen in the figure below (DE LIMA, 2024).

**Figure148 - Types of Treatment for Individual Water Supply System or Solution**



Source: Product 2-Preliminary Diagnostic Report. Support in the Studies and Proposals for the Implementation of the Paraíba Sustainable Rural Development Project - Procasa II (Br-L 1623), specifically, in the Actions of Component 2- Resilient Productive Systems for the Treatment of Poverty, 27/03/2024.

According to IBGE data, 74.49% of households in Paraíba were connected to the general water distribution network in 2022 (IBGE Demographic Census). In 2010, this percentage was 76.71%, almost all of which were located in urban areas (94.07%), and only 19.32% in rural areas, where the most commonly used water supply system was a cart or

rainwater (26.80%). For 2022, the IBGE has not yet provided data by household situation.

In Paraíba's Rural Territories, according to data from the 2022 Census (IBGE), only three of them had a percentage of households connected to the general water distribution network above the state average: Mata Sul (89.07%), Brejo (80.29%) and Médio Sertão (76.41%). In turn, the lowest rates were found in the Curimataú RT and the Piemont da Borborema RT, both of which had less than half of their households served by a general network, 31.55% and 43.48% respectively.

It should be noted that, in the same year, the most used form of water supply in the Curimataú RT was the water tanker or rainwater (35.83%), while in the Piemont da Borborema RT a significant proportion of households used stored rainwater (21.96%).

The following table shows the percentage of households covered by water supply in 2022 in Paraíba and the Rural Territories.

**Table 185 - Water Supply in Paraíba (Households - Coverage Percentage) - 20 22**

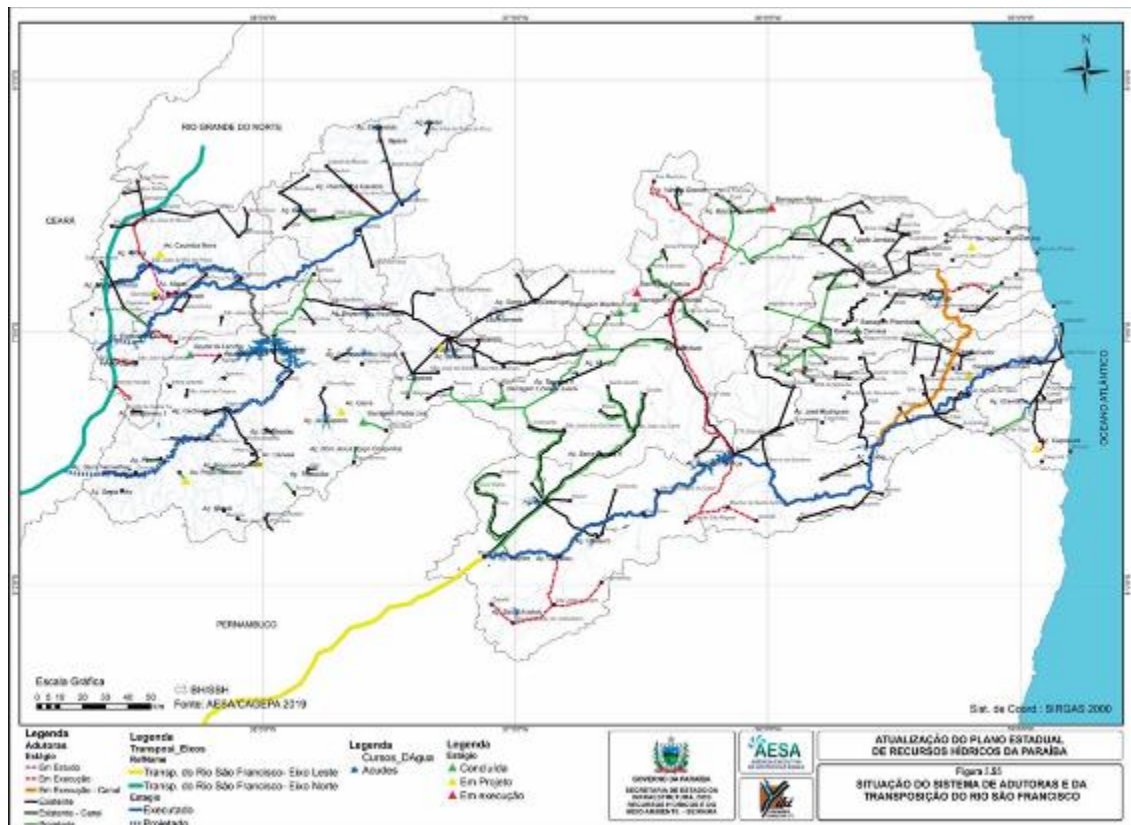
Rural Territories and UF	Water Supply							
	General distribution network	Deep or artesian well	Shallow well, phreatic well or cistern	Fountain, spring or mine	Water tanker	Stored rainwater	Rivers, reservoirs, streams, lakes and streams	Other
TR Alto Sertão	66,69%	20,90%	2,93%	0,13%	3,48%	1,44%	3,39%	1,04%
TR Borborema	72,30%	2,15%	1,13%	0,27%	12,07%	9,25%	1,46%	1,37%
TR Brejo	80,29%	7,83%	1,31%	0,19%	3,07%	2,99%	3,03%	1,27%
TR Cariri	62,83%	14,30%	0,71%	0,18%	13,45%	3,59%	2,89%	2,05%
TR Curimataú	31,55%	17,47%	0,72%	0,09%	35,83%	9,62%	1,29%	3,42%
TR Mata Norte	65,83%	16,28%	8,15%	1,06%	4,29%	1,06%	2,11%	1,23%
TR Mata Sul	89,07%	7,97%	1,90%	0,17%	0,09%	0,04%	0,23%	0,52%
TR Middle Piranhas	72,31%	7,92%	4,36%	0,03%	7,80%	0,96%	5,20%	1,41%
TR Middle Hinterland	76,41%	6,87%	0,66%	0,07%	9,42%	2,40%	2,18%	1,98%
TR Piemont da Borborema	43,48%	8,09%	5,56%	0,65%	15,55%	21,96%	2,00%	2,71%
TR Serra do Teixeira	62,26%	8,34%	5,15%	0,13%	9,45%	9,51%	3,31%	1,85%
TR Vale de Piancó	69,24%	16,96%	2,57%	0,06%	2,57%	1,28%	6,32%	1,00%
TR Maringá Valley	73,18%	9,34%	3,29%	0,04%	3,82%	1,52%	8,33%	0,47%
TR Paraíba Valley	57,57%	15,51%	6,14%	0,48%	4,28%	8,99%	4,28%	2,76%
TR Piranhas Valley	74,29%	13,92%	3,54%	0,33%	2,13%	1,42%	2,94%	1,44%
<b>Paraíba</b>	<b>74,49%</b>	<b>8,81%</b>	<b>2,43%</b>	<b>0,25%</b>	<b>6,45%</b>	<b>4,40%</b>	<b>1,91%</b>	<b>1,27%</b>



Source: IBGE - Demographic Census, 2022.

In Paraíba, an extensive system of water mains spreads across the entire territory, with the largest concentration in the central region of the state (Cariri, Brejo and Seridó regions), as can be seen in the figure below.

**Figure149 - Status of the Pipeline System in Paraíba**

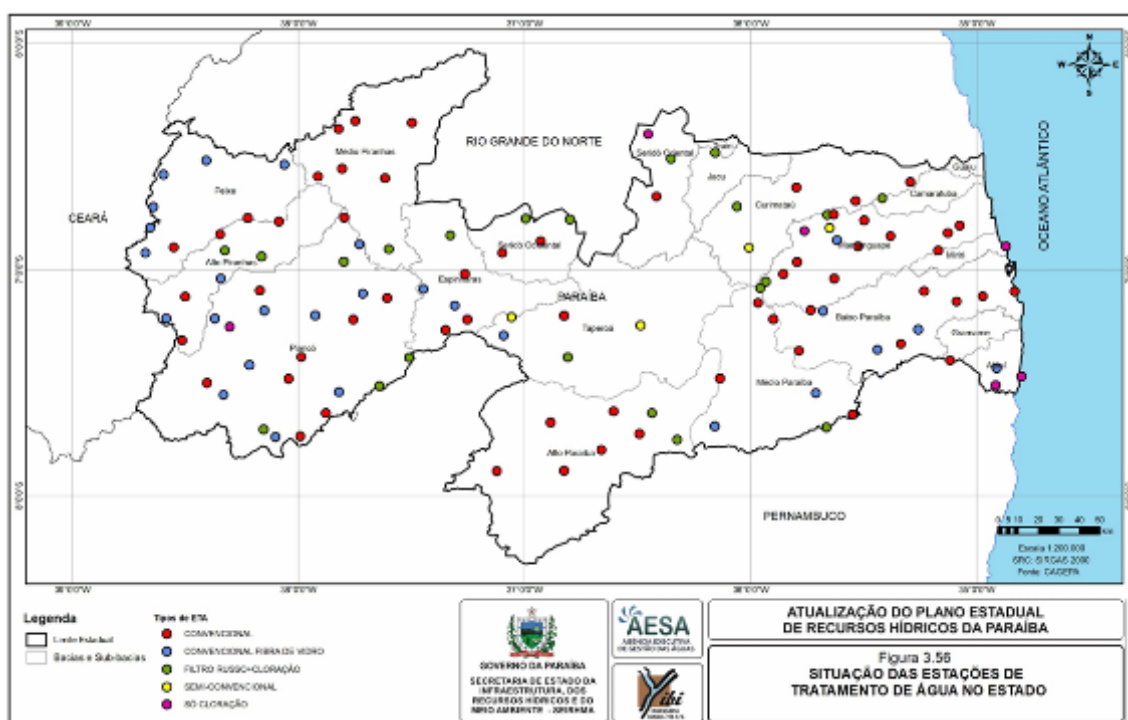


Source: Paraíba State Water Resources Plan, 2022.

In the state of Paraíba, there are currently 133 water treatment plants in operation, as shown in the figure below. These WTPs can be classified according to the type of treatment used, with the majority of the state's WTPs (45.9%) being conventional, totaling 61, followed by conventional with fiberglass (21.1%), Russian filters + staining (18%) and chlorination only (8.3%). (Paraíba, 2022).



**Figure150 - Status of Water Treatment Plants in Paraíba**



Source: Paraíba State Water Resources Plan, 2022.

## Drainage

The analysis of Paraíba's sewage system is extremely important for socio-environmental analysis, given that access to sewage collection and treatment services reduces the chances of domestic effluent contaminating watercourses, while avoiding unhealthy environments that are prone to the proliferation of disease vectors.

According to data from the latest IBGE Demographic Census, less than half of the households (49.08%) in Paraíba had access to the general network, rainwater network or cesspit connected to the sewage network in 2022 (46.80% general or rainwater network and 2.29% septic tank or filter tank connected to the network).

In 2022, a large proportion of homes were still served by more precarious types of sewage, such as septic tanks or filter tanks not connected to the network and rudimentary cesspools, representing 16.05% and 28.13%, respectively, of the total number of homes in the state.

Septic tanks are simple sanitation infrastructures that enable primary treatment of the effluent through physical-chemical separation of the matter contained in the sewage. Widely used in rural homes, septic tanks can remove around 40% of the Biological Oxygen Demand (BOD) contained in sewage. Black or rustic cesspits, also very common in rural areas, are very precarious alternatives to this type of sewage disposal. They are often mistaken for septic tanks.

It should be noted that, in 2022, a small number of households in Paraíba disposed of their waste directly into the river, lake, stream or sea (1.41%) or into open ditches (2.95%), as can be seen in the table below.

**Table 186 - Sanitary Sewerage in Paraíba (Households - Coverage Percentage) - 2022**

Rural Territories and UF	Type of Sanitary Drainage								
	General network, rainwater network or cesspit connected to the network	General or rainwater network	Septic tank or filter tank connected to the network	Septic tank or filter tank not connected to the network	Rudimentary pit or hole	Ditch	River, lake, stream or sea	Another way	They had no bathroom or toilet
TR Alto Sertão	47,47%	44,28%	3,19%	19,96%	26,45%	2,34%	0,59%	2,00%	1,19%
TR Borborema	62,70%	61,60%	1,10%	8,78%	20,96%	3,68%	1,15%	2,20%	0,52%
TR Brejo	41,54%	38,78%	2,76%	11,84%	35,78%	6,04%	2,86%	1,55%	0,39%
TR Cariri	47,52%	45,45%	2,07%	13,11%	29,28%	5,13%	0,38%	2,68%	1,90%
TR Curimataú	35,83%	34,99%	0,84%	9,17%	48,01%	2,53%	1,22%	1,99%	1,24%
TR Mata Norte	11,64%	9,02%	2,62%	22,98%	61,15%	2,04%	0,37%	1,28%	0,55%
TR Mata Sul	49,95%	47,35%	2,60%	23,13%	23,59%	1,01%	1,79%	0,43%	0,11%
TR Middle Piranhas	58,72%	55,33%	3,39%	16,36%	14,95%	5,34%	0,93%	2,19%	1,51%
TR Middle Hinterland	68,98%	66,04%	2,94%	8,57%	16,29%	2,07%	1,16%	1,98%	0,96%
TR Piemont da Borborema	29,22%	27,65%	1,57%	16,13%	43,58%	4,65%	2,28%	2,75%	1,40%
TR Serra do Teixeira	41,75%	40,05%	1,71%	6,15%	41,63%	3,57%	1,20%	2,39%	3,31%
TR Vale de Piancó	43,48%	39,17%	4,31%	12,62%	32,31%	4,20%	1,17%	3,23%	2,99%
TR Maringá Valley	53,41%	50,15%	3,26%	14,71%	21,11%	4,77%	0,92%	3,09%	1,99%
TR Paraíba Valley	14,22%	11,91%	2,31%	16,08%	59,21%	6,82%	1,15%	1,68%	0,84%



<b>TR Piranhas Valley</b>	54,46%	51,54%	2,92%	13,47%	20,95%	4,53%	2,04%	3,09%	1,46%
<b>Paraíba</b>	<b>49,08%</b>	<b>46,80%</b>	<b>2,29%</b>	<b>16,05%</b>	<b>28,13%</b>	<b>2,95%</b>	<b>1,41%</b>	<b>1,61%</b>	<b>0,77%</b>

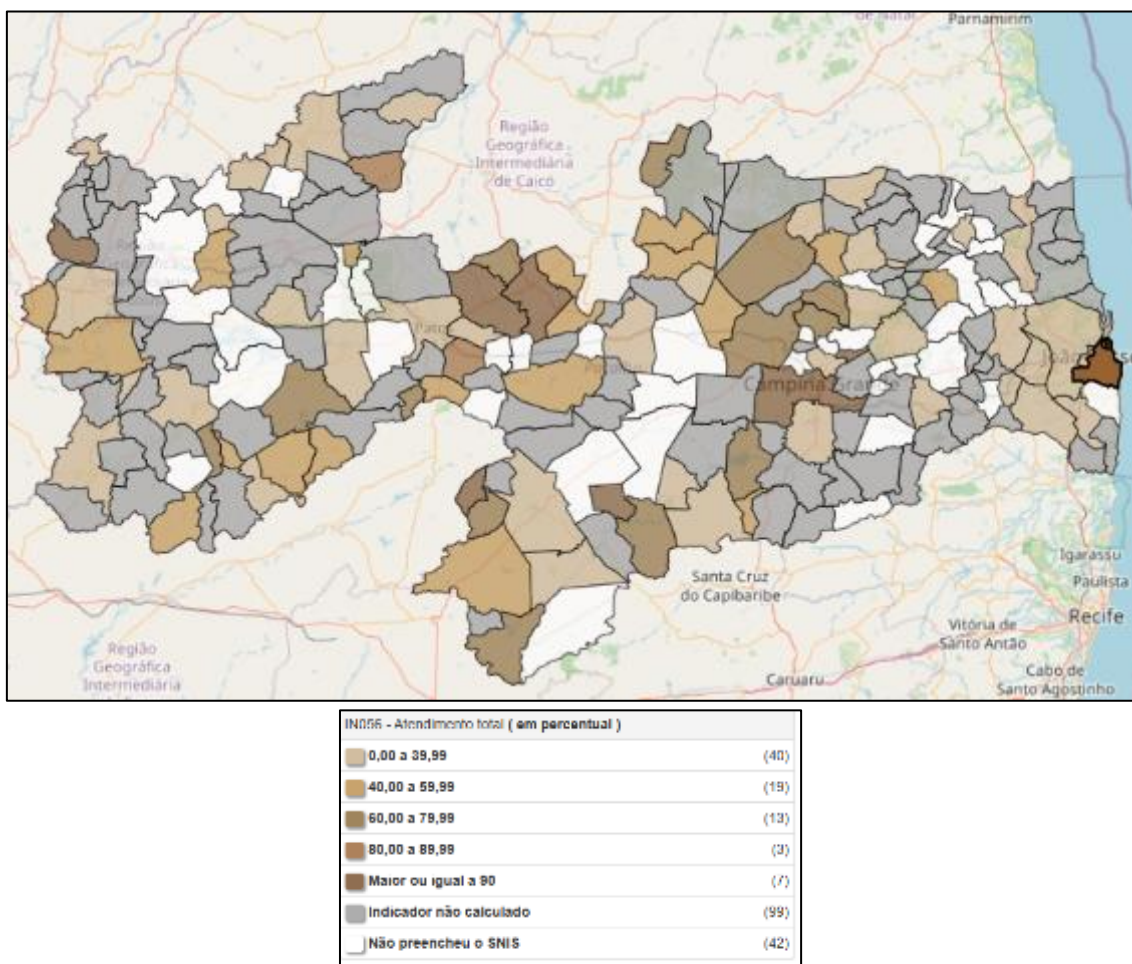
Source: IBGE - Demographic Census, 2022.

In Paraíba's Rural Territories, according to data from the 2022 Census (IBGE), shown in the previous table, only in 5 of them were the percentages of households connected to the general network, rainwater network or cesspit connected to the network above half: TR Médio Sertão (68.98%), TR Borborema (62.70%), TR Médio Piranhas (58.72%), TR Vale do Piranhas (54.46%) and TR Vale do Maringá (53.41%). In turn, the lowest rates were found in the Mata Norte TR, Vale do Paraíba TR and Piemont da Borborema TR, 11.64%, 14.22% and 29.22%, respectively.

With regard to the population served per municipality, according to data from SNIS (2022), João Pessoa and Campina Grande are the cities with the largest population served by sanitary sewage, totaling 1,137,388 inhabitants, or almost 29% of the population of the state of Paraíba.

As for the volume of sewage collected, the largest volumes are collected in João Pessoa and Campina Grande, followed by Pombal, Guarabira, Boqueirão, Cabedelo and Santa Luzia (Paraíba, 2022).

**Figure151 - Sewerage service in Paraíba**



Source: SNIS, 2022.

**Photo 50 - Gray water reuse system in the São Domingos settlement in the municipality of Cubati**



Source: Consulting, 2024.

### **Garbage collection**

Addressing data on solid waste collection is of the utmost importance, given that the incorrect disposal of this material can become a vector for diseases through rodents and insects present in unsanitary areas. It also has the potential to pollute watercourses and extremely delicate biomes.

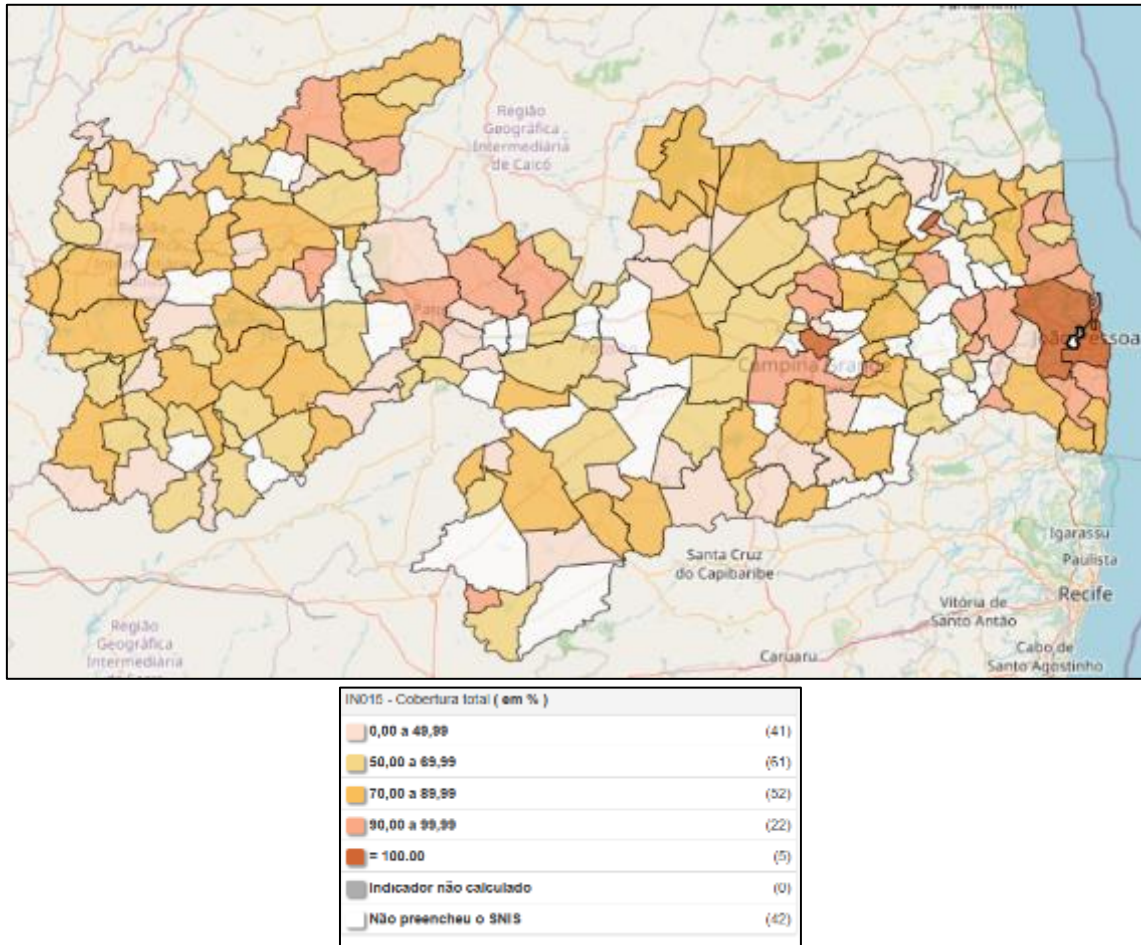
According to the IBGE (2022), garbage collection in Paraíba comprised a large proportion of households, representing 84.61% of all dwellings (79.55% collected at home by a cleaning service and 5.06% deposited in a cleaning service skip).

It should be noted that, in the same year, some of the waste was burned or buried on the property, specifically 14.13%, and 1.01% was dumped on vacant lots, hillsides or public areas, as can be seen in the table below.

Among Paraíba's Rural Territories, the ones with the highest percentages of households with garbage collection in 2022 were the Mata Sul RT, with almost all households (95.95%), and the Borborema RT, with 83.24%. The Cariri RT and the Curimataú RT, with 68.00% and 70.60% respectively, had the lowest coverage rates in the same year.

With regard to solid waste collection coverage by municipality, according to SNIS data (2022), only five cities (João Pessoa, Cabedelo and Santa Rita, in the Mata Sul RT; Lagoa Seca, in the Borborema RT; and Serra da Raiz, in the Brejo RT) had 100% coverage.

**Figure152 - Solid Waste Collection Coverage in Paraíba**



Source: SNIS, 2022.

**Table 187 - Garbage Collection Coverage in Paraíba (Households - Coverage Percentage) - 2022**

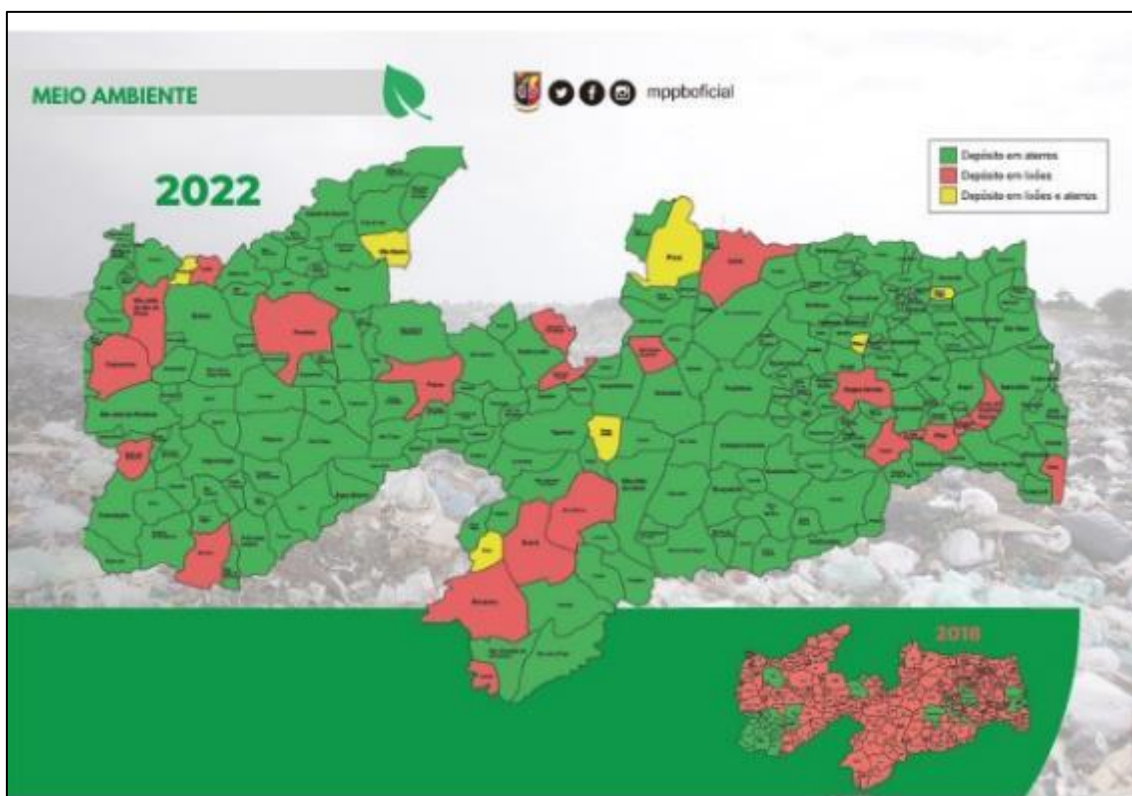
Rural Territories and UF	Waste disposal						
	Collected	Collected at home by cleaning service	Disposed of in a cleaning service skip	Burning on the property	Buried on the property	Dumped on a vacant lot, hillside or public area	Another destination
TR Alto Sertão	78,17%	75,64%	2,53%	20,42%	0,13%	1,03%	0,25%
TR Borborema	83,24%	78,77%	4,47%	15,62%	0,15%	0,71%	0,29%
TR Brejo	82,98%	79,94%	3,03%	15,93%	0,14%	0,73%	0,22%
TR Cariri	68,00%	57,29%	10,72%	29,88%	0,14%	1,35%	0,62%
TR Curimataú	70,60%	65,77%	4,83%	27,37%	0,52%	1,27%	0,24%
TR Mata Norte	73,86%	69,58%	4,28%	24,15%	0,47%	1,29%	0,23%
TR Mata Sul	95,95%	91,79%	4,16%	2,91%	0,08%	0,89%	0,17%
TR Middle Piranhas	83,05%	75,47%	7,58%	16,09%	0,07%	0,51%	0,28%
TR Middle Hinterland	83,18%	74,38%	8,80%	14,89%	0,17%	1,43%	0,33%
TR Piemont da Borborema	77,60%	71,56%	6,03%	20,51%	0,29%	1,35%	0,26%
TR Serra do Teixeira	68,96%	56,87%	12,09%	29,06%	0,20%	1,24%	0,54%
TR Vale de Piancó	71,28%	65,64%	5,63%	26,22%	0,13%	2,11%	0,25%
TR Maringá Valley	74,30%	70,66%	3,64%	24,69%	0,06%	0,83%	0,13%
TR Paraíba Valley	75,24%	71,75%	3,49%	23,45%	0,27%	0,87%	0,18%
TR Piranhas Valley	81,14%	72,77%	8,37%	16,32%	0,13%	2,02%	0,39%
<b>Paraíba</b>	<b>84,61%</b>	<b>79,55%</b>	<b>5,06%</b>	<b>13,98%</b>	<b>0,15%</b>	<b>1,01%</b>	<b>0,25%</b>

Source: IBGE - Demographic Census, 2022.

In relation to solid waste disposal, the Paraíba Public Prosecutor's Office's Environmental Operational Support Center found in 2023 that the majority of Paraíba's municipalities (207 out of 223) use sanitary landfills as a way of disposing of solid waste. They also identified 7 cities with signs of dumps and another 9 that dispose of solid waste in active dumps. These figures represent an improvement on the data from 2022, when 29 municipalities still resorted to dumps to dispose of their waste, 22 of which deposited all their waste there and 7 sent part of it to landfills (PARAÍBA, 2023b).

According to a survey carried out by the Paraíba Public Prosecutor's Office, the number of cities with correct waste disposal has risen from 29 in 2017 to 194 in 2022, as can be seen in the "Map of dumps" below, carried out by the ministerial body (PARAÍBA, 2023b).

**Figure153 - "Map of garbage dumps" in Paraíba, 2022**



Source: Court of Auditors of the State of Paraíba. Technical Study 01/2023. Socioeconomic and Environmental Indicators of the State: Accountability of the State Government 2022.

#### 4.3.8 Public Security

According to data obtained from the Brazilian Public Security Yearbook (2023), there were 47,398 victims of intentional violent deaths in the country in 2022, which represents a rate of MVI<sup>46</sup> of 23.3 per 100,000 inhabitants and a reduction of 2.4% compared to the previous year.

<sup>46</sup> The Intentional Violent Deaths (IVD) category corresponds to the sum of victims of intentional homicide, robbery, bodily injury followed by death and deaths resulting from on-duty and off-duty police interventions (in some cases, counted under intentional homicides). Thus, the MVI category represents the total number of victims of violent deaths with defined intent in a given territory. The number of police officers killed is already included in the total of intentional homicides and is presented here only to measure the phenomenon.



In 2022, among the highest rates of MVI in the country was a state in the Northeast region, the state of Bahia, with 47.1 per 100,000 inhabitants, only surpassed by the state of Amapá, which had a rate of 50.6 that same year. The lowest rates were found in the states of São Paulo (8.4), Santa Catarina (9.1) and the Federal District (11.3).

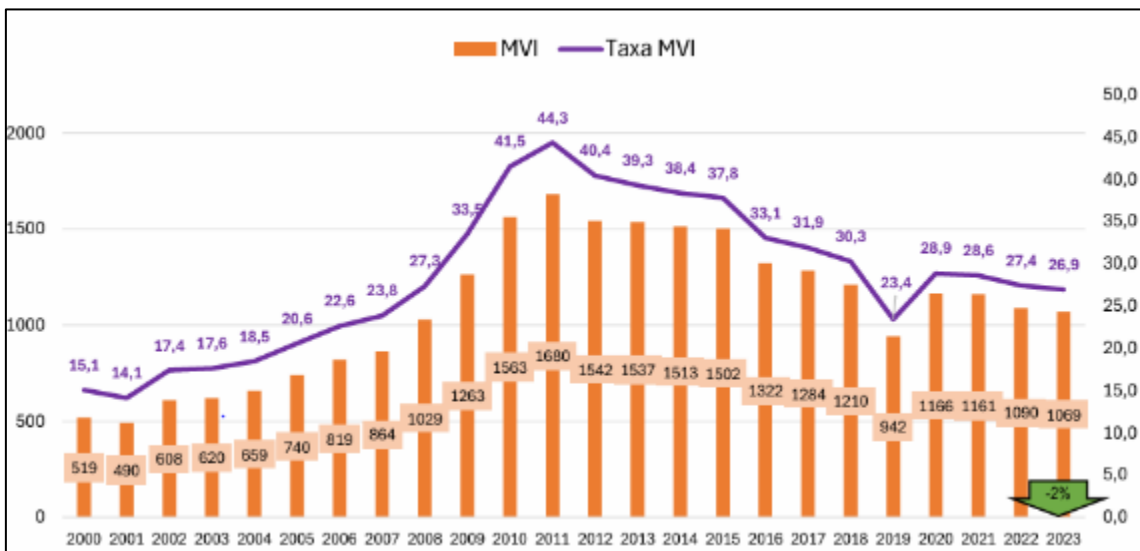
**Figure154 - Highest and lowest MVI rates in Brazil by state (2022)**



Source: Brazilian Public Security Yearbook (2023). Brazilian Public Security Forum. 17th Brazilian Public Security Yearbook.

The state of Paraíba followed the national trend in terms of victims of intentional violent deaths. In absolute terms, according to data from the 2023 Yearbook of Security and Social Defense in Paraíba, in 2022 there were 1,090 victims of intentional violent deaths, which represents an MVI rate of 27.4 per 100,000 inhabitants, while in 2023 there were 1,069 victims, an MVI rate of 26.9 per 100,000 inhabitants, so there was a 2% reduction compared to the previous year.

**Figure155 - Annual Historical Series of Absolute MVI and Rates per 100,000 inhab. in Paraíba**



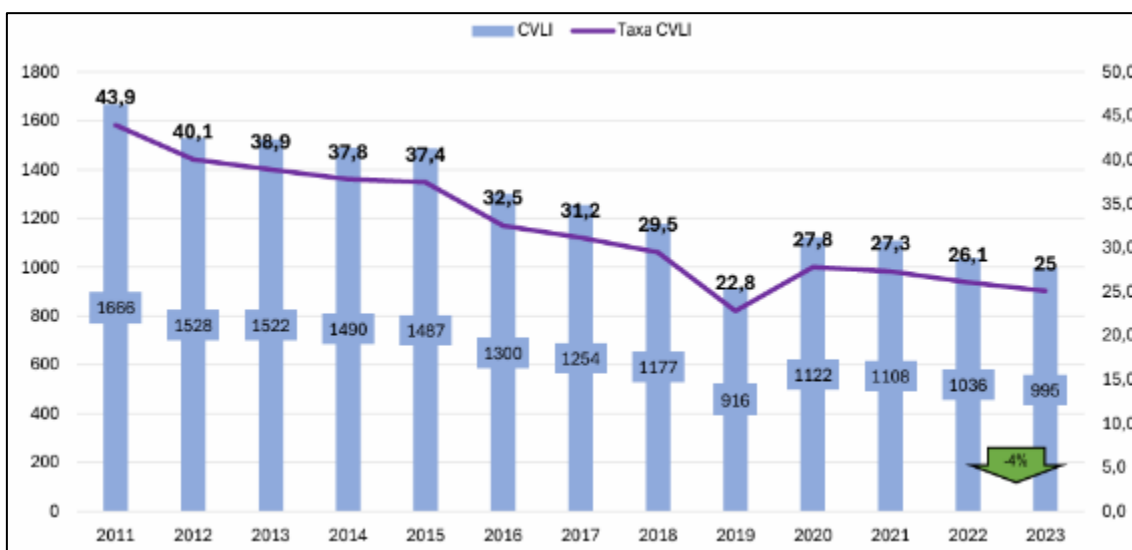
Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

Before the MVI, the statistical indicator used as of June 2023, the indicator in use was called CVLI - Lethal and Intentional Violent Crimes, which aggregated intentional homicides and other intentional crimes resulting in death, except for the number of deaths in confrontations with state agents, as the MVI does now.

In Paraíba, in absolute terms, in 2022, there were 1,036 victims of Lethal and Intentional Violent Crimes - CVLI, which represents a CVLI rate of 26.1 per 100,000 inhabitants, while in 2023, there were 995 victims, a CVLI rate of 25.0 per 100,000 inhabitants, so there was a 4% reduction compared to the previous year.

With the program, Paraíba Unida pela Paz, implemented by the state government in 2011, Paraíba achieved consecutive annual reductions in Lethal and Intentional Violent Crimes - CVLI from 2012 onwards, which were only discontinued in 2020 with the COVID-19 Pandemic.

**Figure156 - Annual Historical Series of Absolute CVLI and Rates per 100,000 inhab. in Paraíba**

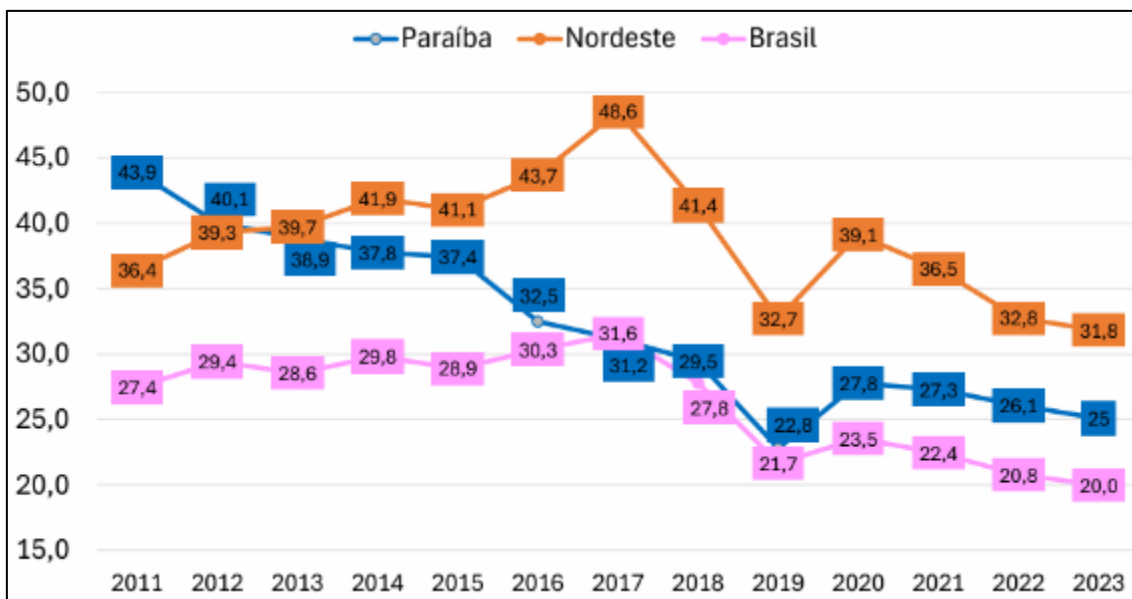


Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

With a CVLI rate of 25.0 per 100,000 inhabitants in 2023, Paraíba is well below the regional average, which reached a CVLI rate of 31.8 per 100,000 inhabitants in the same year, but above the national average (20.0). However, in general, since 2018, Paraíba has followed the downward trend in lethal violence in Brazil and in the northeast region with its percentage variations.

Last year, despite the reductions in Brazil, the Northeast is still the region with the highest CVLI rate in the country, with the highest volume in absolute numbers of deaths, and has four of the six federal units with the highest violent lethality rates in 2023. In addition, of the six states that have not reduced homicides in 2023, four are in the Northeast.

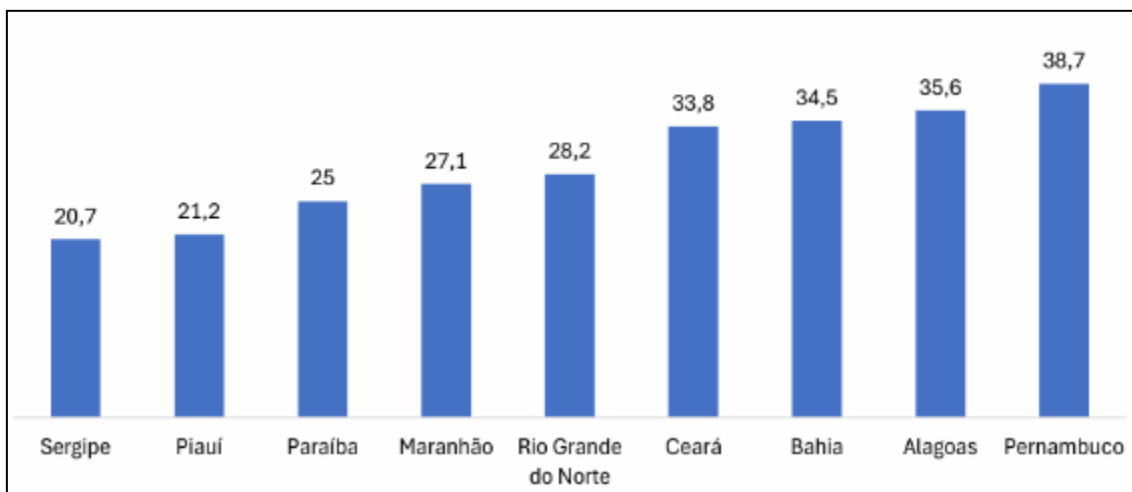
**Figure157 - Annual Historical Series of Absolute CVLI and Rates per 100,000 inhab. in Paraíba, the Northeast and Brazil**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

In the regional comparison, among the 9 Northeastern states, Paraíba was in 7th place in the ranking of the most violent states in 2023, with Pernambuco in first place, with a CVLI rate of 38.7 per 100,000 inhabitants, and Sergipe in last place (20.7).

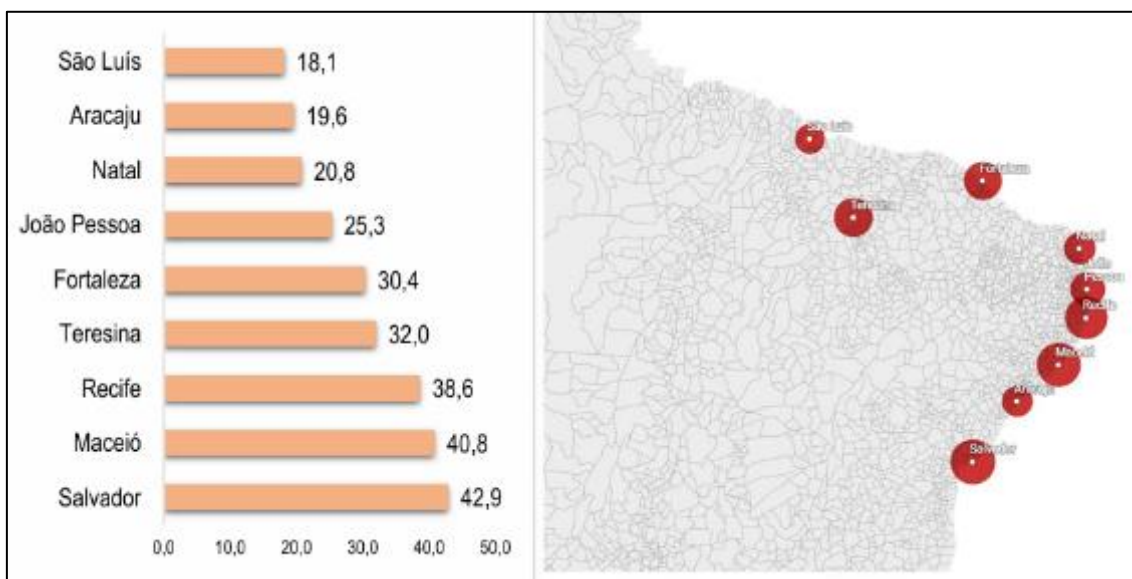
**Figure158 - Comparison of CVLI Rates in the Northeastern States in 2023**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

When comparing the capitals of the Northeastern states, João Pessoa was in 6th place in the violence ranking in 2023, with a CVLI rate of 25.3 per 100,000 inhabitants, while Salvador (42.9) was in first place and São Luís in last.

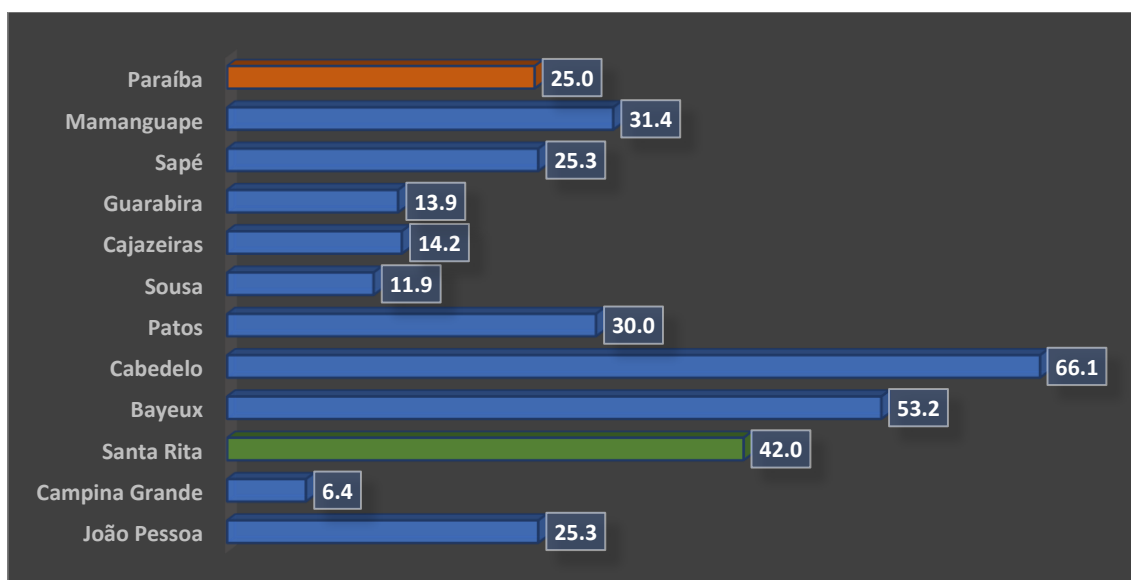
**Figure159 - CVLI Rates in the Capitals of the Northeastern States in 2023**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

It is worth noting that, in 2023, the CVLI rates of some Paraíba municipalities with a population of over 20,000 inhabitants, such as João Pessoa (25.0), Bayeux (53.2), Cabedelo (66.1), Patos (30.0), Sapé (25.3) and Mamanguape (31.4) were higher than the state average (25.0). The CVLI rate in Santa Rita, the most violent municipality in the state in recent years, reaching a maximum CVLI rate in 2012 of 118.0 per 100,000 inhabitants, is also well above the state average (42.0).

**Figure160 - CVLI rates for some municipalities in Paraíba with a population over 20,000 inhabitants and for Paraíba.**

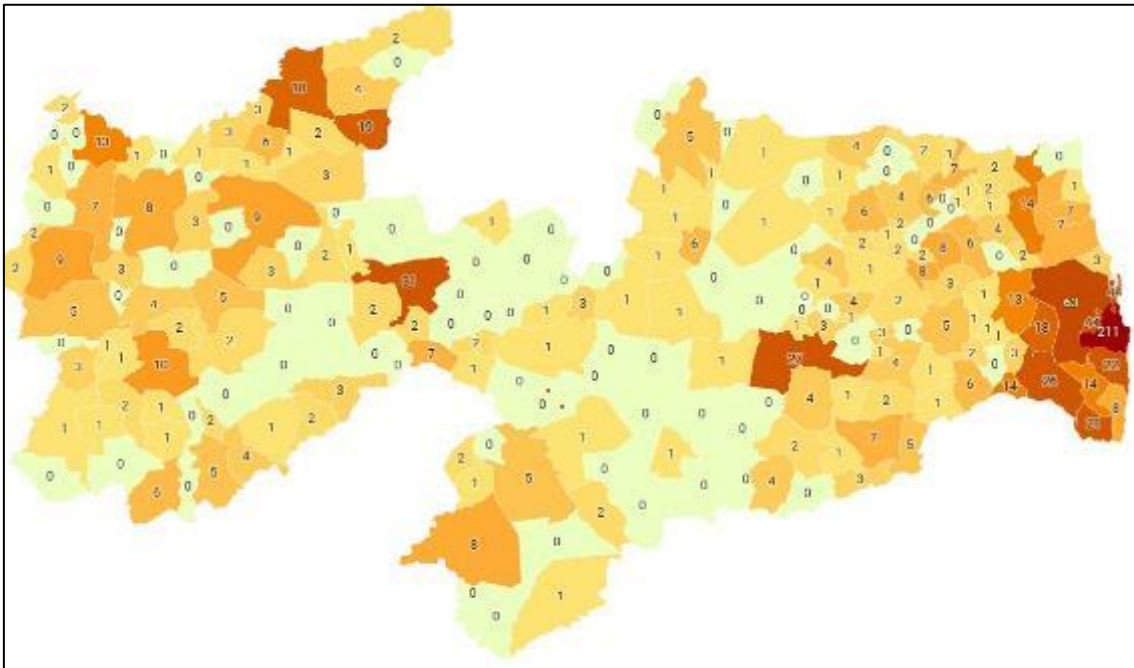


Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

A total of 73 cities in Paraíba did not register any CVLI in 2023, as can be seen in the figure below, the highest number of municipalities without CVLI in the year since 2014.

Of this total, seven municipalities - Carrapateira, Gurjão, Joca Claudino, Lastro, Santa Helena, São Domingos and Serra da Raiz - have gone five years without a CVLI.

**Figure161 - CVLI in Paraíba by Municipalities (2023)**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

It is worth noting that, in 2022, of the 50 most violent cities in the country, according to the Intentional Violent Deaths (IVD) rate, with a population of over 100,000 inhabitants, one state in the Northeast, Bahia, had the largest number of them, with four (Jequié, Santo Antônio de Jesus, Simões Filho and Camaçari) in the top positions. The state of Paraíba, meanwhile, placed two cities in this ranking, Santa Rita and Patos, in 20th and 33rd place respectively, as can be seen in the table below.

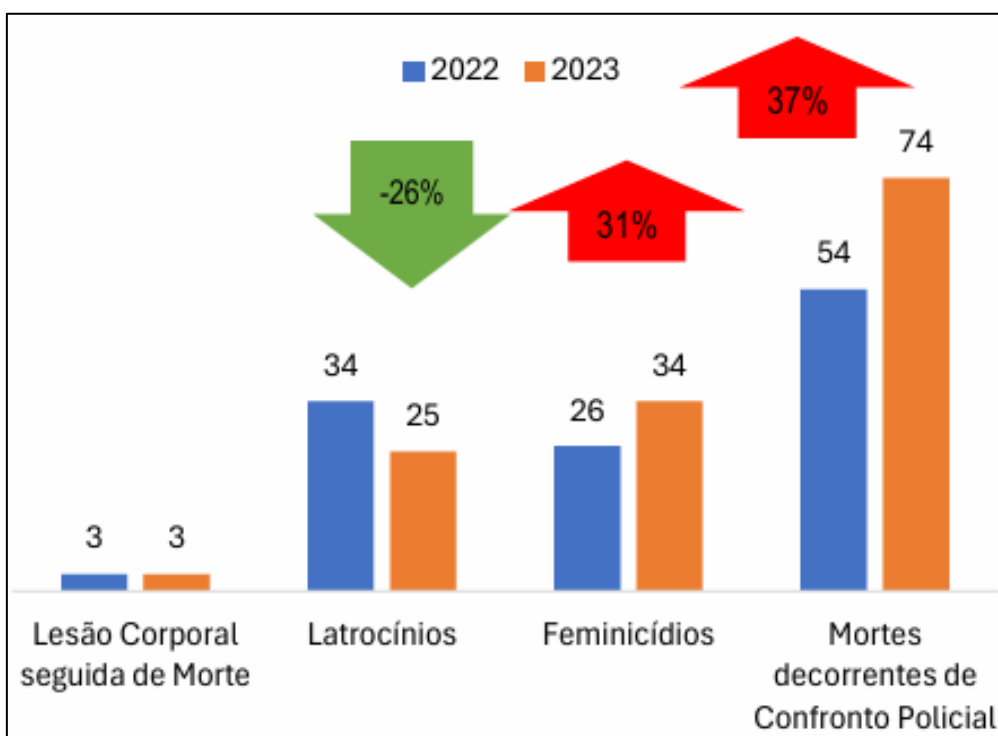
**Table 188 - 50 most violent cities in the country, according to the rate of Intentional Violent Deaths (IVD), with population over 100 thousand inhabitants (Brazil - 2022)**

No.	Município	UF	Taxa de Mortes Violentas Intencionais (2022)	No.	Município	UF	Taxa de Mortes Violentas Intencionais (2022)
1	Jequié	BA	88,8	26	Marabá	PA	51,8
2	Santo Antônio de Jesus	BA	88,3	27	Vitória de Santo Antão	PE	51,5
3	Simões Filho	BA	87,4	28	Itabalana	SE	51,2
4	Camaçari	BA	82,1	29	Caucaia	CE	51,2
5	Cabo de Santo Agostinho	PE	81,2	30	São Lourenço da Mata	PE	50,3
6	Sorriso	MT	70,5	31	Santana	AP	49,4
7	Altamira	PA	70,5	32	Paragominas	PA	49,3
8	Macapá	AP	70,0	33	Patos	PB	47,5
9	Feira de Santana	BA	68,5	34	Paranaguá	PR	47,3
10	Juazeiro	BA	68,3	35	Parauapebas	PA	46,9
11	Teixeira de Freitas	BA	66,8	36	Macaé	RJ	46,7
12	Salvador	BA	66,0	37	Caxias	MA	46,5
13	Mossoró	RN	63,5	38	Parnaíba	PI	46,3
14	Ilhéus	BA	62,1	39	Garanhuns	PE	44,9
15	Itaituba	PA	61,6	40	São Gonçalo do Amarante	RN	44,9
16	Itaguaí	RJ	61,6	41	Alvorada	RS	44,8
17	Quelmados	RJ	61,2	42	Jaboatão dos Guararapes	PE	44,6
18	Luis Eduardo Magalhães	BA	56,5	43	Duque de Caxias	RJ	44,3
19	Eunápolis	BA	56,3	44	Almirante Tamandaré	PR	44,2
20	Santa Rita	PB	56,0	45	Castanhal	PA	44,2
21	Maracanaú	CE	55,9	46	Campo Largo	PR	43,3
22	Angra dos Reis	RJ	55,5	47	Porto Velho	RO	42,1
23	Manaus	AM	53,4	48	Ji-Paraná	RO	41,8
24	Rio Grande	RS	53,2	49	Belford Roxo	RJ	41,8
25	Alagoinhas	BA	53,0	50	Marituba	PA	41,6

Source: Brazilian Public Security Yearbook (2023). Brazilian Public Security Forum. 17th Brazilian Public Security Yearbook.

When comparing the types of violence between 2022 and 2023, according to data from the 2023 Yearbook of Security and Social Defense in Paraíba, there was a 26% reduction in robberies in the state during this period, but cases of femicide and deaths resulting from police confrontations increased significantly, by 31% and 37% respectively. Bodily injuries followed by death remained unchanged between these years.

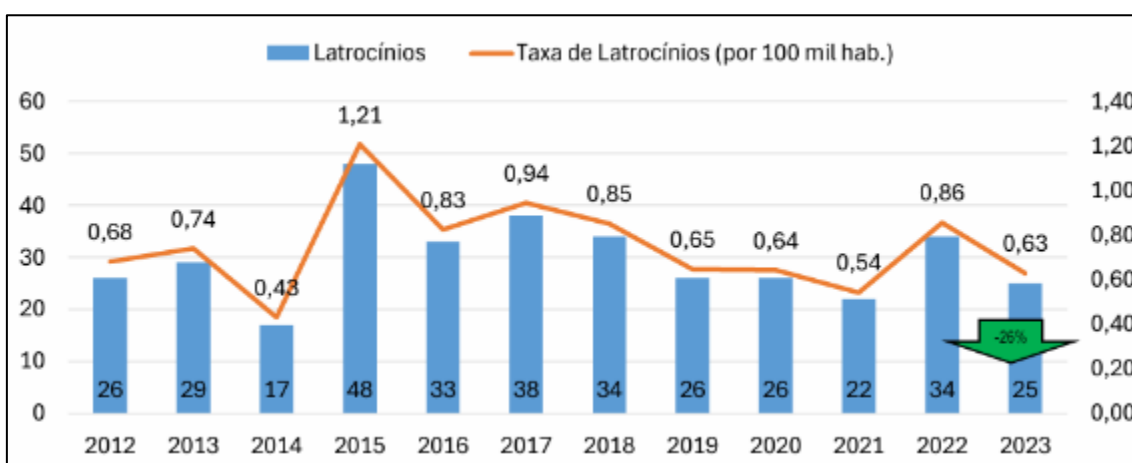
**Figure162 - Comparison of Indicator Subcategories in 2022 and 2023 in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

In relation to robberies, which is a type of violence in which there is an attempted robbery followed by violent crimes that result in the death of the victim, in Paraíba there was a 26% reduction in the 2022-2023 period, going from 34 cases (robbery rate of 0.86 per 100,000 inhab.) to 25 between those years (0.63).

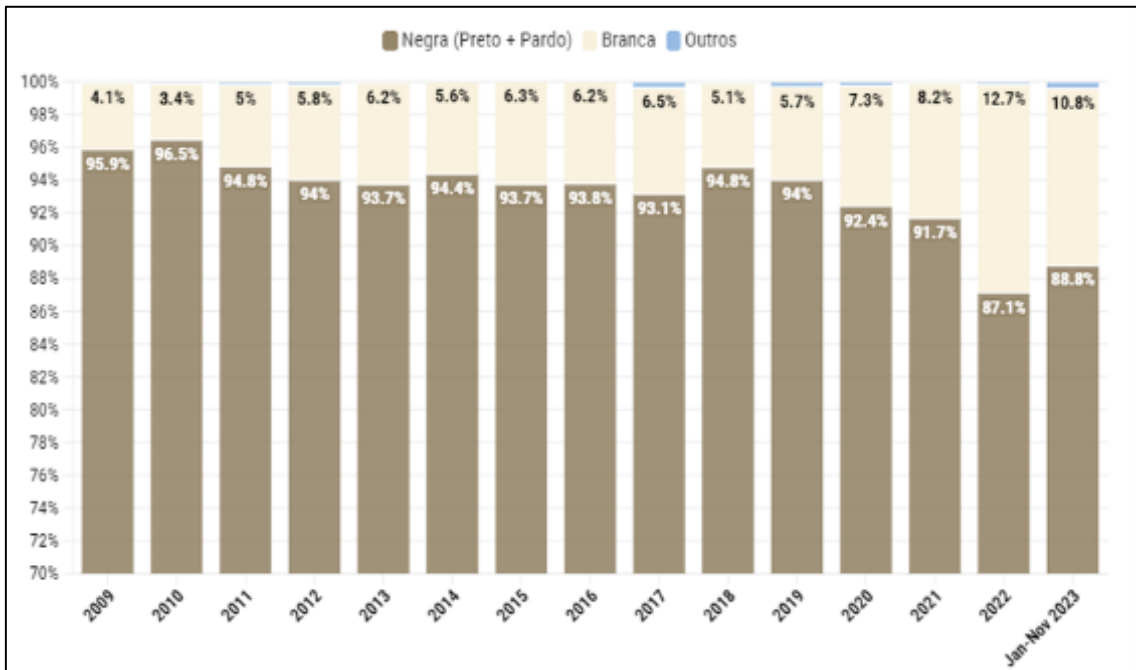
**Figure163 - Annual historical series of murders and rate of murders per 100,000 inhabitants in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

Another issue worth highlighting is that 88.8% of homicides in Paraíba are committed by black and brown people, an important indication of "structural racism" in the state that needs to be combated with public policies, in all their various spheres and cross-cutting aspects.

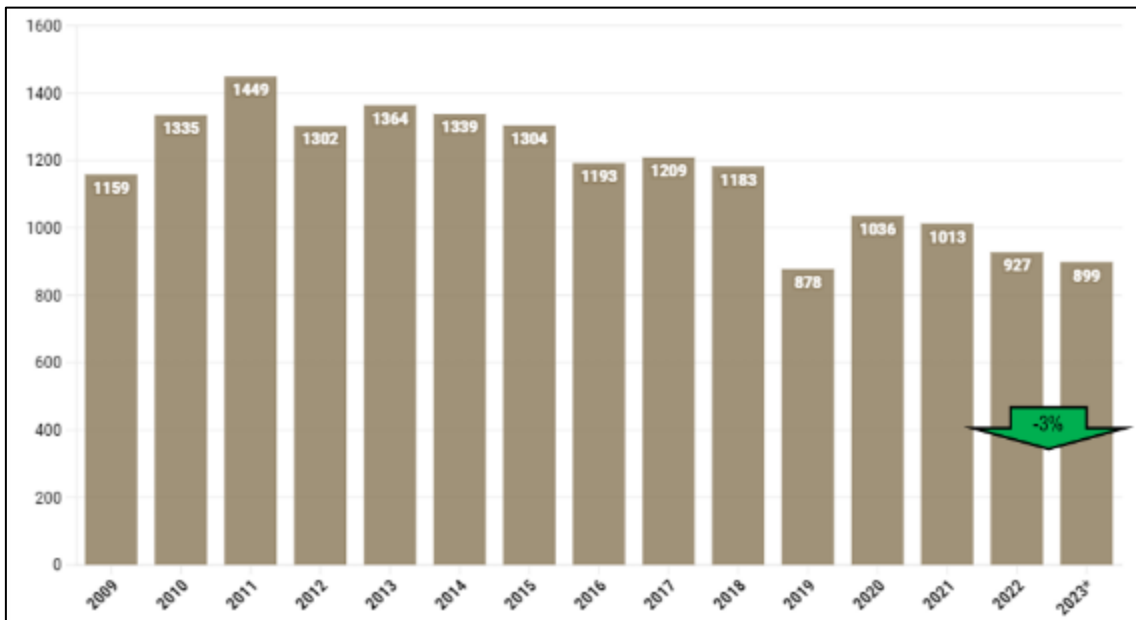
**Figure164 - Historical Series of Homicide Distribution by Color\* in Paraíba**



\*Considering deaths by aggression according to ICD-10.  
 Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

Looking at the historical series of black homicides, we can see that between 2022 and 2023 there was a 3% reduction, from 927 cases in 2022 to 899 in 2023. The figure below also shows an accumulated reduction of 38% in the CVLI of black people since 2011.

**Figure165 -Historical Series of Homicides\* of the Black Population (Black + Brown) in Paraíba**



\*Considering deaths by aggression according to ICD-10.  
 Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

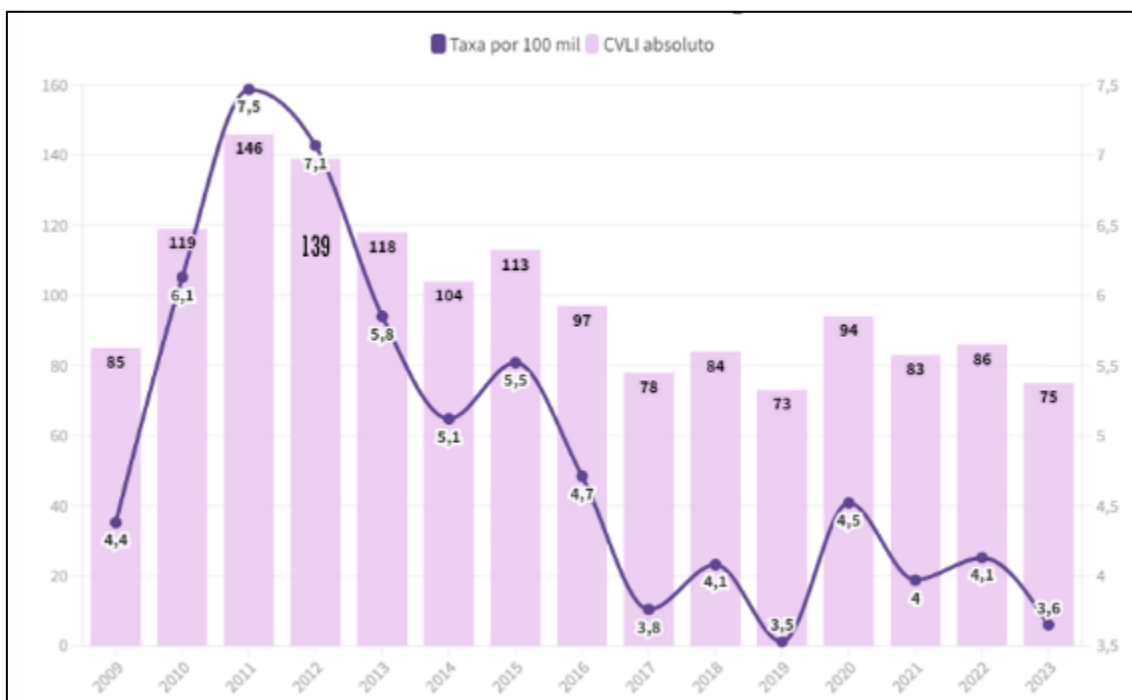


Regarding violence against women, Paraíba has seen a reduction in CVLI against female victims, from a high of 146 cases in 2011 to a low of 73 in 2019. In 2023 there was the second lowest annual total in the historical series, with 75 victims, which represents an accumulated drop of 49% since 2011. Last year, of every 100 people murdered in the state, around 93 were men and 7 were women, which means that, proportionally, the CVLI rate per group of 100,000 women was 3.6, while the CVLI rate per group of 100,000 men was 47.9.

Even so, it cannot be considered that men are exposed to a greater risk of lethality than women, since the reasons behind homicides against men are rarely related to the male gender. In the case of women, the opposite is true, so much so that Brazilian legislation has established its own criminal type to highlight and give unique criminal treatment to a specific situation. In 2015, the crime of femicide was created (PARAÍBA, 2024).

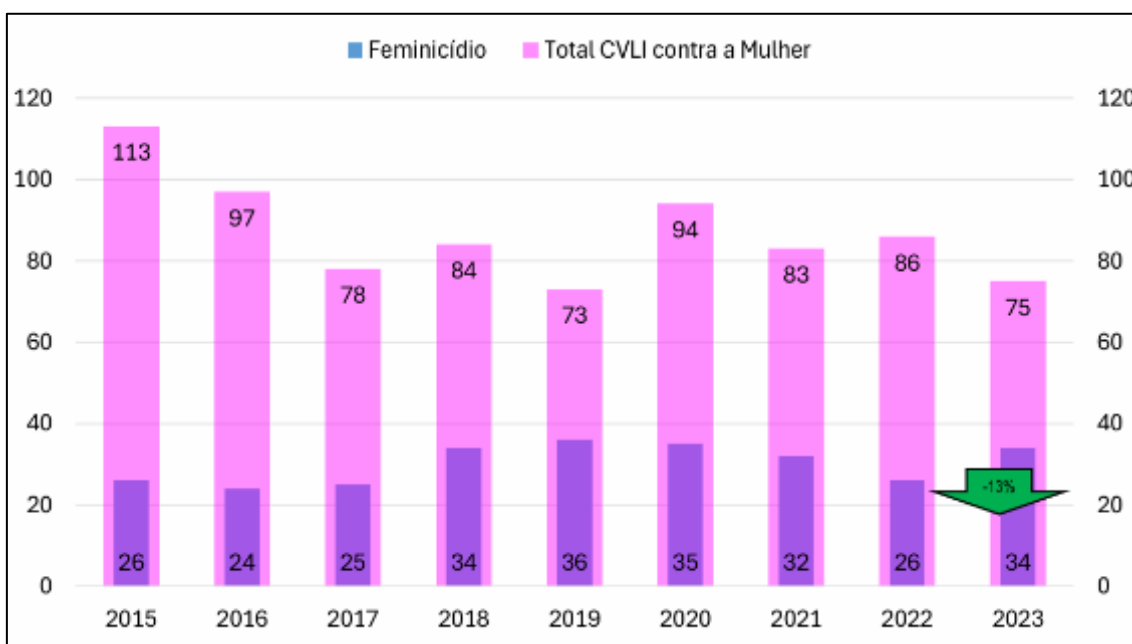
The first difficulty encountered is that to define a femicide, it is necessary to solve the murder. In relation to the CVLIs of women that occurred in Paraíba from January to October 2023, the civil and military police solved 79% of these, with 53% solved with the arrest of the possible perpetrator. However, despite the 13% decrease in CVLI cases against women compared to the previous year, femicides increased in 2023. With 34 cases, the number returned to the average level seen between 2018 and 2021, with 2022 being the only year with a lower result. This growth, although numerically it has little impact on the total amount of CVLI victims, attracts the concern of Public Security management, as it places Paraíba with a Femicide rate higher than the regional and national average (PARAÍBA, 2024).

**Figure166 - Historical Series of Women's CVLI and Rates per 100,000 in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

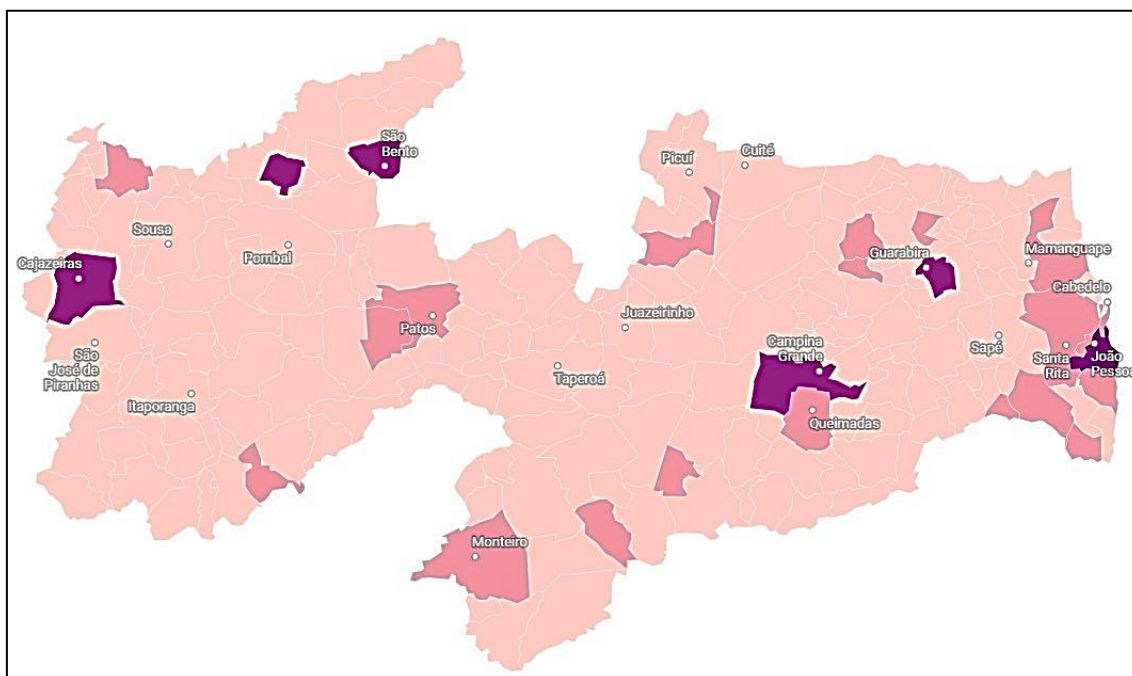
**Figure167 - Historical Series of Femicides and CVLI against Women in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

The figure below, which shows the map of femicides by municipality in Paraíba in 2023, reveals that in that year the cities with the highest number of cases were João Pessoa (3), Guarabira (2), Campina Grande (2), São Bento (2), Jericó (2) and Cajazeiras (2).

**Figure168 - Map of femicides by municipality in Paraíba in 2023**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

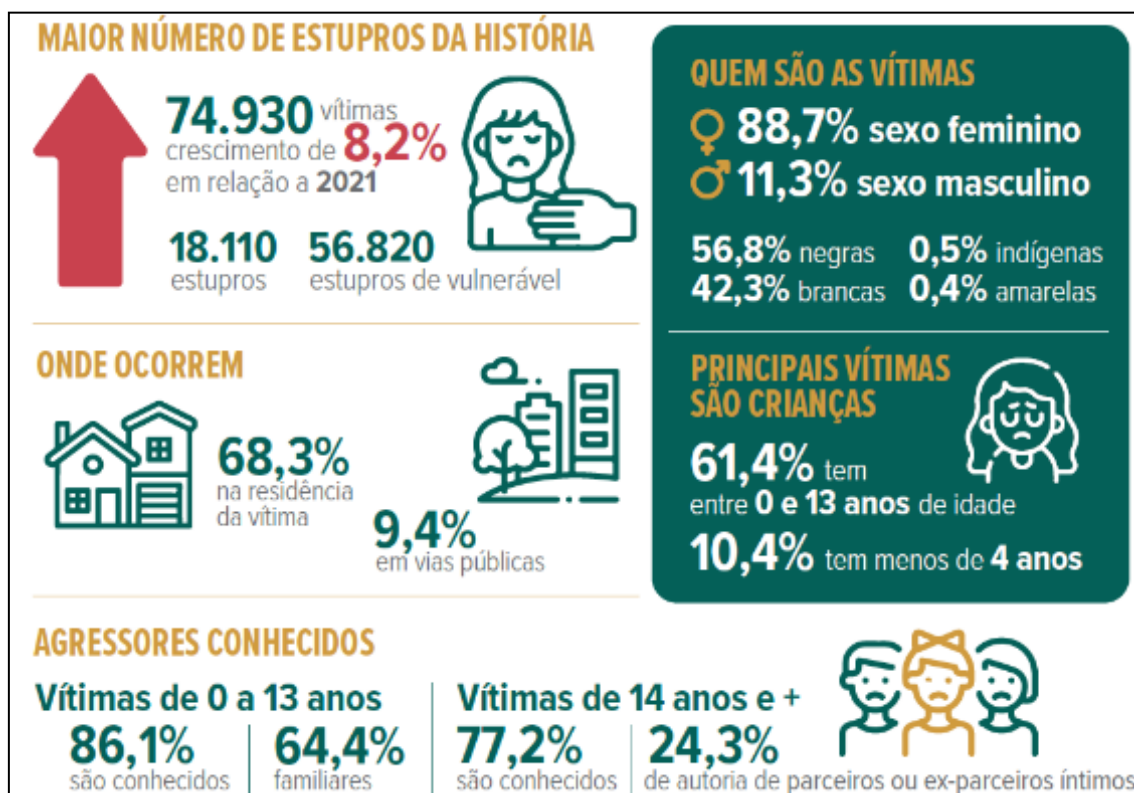
However, in 2022, according to data from the Brazilian Public Security Yearbook (2023), there were the highest number of rapes in the country's history, with 74,930 victims (18,110 rapes and 56,820 rapes of the vulnerable), which represents an increase of 8.2% compared to 2021. Most of the rapes took place in the victim's home (68.3%) and 9.4%

on public roads, of which 88.7% were female and 11.3% male. The main victims are children, 61.4% are between 0 and 13 years old and 10.4% are under 4 years old.

Among victims aged 0 to 13, 86.1% were known aggressors and 64.4% were family members, and among victims aged 14 and over, 77.2% were known aggressors and 24.3% were perpetrated by intimate partners or ex-partners.

With regard to the color or race of the victims, 56.8% were black, 42.3% white, 0.5% indigenous and 0.4% yellow.

**Figure169 - Indicators of rape cases in Brazil (2022)**



Source: Brazilian Public Security Yearbook (2023). Brazilian Public Security Forum. 17th Brazilian Public Security Yearbook.

In Paraíba, the number of rapes also grew between 2021-2022, from 148 cases in 2021 to 167 in 2022, an increase of 12.3%. However, in the same period, the number of rapes of vulnerable people fell by 5.9%, from 401 in 2021 to 379 in 2022, as can be seen in the table below.

**Table 189 - Rape and Rape of a Vulnerable Person in Brazil by State (2021-2022)**

Brasil e Unidades da Federação	Estupro e estupro de vulnerável									
	Estupro					Estupro de vulnerável				
	Ns. Absolutos		Taxas <sup>(2)</sup>		Variação (%)	Ns. Absolutos		Taxas <sup>(2)</sup>		Variação (%)
	2021 <sup>(1)</sup>	2022	2021	2022		2021 <sup>(1)</sup>	2022	2021	2022	
<b>Brasil</b>	<b>16.837</b>	<b>18.110</b>	<b>8,3</b>	<b>8,9</b>	<b>7,0</b>	<b>52.057</b>	<b>56.820</b>	<b>25,8</b>	<b>28,0</b>	<b>8,6</b>
Acre	142	188	17,3	22,6	31,1	451	557	54,9	67,1	22,3
Alagoas	198	238	6,3	7,6	20,2	744	802	23,8	25,6	7,8
Amapá	181	155	24,9	21,1	-15,0	435	473	59,7	64,5	7,9
Amazonas	215	245	5,5	6,2	12,9	388	591	9,9	15,0	50,8
Bahia	923	1.125	6,5	8,0	21,8	2.966	3.433	21,0	24,3	15,7
Ceará	363	397	4,1	4,5	9,0	1.566	1.500	17,9	17,1	-4,5
Distrito Federal <sup>(3)</sup>	275	270	9,8	9,6	-2,5	404	484	14,4	17,2	18,9
Espírito Santo	400	477	10,5	12,4	18,4	1.101	1.259	28,9	32,8	13,6
Goiás <sup>(4)</sup>	700	765	10,0	10,8	7,9	2.567	2.902	36,8	41,1	11,6
Maranhão	518	564	7,7	8,3	8,6	1.450	1.709	21,5	25,2	17,6
Mato Grosso	445	442	12,3	12,1	-2,1	1.216	1.447	33,7	39,5	17,3
Mato Grosso do Sul	383	426	14,0	15,5	10,2	1.834	1.765	67,2	64,0	-4,7
Minas Gerais	1.224	1.103	6,0	5,4	-10,2	3.659	3.388	17,9	16,5	-7,8
Pará	690	825	8,5	10,2	18,9	2.979	3.732	36,9	46,0	24,6
Paraíba	148	167	3,7	4,2	12,3	401	379	10,1	9,5	-5,9
Paraná	1.409	1.523	12,4	13,3	7,3	4.906	5.125	43,2	44,8	3,7
Pernambuco	757	789	8,4	8,7	4,0	1.906	1.916	21,1	21,2	0,3
Piauí	227	271	7,0	8,3	18,9	934	970	28,7	29,7	3,5
Rio de Janeiro	1.432	1.590	8,9	9,9	11,0	3.678	4.037	22,9	25,1	9,7
Rio Grande do Norte	184	234	5,6	7,1	26,7	512	647	15,6	19,6	25,9
Rio Grande do Sul	1.139	1.109	10,5	10,2	-2,8	3.647	4.084	33,6	37,5	11,8
Rondônia	233	287	14,8	18,2	23,1	604	740	38,2	46,8	22,4
Roraima	148	172	23,8	27,0	13,4	405	554	65,2	87,1	33,5
Santa Catarina	1.484	1.483	19,8	19,5	-1,6	2.708	3.058	36,1	40,2	11,2
São Paulo	2.661	2.899	6,0	6,5	8,3	9.101	9.716	20,6	21,9	6,1
Sergipe	176	182	8,0	8,2	2,9	696	703	31,7	31,8	0,5
Tocantins <sup>(5)</sup>	182	184	12,1	12,2	0,4	799	849	53,2	56,2	5,5

Source: Brazilian Public Security Yearbook (2023). Brazilian Public Security Forum. 17th Brazilian Public Security Yearbook.

The number of rapes against female victims also increased in Paraíba from 2021 (141 cases) to 2022 (155 cases), an increase of 9.4%. On the other hand, in the same period, the number of rapes of vulnerable people fell by 7.4%, from 346 in 2021 to 322 in 2022, as can be seen in the table below.

**Table 190 - Rape and Rape of a Vulnerable Person (Female Victims) in Brazil by State (2021-2022)**

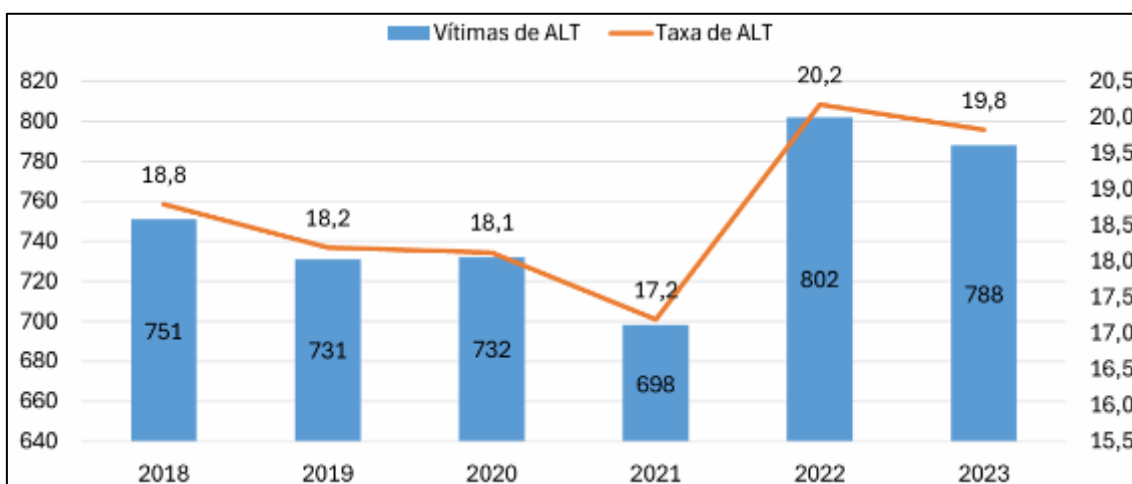
Brasil e Unidades da Federação	Estupro e estupro de vulnerável - vítimas mulheres									
	Estupro					Estupro de vulnerável				
	Ns. Absolutos		Taxas <sup>(2)</sup>		Variação (%)	Ns. Absolutos		Taxas <sup>(2)</sup>		Variação (%)
	2021 <sup>(1)</sup>	2022	2021	2022		2021 <sup>(1)</sup>	2022	2021	2022	
<b>Brasil</b>	<b>15.312</b>	<b>16.648</b>	<b>14,8</b>	<b>16,0</b>	<b>8,2</b>	<b>44.433</b>	<b>48.921</b>	<b>43,0</b>	<b>47,1</b>	<b>9,5</b>
Acre	129	174	31,4	41,9	33,5	403	489	98,0	117,8	20,1
Alagoas	184	228	11,3	14,0	23,8	638	714	39,2	43,8	11,8
Amapá	175	148	48,1	40,4	-16,0	384	419	105,6	114,4	8,3
Amazonas	209	235	10,7	12,0	11,3	381	509	19,6	25,9	32,3
Bahia	842	1.059	11,6	14,5	25,6	2.593	2.972	35,7	40,8	14,4
Ceará	333	365	7,4	8,1	9,2	1.369	1.323	30,3	29,2	-3,7
Distrito Federal <sup>(3)</sup>	232	239	16,0	16,3	2,3	343	400	23,6	27,3	15,8
Espírito Santo	312	392	16,1	20,1	24,8	801	974	41,4	50,0	20,7
Goiás	664	704	18,9	19,8	4,7	2.236	2.503	63,6	70,3	10,5
Maranhão	474	535	13,8	15,5	12,5	1.298	1.538	37,7	44,6	18,1
Mato Grosso	244	283	13,7	15,7	14,3	67	66	3,8	3,7	-3,0
Mato Grosso do Sul	311	363	22,6	26,1	15,6	1.547	1.501	112,4	108,0	-3,9
Minas Gerais	1.163	1.052	11,2	10,1	-9,9	3.168	2.952	30,5	28,3	-7,2
Pará	658	766	16,3	18,9	15,7	2.658	3.313	66,0	81,7	23,9
Paraíba	141	155	6,9	7,5	9,4	346	322	16,9	15,6	-7,4
Paraná	1.287	1.383	22,2	23,7	6,6	4.217	4.484	72,7	76,8	5,5
Pernambuco	688	728	14,6	15,5	5,5	1.657	1.681	35,3	35,7	1,2
Piauí	202	249	12,0	14,7	22,7	816	854	48,5	50,5	4,1
Rio de Janeiro	1.327	1.469	15,9	17,5	10,7	3.102	3.438	37,1	41,1	10,8
Rio Grande do Norte	179	225	10,6	13,3	25,2	453	606	26,8	35,8	33,3
Rio Grande do Sul	1.060	1.048	19,0	18,8	-1,3	3.112	3.493	55,8	62,5	12,1
Rondônia	308	331	39,4	42,3	7,3	587	707	75,1	90,3	20,2
Roraima	143	164	47,8	53,6	12,0	398	501	133,1	163,7	23,0
Santa Catarina	1.357	1.352	35,9	35,3	-1,9	2.349	2.643	62,2	68,9	10,8
São Paulo	2.372	2.666	10,5	11,7	11,7	8.272	9.221	36,6	40,5	10,8
Sergipe	143	163	12,6	14,2	13,3	546	569	48,0	49,7	3,6
Tocantins <sup>(4)</sup>	175	172	23,5	22,9	-2,5	692	729	92,8	97,0	4,5

Source: Brazilian Public Security Yearbook (2023). Brazilian Public Security Forum. 17th Brazilian Public Security Yearbook.

With regard to road safety, we can see that, according to data from the 2023 Yearbook of Security and Social Defense in Paraíba shown in the figures below, in 2018 there were a total of 751 deaths from traffic accidents, which represents an average of more than two people killed every day in Paraíba as a result of this type of violence, with an average of 18.8 people killed per year per 100,000 inhabitants. In the following years (2019, 2020 and 2021), there was a slight drop in the figures. However, in 2022, the number of deaths from traffic accidents reached 802 cases, resulting in an average of around 20.2 cases per 100,000 inhabitants (PARAÍBA, 2024).

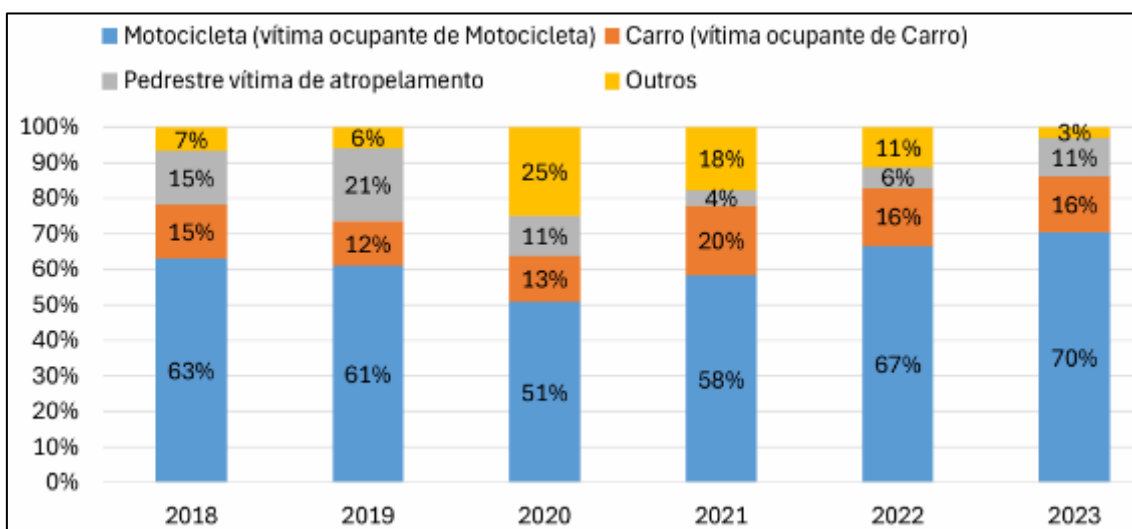
Most of these deaths occur in accidents involving motorcycle occupants. In 2023, 70% of all cases of fatal accidents involved motorcycle occupants, either as the driver or as the rider (PARAÍBA, 2024).

**Figure170 - Annual Historical Series of victims of Lethal Traffic Accidents - LTA in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

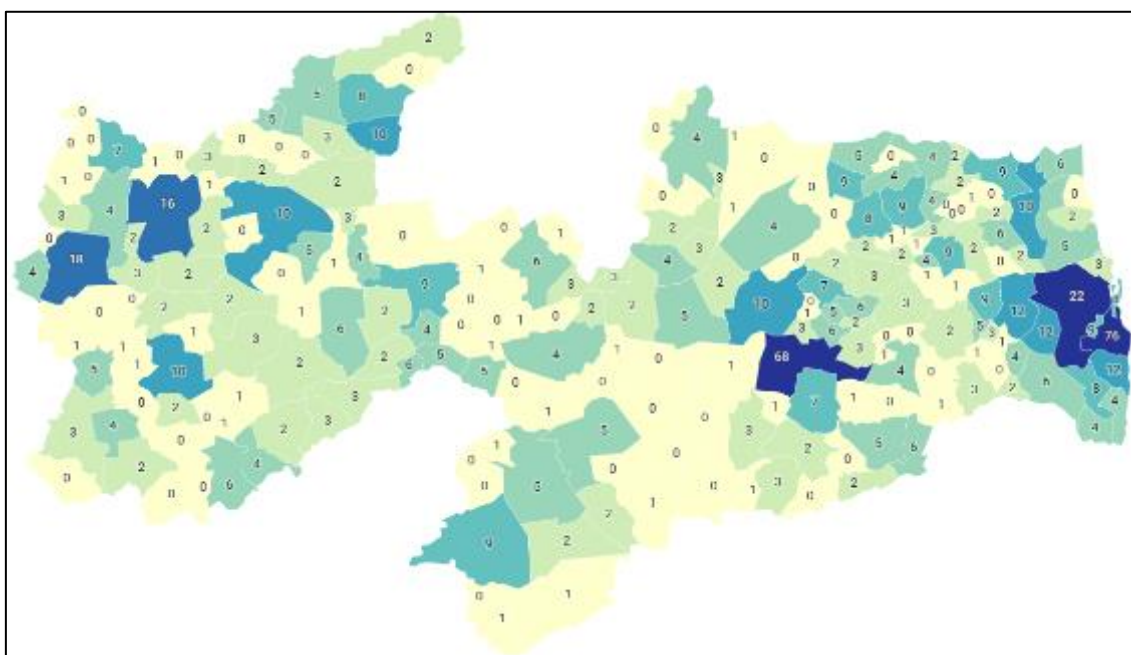
**Figure171 - Annual historical series of ALT victims in Paraíba by transportation category**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

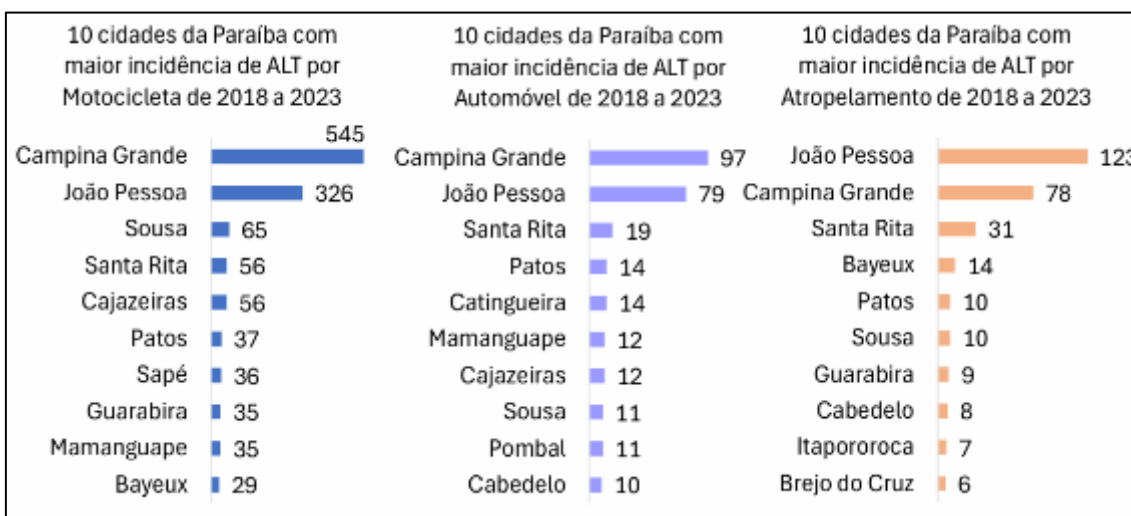
In general, the most populous cities have the highest number of traffic fatalities and in the period from 2018 to 2023, as expected, João Pessoa and Campina Grande stood out by having a significantly higher number of ALTs compared to other cities in Paraíba (PARAÍBA, 2024).

**Figure172 - Map of ALT by Paraíba Municipalities in 2023**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

**Figure173 - 10 cities in Paraíba with the highest incidence of LTA by Motorcycle, Automobile and Hit-and-Run from 2018 to 2023**



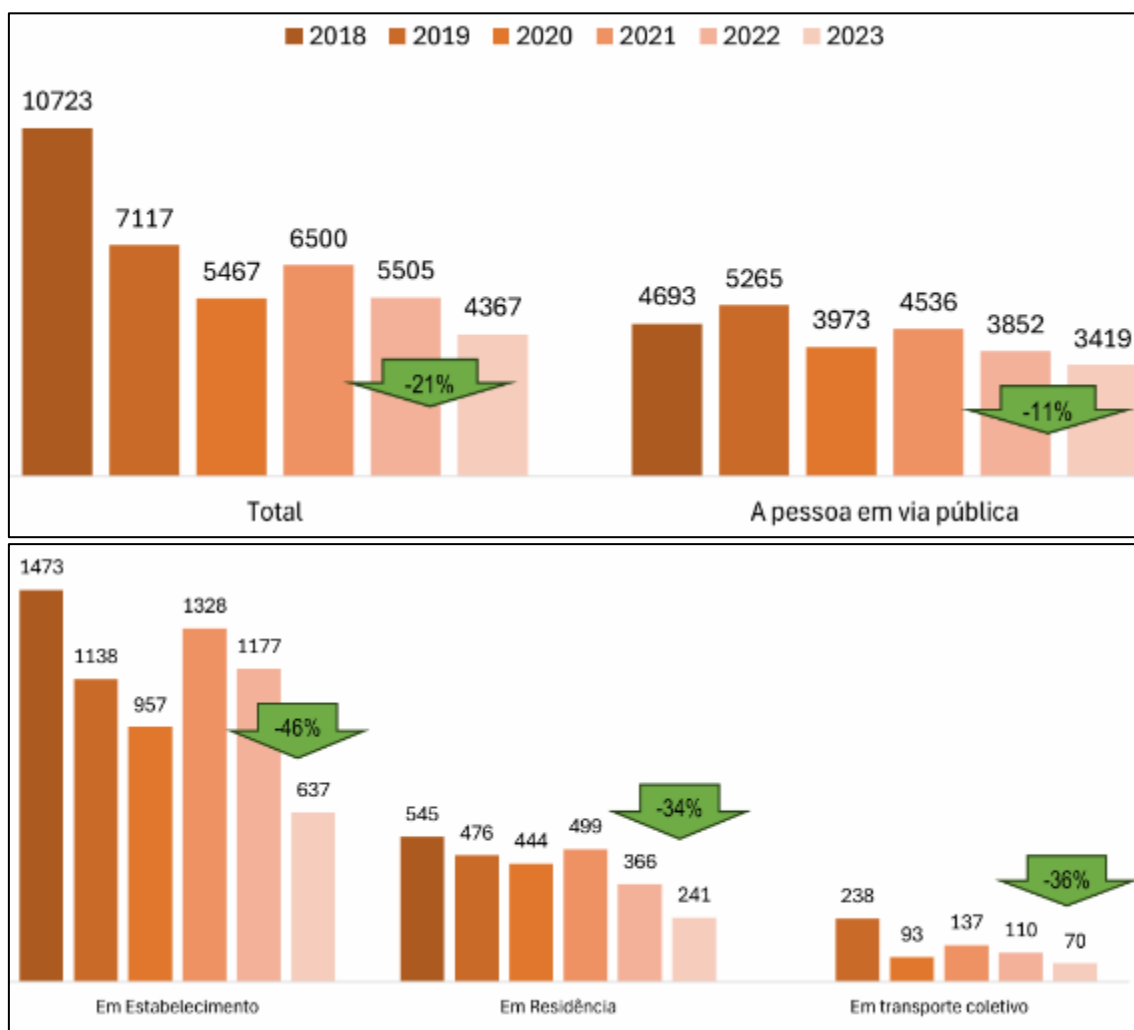
Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

Another type of crime that is a constant concern for the authorities, institutions and the population of Paraíba in general is Violent Crimes against Property (CVP). In Paraíba, if we analyze the annual historical series of CVP, since 2018, which presented the highest number of cases ever recorded (10,723), a downward trend is evident from that year onwards, with the year 2023 registering a historical low with 4,367 cases, equivalent to an absolute reduction of 6,356 robberies and a percentage variation of -59% in that period (PARAÍBA, 2024).

The crime of robbery can occur in a variety of places, such as public spaces, homes, commercial establishments and public transport, and is thus classified into different categories. When analysing the records in Paraíba in 2023, we found that robbery of a

person (or passer-by) was the most frequent, accounting for 78% of all cases. In addition, it can be seen that in 2023 there were the lowest rates of CVP in each category of the entire historical series: 3,419 cases to a person on public roads, which represents a reduction of 11% compared to the previous year (2022); 637 cases in establishments, a percentage change over the same period of -46%; 241 cases in residences (-34%); and, 70 cases in public transport (-36%). (PARAÍBA, 2024).

**Figure174 - Annual Historical Series of Violent Property Crimes - CVP by Category in Paraíba**

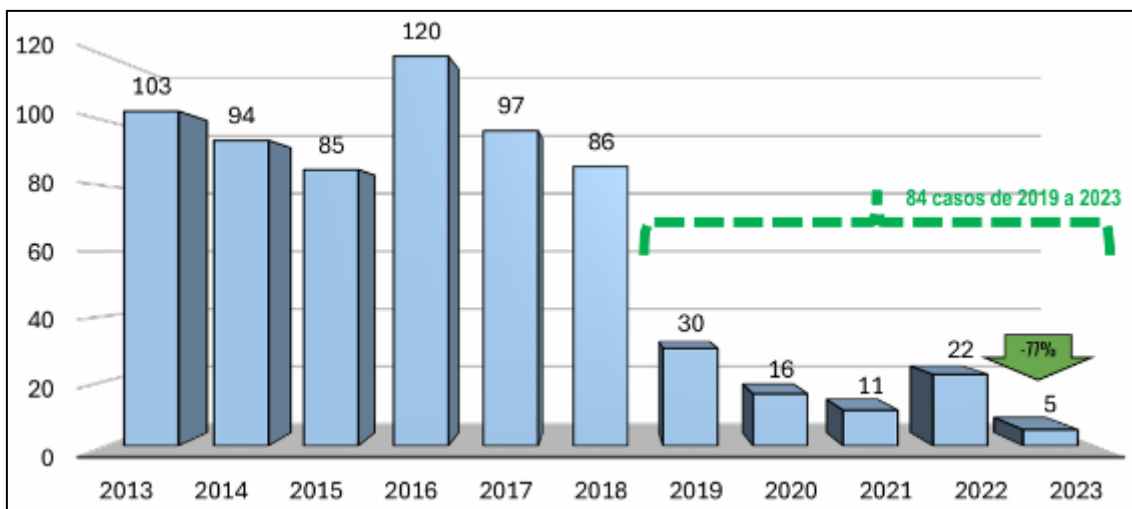


Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

In relation to Property Crimes against Banking Institutions (CIBAN), there has been a 77% drop in occurrences in Paraíba in the last two years, from 22 cases in 2022 to 5 cases in 2023. The accumulated reduction since the all-time high in 2016 (120 cases) is 96%. The cumulative figures for 2019 to 2023 (84 cases) are lower than the total for 2018 alone (86 cases).



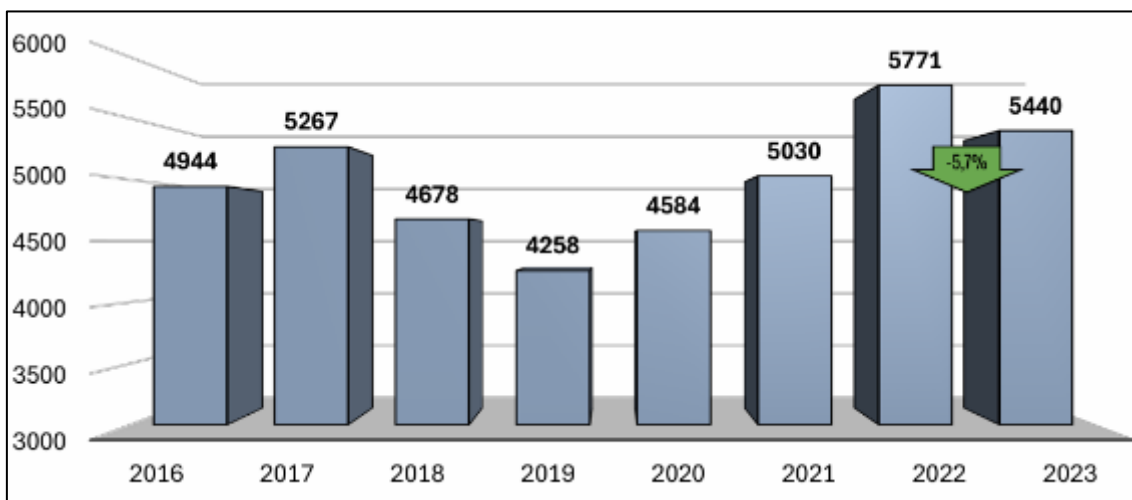
**Figure175 - Annual Historical Series of Property Crimes against Banking Institutions - CIBAN in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

Another concern for Public Security in Paraíba is the crimes of vehicle theft and robbery, which are analysed using a specific indicator called Illegal Subtraction of Motor Vehicles (SIVA) due to their relevance. Between 2016-2023, the lowest number of SIVA records was in 2019, with 4,258 cases, as opposed to 2022, which saw 5,765 cases, an all-time high for this period of time. In 2023, the second highest number of SIVA cases in the historical series was recorded, totalling 5,440 cases, which represents a reduction of 5.7% compared to 2022 (PARAÍBA, 2024).

**Figure176 - Annual Historical Series of Vehicle Thefts and Robberies in Paraíba**



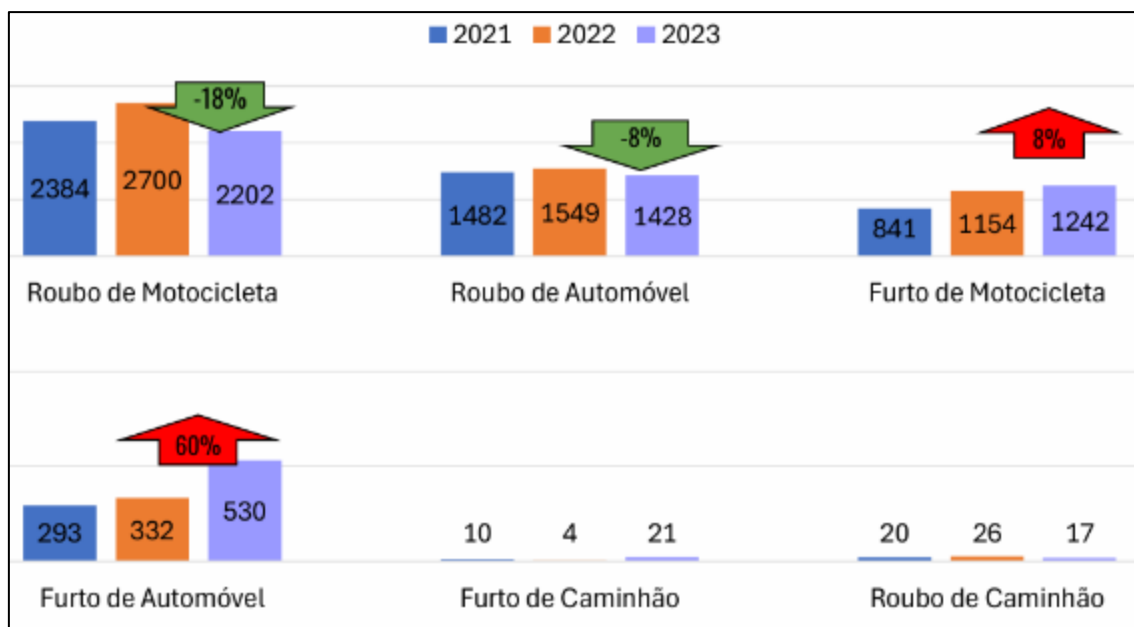
Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

According to data from the 2023 Yearbook of Security and Social Defense in Paraíba, this past year vehicle thefts experienced a reduction in all categories, while vehicle thefts grew considerably in all of them.

Motorcycles are the most stolen vehicles in Paraíba. In 2023 there were 2,202 records, equivalent to 61% of all stolen vehicles. Even so, motorcycle thefts fell by 18% last year, as did car thefts, which went from 1,549 cases in 2022 to 1,428 cases in 2023, a percentage change of -8%.

However, with regard to thefts from vehicles, the opposite is true: in 2023 there was an increase in cases in all categories, with an 8% increase in thefts from motorcycles and a significant 60% increase in thefts from cars, as can be seen in the figure below.

**Figure 177 - Annual Comparison by category of Illegal Subtraction of Motor Vehicles - SIVA in Paraíba**



Source: Anuário 2023 da Segurança e da Defesa Social na Paraíba.

#### 4.3.9 Indigenous and Traditional Communities

This sub-item focuses on the diagnosis of traditional populations in the state of Paraíba, considering traditional communities to be those which, in accordance with Federal Decree No. 6.040 of February 2007, use a part of the territory and its natural resources as a prerequisite for their cultural, social, religious, ancestral and economic reproduction, through the use of knowledge and practices generated by their groups of origin.

Therefore, information on possible indigenous communities, quilombo remnants and traditional populations in Paraíba was sought from the main bodies responsible.

The bodies surveyed are the Palmares Cultural Foundation (FCP) - a public entity linked to the Ministry of Culture, which provides information on its demarcations and processes through the Afro-Brazilian Communities Information System - SICAB; the National Indian Foundation - FUNAI - the federal government body responsible for Brazilian indigenous policy; and the State Coordination of Black and Quilombola Communities of Paraíba - CECNEQ/PB.

According to Decree No. 6.040, of February 7, 2007, traditional peoples and communities are defined as:

*"Culturally differentiated groups who recognize themselves as such, who have their own forms of social organization, who occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition." (Art. 3, I, 2007).*

In 2016, Decree No. 8.750/2016 on Traditional Peoples and Communities (PCTs) listed 28 traditional peoples and communities in Brazil: Andirobeiras; Evergreen gatherers; Caatingueiros; Mangaba pickers; Quilombolas, Indians, Extractivists, River dwellers, Caçaras, Gypsies, People of Terreiros and African Matrix, Cipozeiros, Castanheiras; Faxinalenses; Fundo e Fecho de Pasto; Geraizeiros; Ilhéus; Isqueiros; Morroquianos; Pantaneiros; Pescadores Artesanais; Piaçaveiros; Pomeranos; Quebradeiras de Coco Babaçu; Retireiros; Seringueiros; Vazanteiros; and Veredeiros. These traditional peoples and communities have a decree that protects them in view of their vulnerabilities, specificities and culturality.

## Quilombolas

In Paraíba, according to the State Coordination of Black and Quilombola Communities of Paraíba - CECNEQ/PB, there are currently 49 self-recognized quilombola communities, of which only 3 are not certified by the Palmares Cultural Foundation. The quilombola communities are spread over 28 municipalities in the state: João Pessoa, Conde, Areia, Alagoa Grande, Ingá, Riachão do Bacamarte, Serra Redonda, Mogeiro/Gurinhém, Dona Inês, Nova Palmeira / Picuí, Boa Vista, São João do Tigre, Serra Branca, Camalaú, Santa Luzia, Várzea, São José de Princesa, Tavares, Livramento, Manaíra, Cacimbas, Catolé do Rocha, Bento, Cajazeirinhas, Coremas, Pombal, Diamante, Triunfo (CECNEQ/PB, 2023).

The survey carried out by the IBGE in the latest Demographic Census (2022) reveals that there are 16,765 quilombola residents in Paraíba. According to the survey, the municipalities in Paraíba with the highest number of quilombola residents are Conde (3,008), João Pessoa (2,260), Cacimbas (1,698), Santa Luzia (1,325) and Alagoa Grande (946). In total, 51 municipalities in the state have a quilombola population.

If we analyze the ratio between the number of quilombolas and the population of each municipality, we can see that the highest rates are found in the municipalities of Cacimbas (23.5%), Conde (10.9%), Diamante (9.4%), Santa Luzia (8.9%), Riachão do Bacamarte (8.8%) and Dona Inês (7.8%). In the state capital, João Pessoa, this proportion is only 0.3%.

In Paraíba, the process of titling quilombola land takes a long time. Currently, only five quilombola communities have a concession contract for the real right of collective use of the territory, which guarantees collective possession, but not definitive titling as provided for by law. Some communities, such as Matão in Gurinhém and Pedra D'Água in Ingá, only have partial possession of the territory. Others, such as Engenho do Bonfim in Areia, Grilo in Riachão do Bacamarte and Caiana dos Crioulos in Alagoa Grande, have a concession contract for the real right of collective use of the territory. It is estimated that there are around 4,000 quilombola families in Paraíba, according to data from CECNEQ-PB (CECNEQ/PB, 2023).

Quilombola communities in Paraíba are predominantly located in rural areas, although they also exist in urban areas. Geographically, quilombos are mainly concentrated in the Sertão mesoregion of Paraíba, which is divided into two microregions, Alto and Médio Sertão, where 27 quilombola communities can be found. This is followed by Western and Eastern Cariri, with 9 communities, followed by Agreste, Brejo and Curimataú, with another 9 quilombola communities. Finally, the micro-region with the fewest communities is the coast, with only 4 quilombos, totaling 49 quilombola communities in the entire state (CECNEQ/PB, 2023).



The following table gives a brief description of the quilombola communities located in Paraíba, by Rural Territory.

**Table 191 - Quilombola Communities in Paraíba by Rural Territory**

TR Alto Sertão					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Triunfo	The forty	65 families	Urban Quilombo. No Process	Certified	Small businesses
Cachoeira dos Índios	Cipó Farm	40 families	Awaiting certification from Palmares	-	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses
TR Borborema					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Alagoa Grande	Caiana dos Crioulos	150 families	Demarcated	Certified	Family farming, fruit growing, small and large animal husbandry, small businesses
Areia	New World	40 families	In the final process of demarcation	Certified	Family farming, small and large animal husbandry
	Bonfim Mill	28 families	Demarcated	Certified	Family-based agriculture, horticulture with agroecological and organic production, small animal husbandry
Boa Vista	Santa Rosa	95 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of crockery and medicinal plants
Livramento	Sussuarana	101 Families	Not checked in yet	Certified	Family farming, small and large animal husbandry
	Vila Teimosa				
	Summer sand				
TR Cariri					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Camalaú	Roça Velha/Rua Preta	-	-	Certified	-
São João do Tigre	Cacimba Nova	85 families	In the process of being demarcated	Certified	Family-based agriculture, raising small, medium and large animals. Income production

Serra Branca	Lightweight	60 families	Not checked in yet	Certified	Family farming, raising small and medium-sized animals. Crockery production
	Corner	45 families	Not checked in yet	Certified	Family farming, raising small and medium-sized animals. Production of jam, sweets, spices, clay or earthenware dishes, rag dolls
	Roça Velha	126 families	In the process of being demarcated	Certified	Family farming, small and large animal husbandry
<b>TR Curimataú</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Nova Palmeira	Serra do Abreu	27 families	In the initial demarcation process	Certified	Family-based agriculture, umbu extraction, small, medium and large animal husbandry. Production of jam, sweets, spices, crockery
<b>TR Mata Sul</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Contagem	Gurugi	200 families	In the process of being demarcated	Certified	Family-based agriculture, mangaba extraction, fruit growing, fishing and small businesses. Handicrafts made from natural oils, clay dishes and vines. Raising small, medium and large animals
	Ipiranga	202 families	In the process of being demarcated	Certified	Family farming, fishing and small businesses. Handicrafts made from natural oils, bio-jewelry with seeds and plant fibers
	Mituaçu	350 families	Without the demarcation process	Certified	Family farming, fruit-growing, fishing and small businesses. Liana handicrafts. Raising small, medium and large animals
João Pessoa	Paratibe	175 families	Territory awaiting completion of the process, with titling	Certified	Family farming, fishing and small businesses

TR Middle Piranhas					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Catolé do Rocha	Lagoa Rasa	40 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Small swiddens. There are craftswomen
	Milk stick	65 families	No Process	Certified	Small businesses. Productive backyards
	São Pedro dos Migueis	32 families	No Process	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
São Bento	Terra Nova	111 families	No trial	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses. There are craftswomen
	Disputes	20 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. There are craftswomen
TR Middle Hinterland					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Cacimbas	Ugly Mountain	252 families	No demarcation process	Certified	Family-based agriculture, raising small and large animals. Production Crockery, Cloth dolls, Sisal fiber handicrafts
	Chã / Aracati I and II	101 families	-	Certified	-
Santa Lucia	Urban carving	150 families	No demarcation process	Certified	Production Crockery and small businesses
	Rural butchery	22 families	No demarcation process	Certified	Family-based agriculture, small, medium and large animal husbandry. There are craftswomen
Várzea	Pitombeira	75 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of hats, straw bags, rugs, rag dolls and dishcloths
TR Piemont da Borborema					

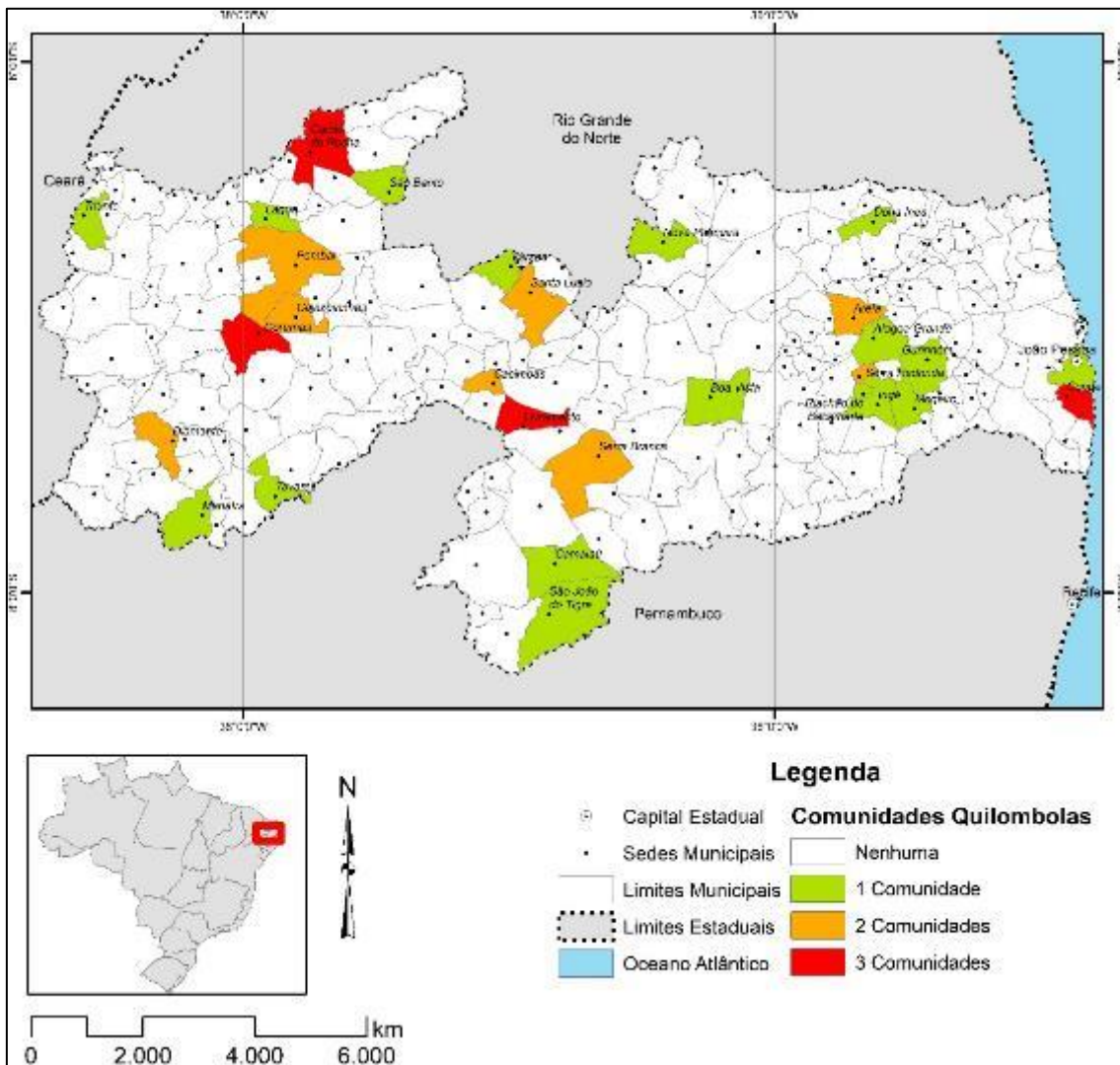
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Dona Inês	Girl's Cross	152 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Fabric and wood crafts
<b>TR Serra do Teixeira</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Manaíra	Fonseca	150 families	In the process of being titled	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
Tavares	Domingos Ferreira	132 families	No demarcation process	Certified	Family farming, small and large animal husbandry
São José de Princesa	Livramento	32 families	In the process of being demarcated	Certified	Family farming, fruit-growing and small, medium and large animal husbandry
<b>TR Vale de Piancó</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Coremas	Santa Tereza	175 families	Urban Quilombo. DNOCS land. Concession process	Certified	Small businesses
	Mother of water	105 families	DNOCS land. Concession process	Certified	Family farming, fishing and small businesses
	Barriers	75 families	DNOCS land. Concession process	Certified	Family farming, fishing and small businesses
Diamante	Barra dos Oitis	200 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses
	Dead Cow	100 families	In the process of being titled	Certified	Family-based agriculture, raising small and medium-sized animals. Small fields
Pedra Branca	Angico Well	25 families	Awaiting certification from Palmares	-	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses. There are craftswomen
<b>TR Maringá Valley</b>					



Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Cajazeirinhas	Vines	24 families	In the process of being demarcated	Certified	Clay pieces, cakes, snacks, fabric painting, crochet and embroidery
	Umburaninha	40 families	Not checked in yet	Certified	Family-based agriculture, raising small and medium-sized animals. Small fields
Pombal	The Ruffians	135 families	No trial	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen and ceramic production
	The Daniels	89 families	Urban Quilombo No Process	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
	The Barbosas	47 families	Urban Quilombo, No Process	Certified	Small businesses
<b>TR Paraíba Valley</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Gurinhém / Mogeiro	Matão	45 families	In the final demarcation process. Awaiting possession of the last area	Certified	Family-based agriculture, horticulture with agro-ecological and organic production, fishing and small businesses. Raising small, medium and large animals. Various handicrafts
Ingá / Serra Redonda	Water Stone	108 families	Demarcated in a small area	Certified	Family farming, raising small and large animals. Production of labyrinth crafts
Riachão do Bacamarte	Cricket	104 families	Demarcated	Certified	Family farming, fruit-growing, small and large animal husbandry. Handicraft production
Serra Redonda	Caiana dos Matias	50 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of jams, jellies, liqueurs and spices

Source: FCP - Certificates issued to Remaining Quilombo Communities (CRQs). Published in the DOU of 22/08/2022. CECNEQ/PB, 2023.

Figure178 - Quilombola communities in Paraíba



Source: Consulting, 2024.

In the RT Vale do Maringá, in the municipality of Pombal, there is the "Os Rufino" quilombola community, which, among other economic activities, stands out for its production of handcraft ceramics. Speaking to representatives of the community, they say that they take paint from angico and aroeira trees to paint ceramics, and that traditional handicrafts are a very old activity. In 2013, they began to leverage and improve their handicrafts, with men and women working proportionally. They sell their handicrafts in João Pessoa, at the Tambaú public center, in Soledade, in Pombal, at the solidarity economy house, and in Catolé do Rocha. They also produce beans, corn, rice, coriander and spring onions and keep chickens, pigs, dairy cattle and sheep.

There is a Pedal event in June, held in the community itself, which is very popular, with the 3rd edition being held this year in 2024. This event helps generate income for the community.

Among the community's concerns, they say that when it floods, they have problems with access, being stranded and, for example, restricting children from going to school.

They use firewood from jurema and marmeleiro trees, but only use wood from dead or fallen trees. Soapstone, sand, oil, sandpaper, a fine sieve and clay are all inputs in the

production of their handicrafts. They reuse all the waste generated in the production of their handicrafts, redoing the sandpaper and reusing broken pieces in the process. They wear PPE, such as goggles to protect against possible accidents with the grinding machine, and a mask to protect against dust inhalation.

In the rainy season, the clay takes a long time to dry and they lack the structure to dry it properly. The source of the clay is on the mesa, in the highlands near the community, and you have to walk between 600 meters and 1 km to reach it.

With regard to their health, they mentioned rheumatism, arthrosis and wear and tear on their joints. They were told by a health worker that this could be due to genetic factors. Anemia, diabetes and high blood pressure are other ailments mentioned.

**Photo 51 - View of the main access to the "Os Rufino" Quilombo, in the municipality of Pombal**



Source: Consulting, 2024.

**Photo 52 - Handicrafts produced in the "Os Rufino" Quilombola Community**



Source: Consulting, 2024.

### **Indigenous communities**

According to information from FUNAI, Brazil's indigenous reserves occupy 13.8% of the country's territory, covering 1,170,579.17 square kilometers distributed over 566 recognized indigenous lands. The only states without demarcated indigenous areas are Rio Grande do Norte and Piauí.

According to the latest IBGE Demographic Census (2022), there are currently 30,140 indigenous people living in Paraíba, of whom 19,044 live on indigenous lands and 11,096 outside them.

As for the indigenous population, Paraíba is home to two peoples: the Potiguar and the Tabajara.

The Tabajara people are located on the south coast of Paraíba, in the municipalities of Conde, Pitimbu, Alhandra and the outlying districts of João Pessoa. Currently, it is estimated that there are around 1,500 Tabajara indigenous people in Paraíba. Their original language is Tupi, which is in the process of being re-appropriated, but like most indigenous groups in the Northeast, they speak Portuguese. The Tabajara have four villages in the municipalities of Conde and João Pessoa: Barra de Gramame Village, Nova Conquista Taquara Village, Severo Bernardo Village and Vitória Village. Their lands have not yet been identified and delimited, however, between 2009 and 2010, an anthropologically based study was carried out, which brought together elements of a historical, sociological, land, ethnographic and environmental nature on the claimed area, for the ethnic characterization of the Tabajaras of the South Coast of Paraíba (PARAÍBA, 2020).

The Tabajara emerged in the 21st century as part of a process of reclaiming their identity and traditional territory, in the Sítio dos Caboclos, in the former Sesmaria da Jacoca, in the municipality of Conde. The name Tabajara is translated in ancient Tupi as: *taba* = village + *jara* - from *yára* = lord, owner, the one who dominates, so the Tabajara call themselves "Lords of the Village." (TABAJARAPB, 2024).

The Potiguara people, for their part, are located on the northern coast of Paraíba, in 32 villages situated in three municipalities in the coastal region: Baía da Traição, Marcação and Rio Tinto. With a population of approximately 19,000 indigenous people, including inhabitants of the villages and the towns of Baía da Traição, Marcação and Rio Tinto, the Potiguara are concentrated in an area of the northern coast of Paraíba situated between the Camaratuba and Mamanguape rivers. An unaccounted number of people also live in other cities such as Mamanguape, João Pessoa and even in Rio de Janeiro or Rio Grande do Norte. The villages together make up three contiguous Indigenous Lands (TIs), totaling 33,757 hectares. The Potiguara TI has a population of 8,109 people, the Jacaré de São Domingos TI has 449 people and the Potiguara de Monte Mór TI has 4,447 people (FUNAI, 2012).

The territory is located over the area of the municipalities of Baía da Traição, Rio Tinto and Marcação. The PB-41 highway crosses the Monte-Mor and Potiguara Indigenous Lands, connecting Rio Tinto and Baía da Traição. Other dirt roads cut through the indigenous territory, connecting the villages to each other and to urban centers. Most of the villages have a school, health center and flour houses, as well as churches, including the iconic church of São Miguel, in the village of the same name, and Nossa Senhora dos Prazeres, in Monte-Mor (FUNAI, 2012).

The Potiguara belong to the Tupi linguistic family, currently speaking Portuguese and seeking to revive Tupi through indigenous school education. Like other peoples of the Northeast, they have an extensive history of interaction with non-indigenous society (FUNAI, 2012).

The Potiguara are possibly the only indigenous people in Brazil who still live in the same place since the arrival of the colonizers 500 years ago. Historical records and documents from the state of Paraíba highlight the continued presence of the Potiguara on the coast of Paraíba, especially in Baía da Traição, since the first years after colonization. The Potiguara resisted attempts to conquer their territory by fighting bravely and through various forms of resistance and indigenization of elements of western, white culture (FUNAI, 2012).

The basis of the Potiguara economy is agriculture and fishing. Historical records show that their ancestors had advanced agriculture and an abundance of food. In recent times, however, the situation has changed drastically. The advance of the invasion of indigenous lands, the degradation of the environment, the economic and social devaluation of agricultural activity and the consequent degradation of the soil have made farming a difficult task. The main tension in this field is between traditional agriculture (the *roça*) and sugar cane cultivation, which compete for the same area, but follow different and often conflicting logics (FUNAI, 2012).

Between the house and the farm, the Potiguara grow medicinal plants, vegetables, fruit trees and coconut palms, as well as ornamental plants and other plants of spiritual value (for example, to protect the house from the evil eye). The backyards are also home to native plant species that were kept in the area when the site was opened up. The

production of fruit and coconut trees can be destined for family consumption or for sale, as is the case with most coconut sites (FUNAI, 2012).

The cultivation system practiced by the Potiguara is commonly known as "roça de coivara". The fields are "opened" in the arisco and paũ. Some villages have little or no arable land available for planting, either because they are located close to the sea or because sugarcane monoculture competes for the land (or both). Other villages, further inland, grow plenty of swiddens (even though sugar cane is present). The villages where the most swiddens are planted are Tracoeira, Santa Rita and Laranjeiras along the Sinimbu River; Estiva Velha on the banks of the Estiva River; and the retaken area of Três Rios. Camurupim, on the other hand, located near the Sinimbu river, has no area for planting and the families live mainly from fishing, shellfish gathering and carcinoculture (FUNAI, 2012).

The Potiguara fish in the mangroves, rivers, estuaries, sea and tide all year round, using a variety of fishing techniques. With a deep knowledge of ecosystems and the life of aquatic organisms, these fishermen are able to locate them and choose the most suitable techniques for catching them. The organisms caught include fish, shrimp, crabs, lobsters, shellfish and octopus. Most of the fish is for the family's own consumption and, depending on the commercial value of the species caught, it is sold, exchanged and donated to relatives and friends (FUNAI, 2012).

Raising small and large animals is also an important source of food and financial resources for many families. Among the animals raised (chickens, goats, cattle, horses and bees), chickens, bees and cattle stand out for their social and economic importance (FUNAI, 2012).

**Photo 53 - Young Potiguara Indians from 3 Rios Village**



*Source: Consulting, 2024.*

**Photo 54 - View of the entrance to the Potiguara Indigenous Village Toré Forte**



*Source: Consulting, 2024.*



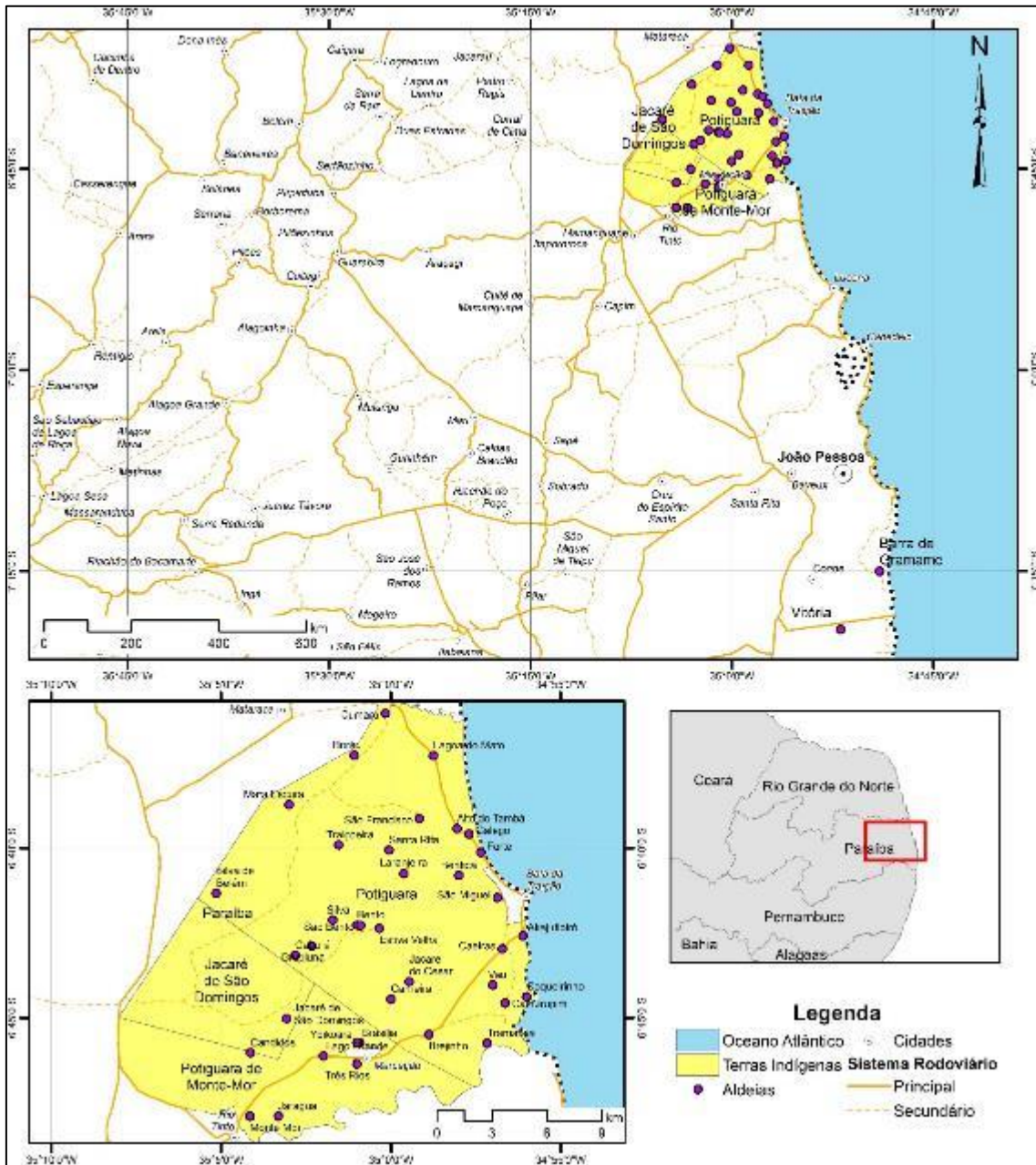
**Photo 55 - Handicrafts made by Potiguaras Indigenous women artisans in Toré Forte Village**



*Source: Consulting, 2024.*

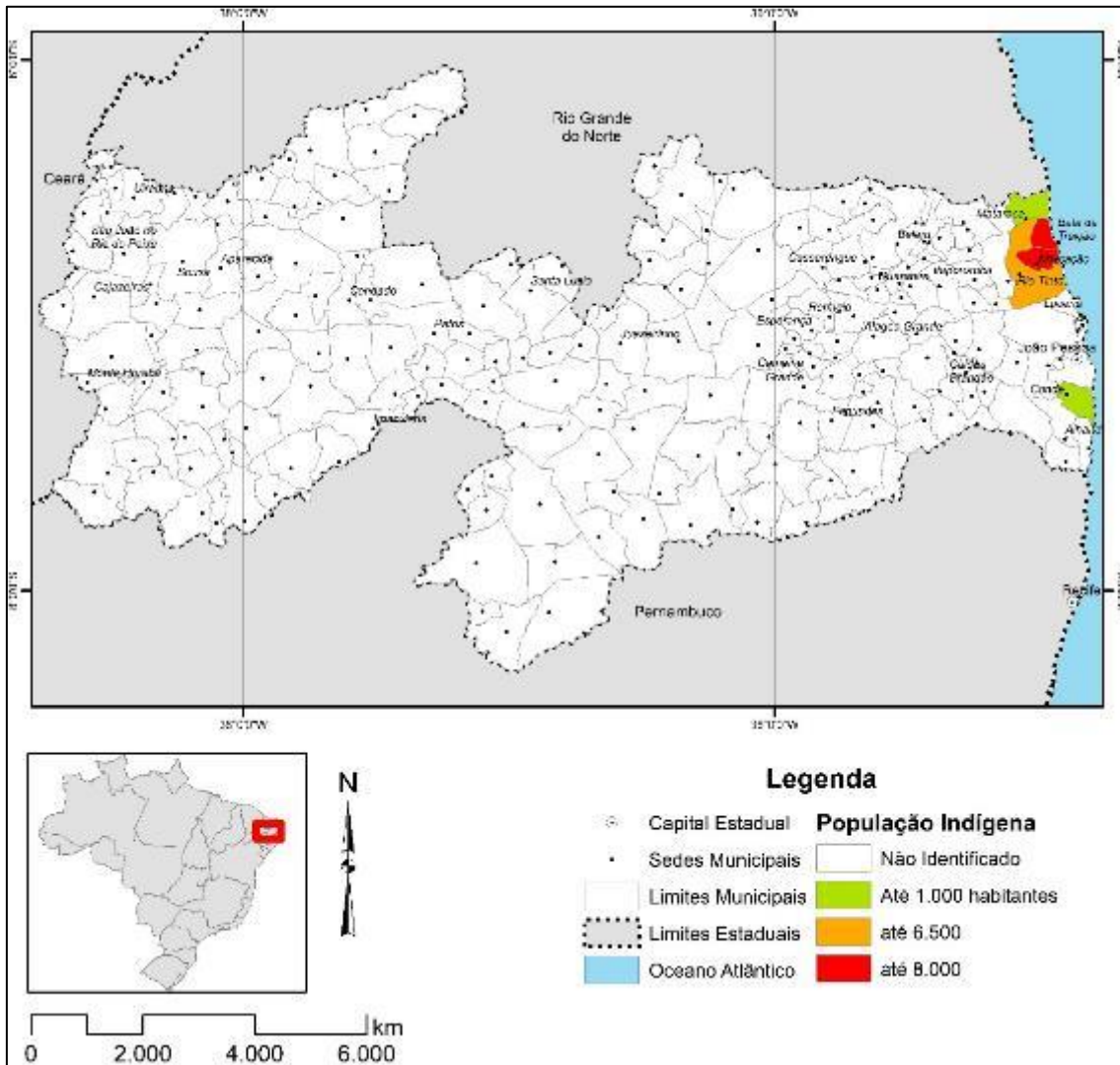
The following figures show the location of indigenous lands and villages in Paraíba and their population.

Figure179 - Indigenous Lands in Paraíba



Source: FUNAI, 2024. Prepared by: Consultoria, 2024.

**Figure180 - Indigenous Population in Paraíba**



Source: FUNAI, 2024. Prepared by: Consultoria, 2024.

### Fishing communities

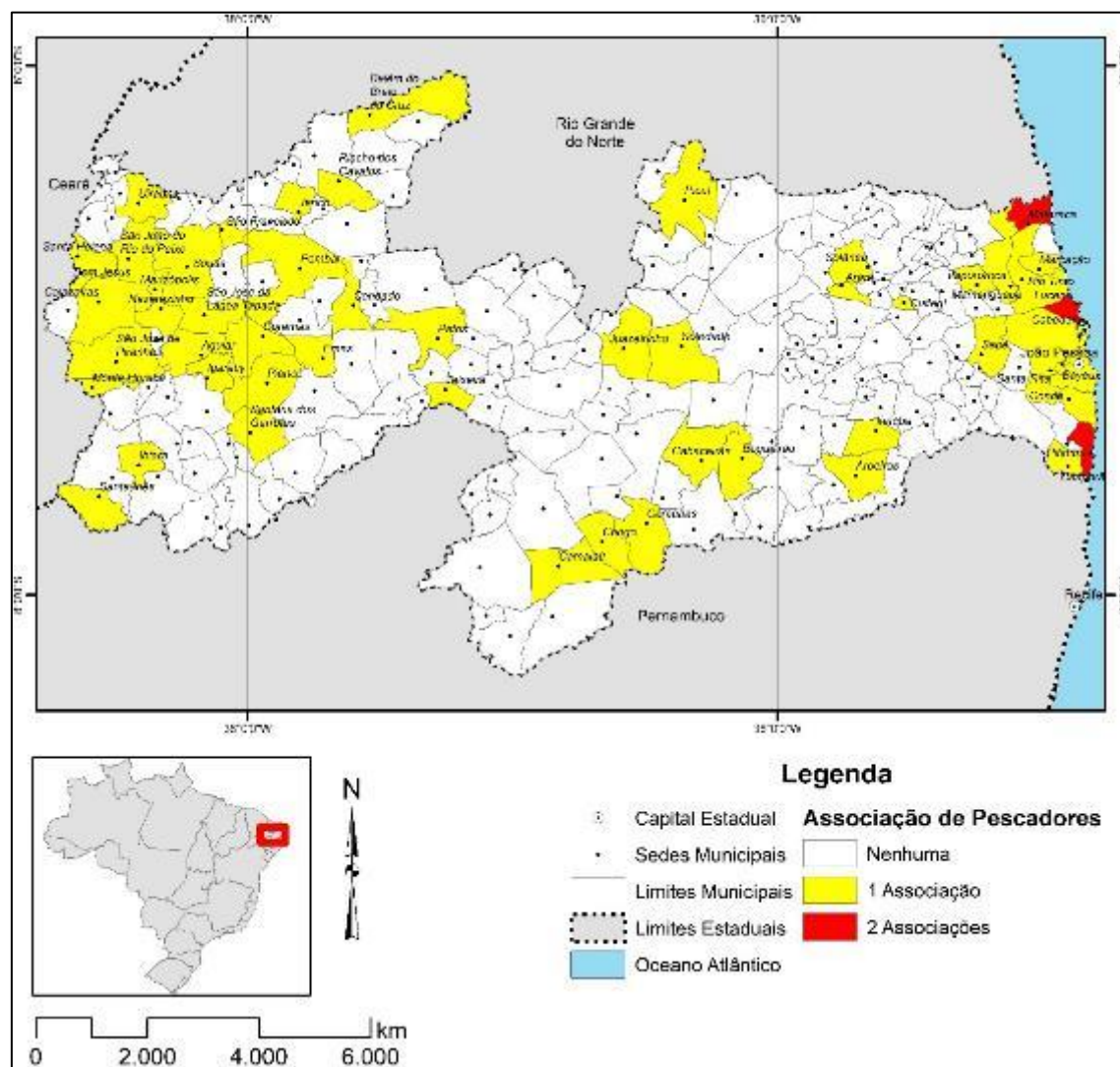
Traditional fishing is carried out individually or as part of a family system, for commercial or consumption purposes, where the fishermen themselves create and use the artifacts and their craft, and may or may not be assisted by small boats. It is an activity with a major social and economic impact in Brazil due to the volume of people involved and the extent of the territory they occupy, between river basins and the coast. The Ministry of Fisheries and Aquaculture (MPA) licenses the profession of fisherman, as well as promoting actions linked to the infrastructure and marketing of fish. Fishermen and fisherwomen registered with the colonies are entitled to receive unemployment insurance in the months when fishing for certain species is prohibited, as well as easy credit to buy diesel fuel for their boats. The MPA also promotes, in partnership with other institutions, training programs for fishermen and incentive actions (DE LIMA, 2016).

In 2009, the MPA registered just over 800,000 fishermen involved in the activity. However, considering the case of Pernambuco, where only half of the fishermen are registered, it is assumed that the real number is much higher. According to Vasconcellos et al (2014), approximately 2 million people are involved in fishing, and half of the fish

produced in Brazil comes from artisanal fishing. However, there are discrepancies in the data, since according to IBAMA (2008), the production of artisanal fishing corresponds to 65% of the national total and, according to calculations by the Movement of Fishermen and Fisherwomen of Brazil, it reaches 70% (DE LIMA, 2016).

In Paraíba, according to data collected by Procasse, there are a total of 57 fishing communities/associations/colonies, spread over 54 municipalities in the state, as can be seen in the figure below.

**Figure181 -Fishermen's associations in Paraíba**



Source: PROCASE, 2024.

Located on the south coast of Paraíba, in the metropolitan region of João Pessoa, the community of Acaú is an extractive reserve called RESEX Acaú-Goiana, situated in the municipality of Pitimbu. According to the local inhabitants, Pitimbu has indigenous origins and means "eye of water of smoke", since it was the territory of the Tabajara and Potiguar peoples (GOMES, 2016).

The Acaú community makes its living mainly from extractive activities, with fishing resources guaranteeing their self-sufficiency. Created on September 26, 2007, the Resex Acaú-Goiana is one of the 320 federal Conservation Units managed by the Chico

Mendes Institute (ICMBio). Its aim is to protect the livelihoods, guarantee the use and conserve the renewable natural resources traditionally used by the extractivist population of the communities of Acaú, Tejucupapo, Povoação de São Lourenço, Carne de Vaca and Baldo do Rio, located in the municipalities of Caaporã (PB), Pitimbú (PB) and Goiana (PE) (GOMES, 2016).

In Acaú, as in the other traditional communities of the Acaú-Goiana RESEX, the main extractive activities are related to artisanal fishing. Fish, shellfish and other molluscs, and crustaceans such as crab, crab, lobster and shrimp, are the most common catches. Production has several destinations, but most of the shellfish harvesting is still for personal consumption, and the activity is mostly carried out by women, who have been organizing themselves through the Acaú Shellfish Growers Association (AMA) (GOMES, 2016).

The Association of Shellfish gatherers (AMA) was founded in 1997 and currently has 200 members, but has already reached 600 participants. They are women of Afro-indigenous descent, most of whom are shellfish gatherers and shellfish artisans. Local artisans use solid shellfish waste to make their handicrafts.

According to information from the AMA, it was the shellfish gatherers who asked for the RESEX to be created and the leaders took part in its Management Plan, with community councillors taking part in its management. The shellfish gatherers pay 15 reais a month to be part of the association and only benefit from health insurance. The shellfish gatherers' children have no interest in the trade because they see no opportunity for growth.

The shellfish gatherers leave home at 5am, and they still have their home activities to attend to before leaving for work. The AMA has no infrastructure for logistics and seafood storage (refrigerator or collective freezer). The shellfish gatherers also point to the lack of the simplest equipment and utensils to carry out their work, such as long blouses, sunscreen or a wheelbarrow to carry equipment, material and products.

On average, shellfish gatherers harvest around 5 kg of shellfish a day per person. Some of them use a long-handled cudgel, which is forbidden by law at first, but makes it easier to catch the shellfish without having to crouch down to avoid health problems. Each shellfish gatherer produces around 3.5 kg a day.

Shellfish shells are used for handicrafts, but there is still a lot left over, generating a significant amount of waste. The shellfish gatherers are thinking of a project to use the shell to encase building bricks, and some have already used it in their own homes to make flooring instead of gravel.

To make their crafts, they use materials such as cotton string, scraps of shell from the beach, glue, wire, fish scales, among others. They make bottles out of shells, crafts out of coconuts, figures out of shellfish shells...

These shellfish gatherers don't sell their products to the public sector because they can't meet the required criteria, such as vacuum packaging.

**Photo 56 - Site of the AMA (Association of Shellfish gatherers of Acaú), in the municipality of Pitimbú**



*Source: Consulting, 2024.*

**Photo 57 - Handicrafts produced at AMA**



Source: Consulting, 2024.

The municipality of Soledade also visited the Z-27 Fishermen's Colony, which currently has almost 300 fishermen. The Colony offers technical assistance, closed season insurance, processing, sickness and maternity benefits, support for programs to buy houses, land and registration with the PAA. It has a processing shed and a processing area under construction, but it doesn't yet have the machinery. It will soon have a cold room for storage.

Information from the association reveals that it has no concerns about industrial fishing in the region, since fishermen don't face competition from this type of production. Their main complaints are the lack of permanent technical support; the lack of transportation for fishing and transportation for the products; and the lack of new technologies to bring younger people closer to the trade.

The fish they catch include tilapia, curimatã, tucunaré, piau, branquinha and traíra. During the dry season, the women catch piaba with a clay pot. Normally, the fisherman cuts off the fish's head and cleans it, leaving the waste in the weir itself. He then removes the hide and prepares the fillet. Some of the products sold by the association are fillets, boneless fish, breaded fish, hamburgers, sausages and flour.

The closed season for piau, curimatã and branquinha lasts about three months, from December to February. Fishing with trawling equipment and tarrafa is forbidden and associated fishermen use nets with 9 cm mesh for larger fish, 1 cm for shrimp, and 1.5 cm for piabeira. Some people hunt fish with harpoons and "shotguns" as a sport, which is also prohibited by law, using the big dam to catch larger fish.

A representative of the association pointed out that sometimes fishermen stay in the lagoon for an extra day because they haven't caught enough fish and extend their stay

to try to increase production, running the risk of losing part of what they've already caught due to a lack of suitable storage equipment.

In situations where the reservoir dries up, the fishermen go to another nearby state, for example Rio Grande do Norte, in search of other sources. The association sells to the PAA and the fishermen also sell at the open market on their own.

The Colony's fishermen point out incidences of skin and lung cancer, diabetes and motorcycle accidents on the way to work. Drowning also occurs, but not as often. Finally, fishermen may have an accident when they step on something in the weir.

**Photo 58 - View of the site of the Z-27 Fishermen's Colony in the municipality of Soledade**



Source: Consulting, 2024.



**Photo 59 - Fishing nets from the Z-27 fishing colony**



Source: Consulting, 2024.

## Gypsies

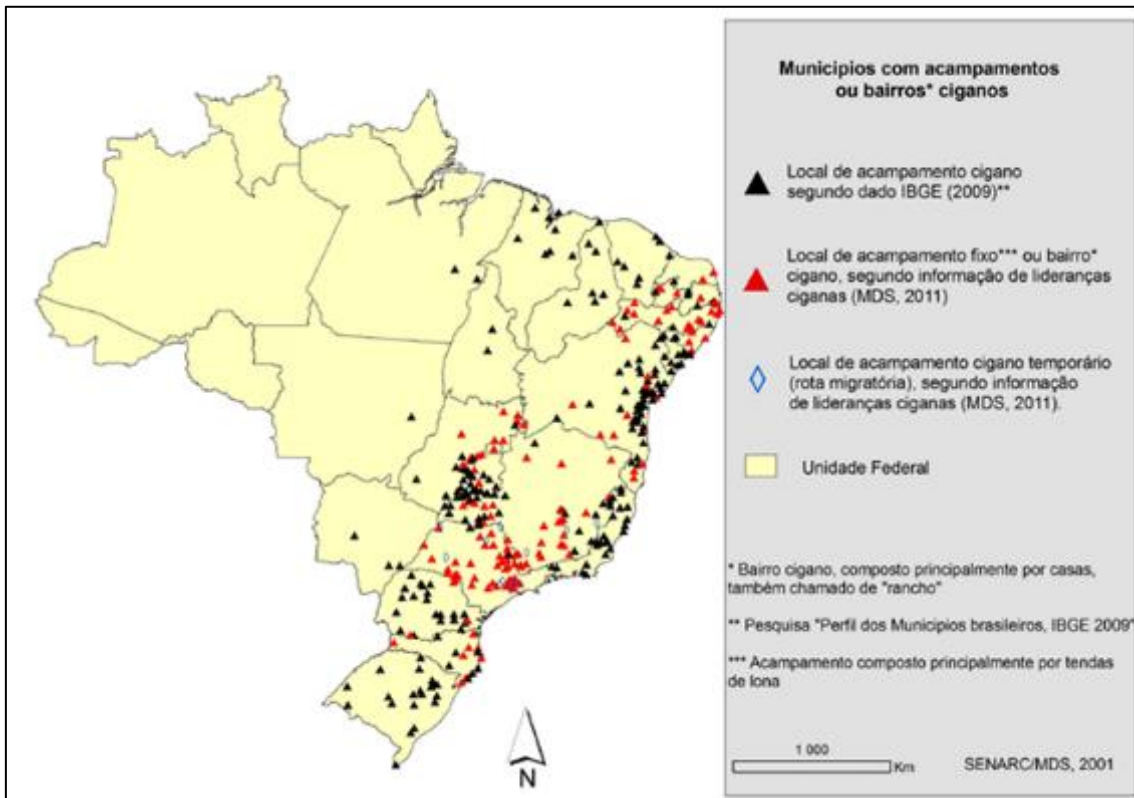
To this day, the origins of the Gypsy Peoples continue to be the subject of research. The predominant theory today states that they have their roots in India and that, around a thousand years ago, they began their dispersal around the world (BRASIL, 2013).

In Brazil, the first official record of the arrival of gypsies dates back to 1574: a decree by the Portuguese government deported the gypsy João Torres and his wife Angelina to Brazilian lands for five years. The country is home to at least three distinct Roma ethnic groups: Calon, Rom and Sinti, each with their own languages, cultures and traditions (BRASIL, 2013).

The Brazilian Rom belong mainly to the Kalderash, Machwaia and Rudari sub-groups, which have their origins in Romania; the Horahané, from Turkey and Greece, and the Lovara. In addition to these, there are the Calons, who have a strong presence in Brazil and throughout the country, and have their roots in Spain and Portugal. The Sinti mainly arrived in Brazil after World War I and II, coming from Germany and France (BRASIL, 2013).

There is still little official information available on the Roma population. According to the IBGE's Municipal Basic Information Survey (MUNIC), in 2011 there were 291 Roma encampments in 21 Brazilian states. The highest concentration of camps was in the states of Bahia (53), Minas Gerais (58) and Goiás (38). Municipalities with between 20 and 50 thousand inhabitants have the highest concentration of camps. In terms of the total Roma population, it is estimated that there are more than half a million in Brazil (BRASIL, 2013).

Figure182 - Map of Roma Communities, by municipality - Brazil, 2011

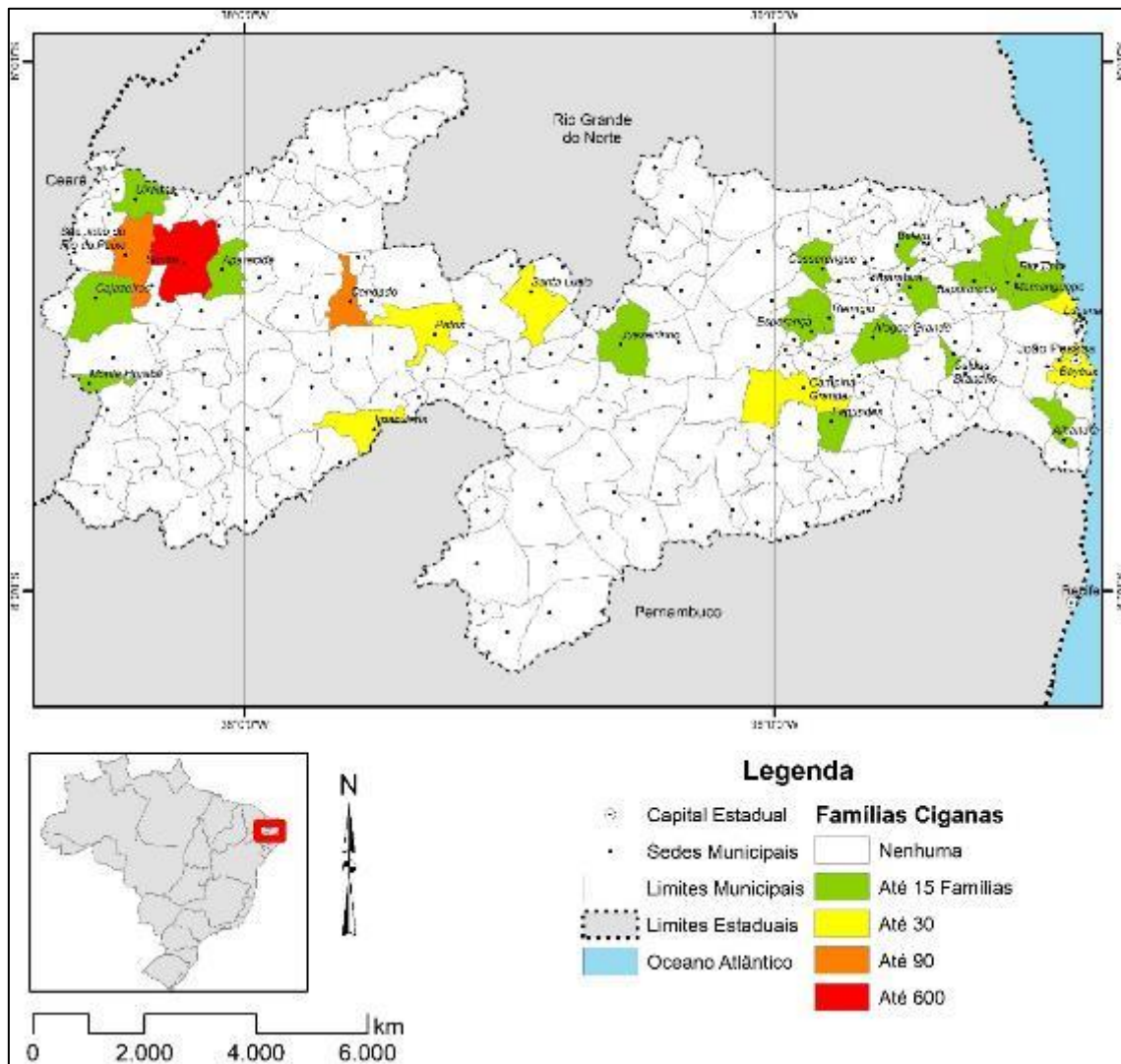


Source: Secretariat for Policies to Promote Racial Equality - SEPIR. Guide to Public Policies for Gypsy Peoples, 2013.

Approximately 1,500 gypsies live in Paraíba, more than 95% of whom are concentrated in the state's Sertão region, mainly in Sousa, which is home to the largest gypsy community in Brazil. Grouped together in communities on the outskirts of the cities, the Roma of the Calon ethnic group face a lack of infrastructure, basic sanitation and sewage disposal. In addition, they deal with high levels of unemployment, which are exacerbated by the prejudice they face (PARAÍBA, 2020).

The figure below shows the number of gypsy families and their location in different municipalities in Paraíba.

Figure183 - Gypsy Families in Paraíba



Source: PROCASE, 2024.

The gypsies of Sousa/PB have settled on land flanked by the BR 230 highway, 3 kilometers from the city center. They claim an area of 7.008 km<sup>2</sup>, with a perimeter of 12.786 km, in the areas that border the urban core, as can be seen in the figure below (MANGUEIRA; CAMPOS, 2023).

**Figure184 - Territory claimed by the gypsies in contrast to the urban center of Sousa/PB**



Source: Paraíba Calon, gypsy "sim sinhô": Analysis of the production of urban space in a traditional community in the municipality of Sousa (PB) during forty years of sedentarization, 2023.

The group led by Pedro Maia was the first to settle in the territory, choosing a higher area than those around it. Years later, Vicente and Eládio's groups settled in a lower area, giving rise to the communities known as Rancho de Baixo and Rancho de Cima. These ranches are separated from each other by about 1 kilometer, with a mediation zone known as "Várzea das Almas", a mixed area made up of gypsies and non gypsies. Despite these two nomenclatures, the community is divided into four, named after the leaders who once headed each community. They are: Manoel Valério Correia, Otavio Maia, Vicente Vidal de Negreiros and Pedro Benício Maia. According to data collected by the State People's Housing Company (CEHAP) in 2020, 1,845 people live in this gypsy community, spread over 522 families (MANGUEIRA; CAMPOS, 2023).

There is no sewage system in the community, and sewage is left out in the open without any treatment, contributing to the appearance of water-borne diseases. There is a Cartesian well in the Pedro Maia community, but it is not enough to supply all the local gypsies. Therefore, the gypsies don't have easy access to drinking water either (MANGUEIRA; CAMPOS, 2023).

Several families in the community are characterized as being below the poverty line, highlighting the difficulties faced by the Roma population of Sousa due to their social, political and environmental vulnerability. Despite all the problems they suffer, especially in relation to precarious housing, the Roma of Sousa aim to remain and legally occupy the territory, as well as finding formal and specialized jobs in the city (MANGUEIRA; CAMPOS, 2023).

#### 4.3.10 Heritage Cultural

This sub-item aims to identify and characterize the historical and archaeological heritage present in the state of Paraíba.

In this way, research and diagnostic analysis were carried out along two lines, one of which was a survey of secondary data in pre-existing conceptualized bibliography, and the other a survey of primary data in the field.

Secondary data was collected through bibliographical research and data collection (electronically - internet or in the field) at the official heritage preservation bodies: IPHAN (National Historical and Artistic Heritage Institute), and IPHAEP (Paraíba State Historical and Artistic Heritage Institute) in the state of Paraíba.

### **Archaeological sites**

Among the first steps in the research, a survey was carried out to ascertain the existence of known archaeological sites in the municipalities studied.

The National Register of Archaeological Sites (CNSA) of the National Institute of Historical and Artistic Heritage (IPHAN) was therefore consulted to determine the existence of such sites in the state of Paraíba.

According to the survey, in Paraíba, 192 archaeological sites have been catalogued in the CNSA, summarized by Rural Territory and by municipality in the Annex 8.7.

As shown in the map of archaeological sites in Paraíba below, the concentration of archaeological sites is in the central part of the state, in the regions of the Rural Territories of Borborema, Cariri, Curimataú and east of the Médio Sertão.

It should be noted that most of the archaeological sites registered include pre-colonial remains, and that there are more historical sites in the Rural Territories that cover coastal areas, such as the RT Mata Norte, where the municipality of Baía da Traição is located, the scene of important events that marked the colonization of the Indians by European peoples.



**Map 14 - Map of registered archaeological sites in the state of Paraíba**

## Paleontological sites

According to Leonardi & Carvalho (2000), Sousa and Uiraúna-Brejo das Freiras are two Cretaceous basins in the Rio do Peixe region that have a large number of dinosaur footprints. These basins are located in the west of the state of Paraíba, and their origins are related to the movements of transcurrent faults along pre-existing lineaments of the basement, during the opening of the Atlantic Ocean.

The main tetrapod ichnofauna consists of isolated footprints and tracks of large and small theropods, as well as ornithopods. There are also invertebrate ichnofossils such as tracks and excavations produced by arthropods and annelids. The fossils are palynomorphs, plant fragments, ostracods, conchostracans, fish scales and crocodylomorph bones. These fossils are preserved in deposits of alluvial fans, anastomosed rivers, meandering rivers and shallow lakes of Neocomian age - Berriasian to lower Barremian.

The paleontological-geological relevance of the Sousa and Uiraúna basins is the abundance of dinosaurian ichnofauna. 22 ichnofossiliferous sites have already been identified and mapped, and 296 tracks of large theropods have been recognized; 29 of small theropods; 42 of sauropods; 2 of quadruped ornithischians; 28 of graviportal ornithopods; a set of batrachopod footprints; a lacertid impression; a large number of unclassifiable footprints and many semi-swimming tracks attributed to chelonians. In total, more than 395 dinosaurian individuals have already been classified (LEONARDI & CARVALHO, 2000).

The most important area for the distribution of fossil footprints, located in Passagem das Pedras (Fazenda Ilha) in the municipality of Sousa, is now a natural park - the Vale dos Dinossauros Natural Monument. The 40-hectare park is one of the best preserved paleontological sites in Brazil. It has tourist infrastructure and trained guides for ecological tourism and the protection of the ichnofossiliferous site.

The Vale dos Dinossauros Monument covers an area of more than 1,730 km<sup>2</sup>, encompassing approximately 30 localities in the high hinterland of Paraíba, including the municipalities of São João do Rio do Peixe, Sousa, Aparecida, Marizópolis, Vieirópolis, São Francisco, São José da Lagoa Tapada, Santa Cruz, Santa Helena, Nazarezinho, Triunfo, Uiraúna and Cajazeiras. These locations are concentrated in the Rural Territories of Vale do Piranhas and Alto Sertão.

O Map 11 - Conservation Units presented in chapter 4.2.3 - Critical Habitats Below is a figure taken from the SGB (Brazilian Geological Service) system which illustrates the location of the paleontological sites in Paraíba.

**Figure185 - Fossiliferous occurrences in the northwestern portion of Paraíba**



Source: SGB/CPRM - GeoSGB, 2024

**Photo 60 - Entrance to the Vale dos Dinossauros Conservation Unit**

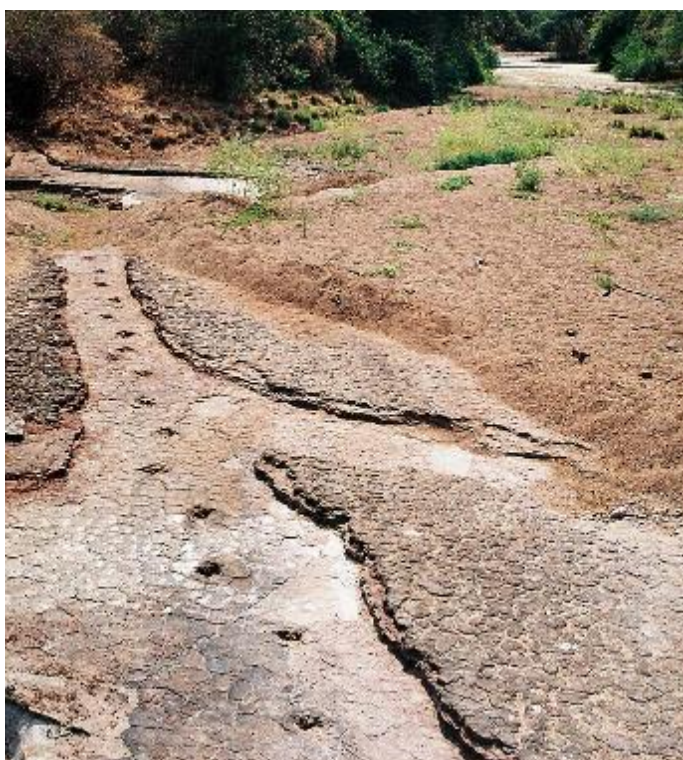


Source:

[https://pt.wikipedia.org/wiki/Monumento\\_Natural\\_Vale\\_dos\\_Dinossauros#/media/Ficheiro:Vale\\_dos\\_Dinossauros,\\_Sousa,\\_Para%C3%ADba.jpg](https://pt.wikipedia.org/wiki/Monumento_Natural_Vale_dos_Dinossauros#/media/Ficheiro:Vale_dos_Dinossauros,_Sousa,_Para%C3%ADba.jpg)



**Photo 61 - Carnosaur trail in Dinosaur Valley**



Source: Photo by Valdiney Pimento. Available at <https://www.flickr.com/photos/valdiney/>

### Historical Heritage

In this case, research was carried out on other IPHAN databases and state cultural heritage protection bodies.

Therefore, data from IPHAN's Database of Registered Cultural Property and the Noronha Santos Archive were investigated. From this research it is possible to identify the cultural assets listed by the agency in the region, whether they are integrated movable assets (objects, sculptures, works of art, among others) or immovable assets (churches, military architecture buildings, civilian houses, monuments, among others). Thirty-six records of listed cultural assets were found in the IPHAN archives in Paraíba:

**Table 192 - List of Iphan Listed Properties in Paraíba**

Municipality	Classification (related to the form of protection)	Assigned name	Year opened	Stage of Instruction (Ordinance 11/86)
Cabedelo	Ruin	Church of Nossa Senhora dos Navegantes: ruins	1938	RERRATIFIC.
João Pessoa	Building and Collection	Church of the Third Order of St. Francis	1938	TOMBADO
João Pessoa	Building and Collection	Church of the Third Order of Carmel or Saint Teresa of Jesus	1938	TOMBADO
João Pessoa	Building and Collection	Chapel of Engenho da Graça	1938	TOMBADO

Municipality	Classification (related to the form of protection)	Assigned name	Year opened	Stage of Instruction (Ordinance 11/86)
Cabedelo	Ruin	Tambaú Church - ruins	1938	TOMB. CANCEL.
Stones of Fire	Architectural complex	Aurora Mill	1938	UNFAIR
Cabedelo	Ruin	Old Fort: ruins	1938	TOMBADO
João Pessoa	Building	Sobrado at Rua Peregrino de Carvalho, 117	1938	TOMBADO
João Pessoa	Architectural complex	Convent and Church of St. Anthony and House of Prayer and cloister of the Third Order of St. Francis	1938	TOMBADO
João Pessoa	Building and Collection	Church of São Bento	1938	TOMBADO
João Pessoa	Building and Collection	Carmo Convent and Church	1938	INSTRUCTION
João Pessoa	Building and Collection	Misericórdia Church	1938	TOMBADO
Santa Rita	Building and Collection	Chapel of Our Lady of Battles	1938	TOMBADO
Santa Rita	Building and Collection	Chapel of Our Lady of Help	1938	TOMBADO
João Pessoa	Building	Tambiá Fountain	1938	TOMBADO
Cabedelo	Building	Santa Catarina Fortress	1938	TOMBADO
Pilar	Building	Town Hall and Jail	1941	TOMBADO
João Pessoa	Ruin	Casa da Pólvora: ruins	1941	TOMBADO
Ingá	Archaeological site	Itacoatiarias of the Ingá River	1943	RERRATIFIC.
Sousa	Rural complex	Acauã Farm: house, chapel and outbuilding	1939	TOMBADO
Lucena	Building and Collection	Chapel of Our Lady of Guia	1949	TOMBADO
Santa Rita	Building and Collection	Chapel of Engenho Una	1953	TOMBADO
João Pessoa	Building	Santa Rosa Theater	1963	UNFAIR
João Pessoa	Building	House in Praça do Erário where the post office is located	1970	TOMBADO

Municipality	Classification (related to the form of protection)	Assigned name	Year opened	Stage of Instruction (Ordinance 11/86)
Campina Grande	Building	Station: Railway (Old)	1972	UNFAIR
São Miguel do Taipu	Building	Itapuá Mill House	1974	UNFAIR
Baía da Traição	Natural Heritage	Beach: Baía da Traição	1975	UNFAIR
João Pessoa	Building	Tito Silva Wine Factory	1982	TOMBADO
Pilar	Building	Corredor Mill Headquarters: José Lins do Rego's family home	1985	INSTRUCTION
João Pessoa	Natural Heritage	Area destined for Cabo Branco State Park and Ponta do Seixas.	1986	TOMB. PROVIS.
Rio Tinto	Architectural complex	Rio Tinto Architectural Complex	2001	INSTRUCTION
Sand	Urban Set	Historic, Urban and Landscape Complex of the City of Areia	2002	TOMBADO
João Pessoa	Urban Set	Historic center of João Pessoa	2002	TOMBADO
Sousa	Paleontological asset	SITE WITH DINOSAUR FOOTPRINTS FROM THE FISH BASIN.	2009	UNFAIR
Itaporanga	Building	Church of Our Lady of the Rosary of Itaporanga	2019	INSTRUCTION
Pombal	Building	Rosário dos Homens Pretos Church	2020	INSTRUCTION

Source: IPHAN

Research was also carried out at the state heritage agency, the Paraíba State Historical and Artistic Heritage Institute (IPHAEP). IPHAEP has numerous listed properties in various municipalities in the state, and also identified the following municipalities with listed historic centers:

- Alagoa Grande (Decree 23.551, of November 7, 2002);
- Areia (Decree 8.312, of November 6, 1979);
- Bananeiras (Decree 31.842, of December 4, 2010);
- Cajazeiras (Decree 25.140, of June 29, 2004);
- Campina Grande (Decree 25.139, of June 29, 2004);
- Itabaiana (Registered and in the process of being listed);

- João Pessoa (Decree 9.484, of May 14, 1982);
- Mamanguape (Decree 25.031, of May 14, 2004);
- Pilar (Decree 8.625 of August 26, 1980);
- Pombal (Decree 22.913, of April 4, 2002);
- Princesa Isabel (Decree 26.099, of August 5, 2005);
- Remígio (Decree 23.809, of December 27, 2002);
- Rio Tinto (Registered and in the process of being listed);
- São João do Cariri (Decree 25.141, of June 29, 2004);
- São João do Rio do Peixe (Decree 22.917, of April 4, 2002);
- Sousa (Decree 258.030 of May 14, 2004).

#### **4.4 Profile of the Communities Listed in the PIR and PN Model Plans**

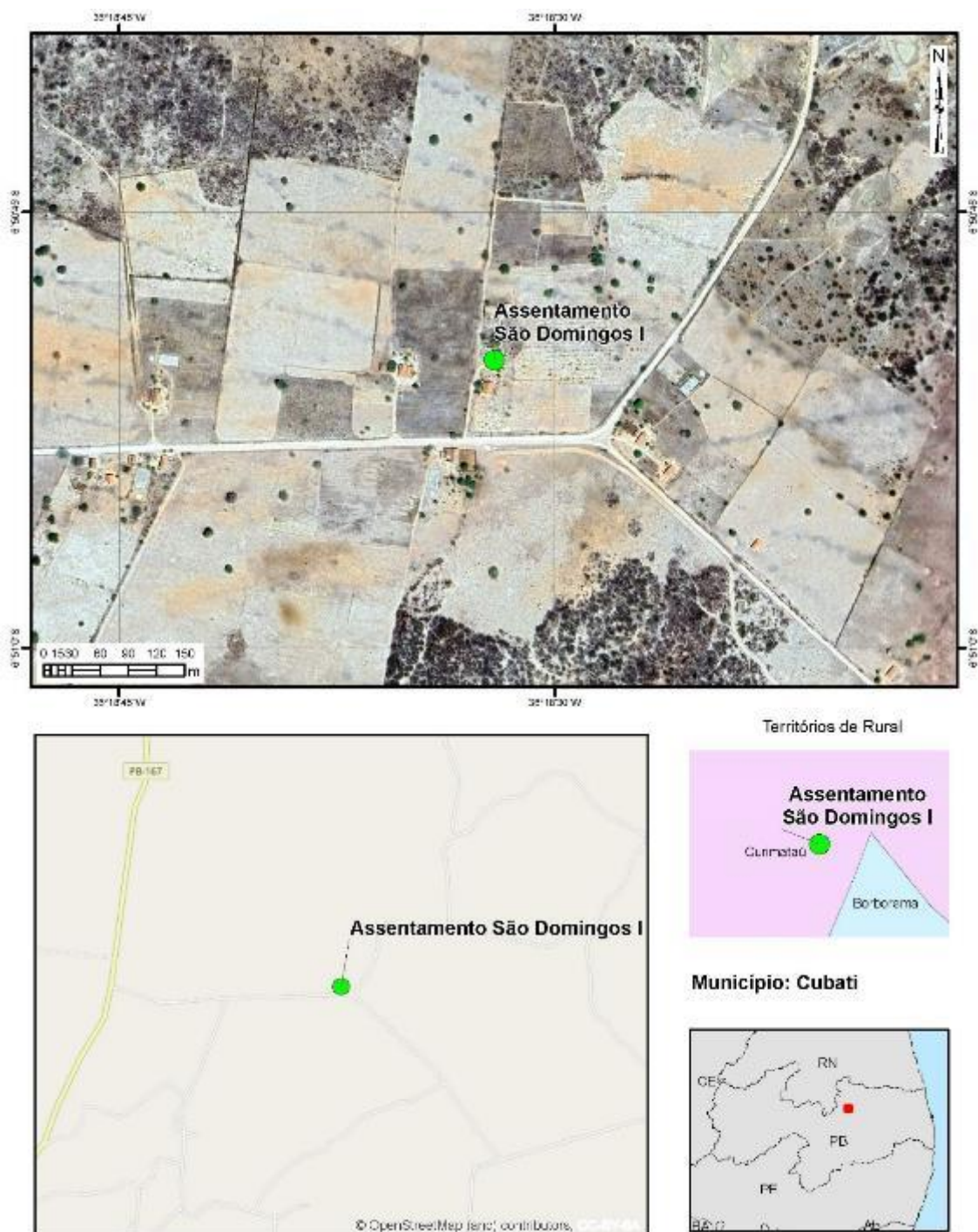
To draw up the Investment Plan (PIR) and Business Plan (PN) models, 6 communities were selected, characterized and evaluated for the production of these models.

Below is information on each of these communities.

##### **4.4.1 São Domingos I Settlement and ACAPRANE**

Below is information and an illustration of the municipality and territory where the São Domingos I settlement is located.

**Figure186 - Location of the São Domingos I Settlement**



Source: Image Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Cubati
IBGE code	2505006
Population (CENSO/year)	7,580 inhabitants - Population census (year 2022)
GDP per capita (value and year)	R\$ 9.765,34 (2021)
MHDI	0,566 (2010)

Biome	Caatinga
Territory of Identity	Paraíba's Eastern Seridó
Annual rainfall (mm)	500 to 700 mm
Distance from the state capital and other economically important municipalities	210 km from João Pessoa and 95 km from Campina Grande

- Community information

Name	São Domingos Settlement I
Type of community	Family farming/land reform settlement
Location and access	Rural area 08 km from the town center on a paved road
Number of families and people	30 families - 90 people
Main production activities carried out	Raising poultry, sheep, cattle, pigs and agriculture
Average property area and % of productive area	31.8 ha in total, of which 22.0 ha are for production
Land situation	Settlers
Environmental Registration (CAR)	They have the collective CAR
Electricity supply: type, number of families served	Families use single-phase power
Main water sources for human consumption and production	Cisterns, dams and artesian wells
Other relevant information	The settlement has a school for the children

- Information about the organization

Name	Agricultural Cooperation Association of Rural Producers of the Nova Esperança São Domingos I Settlement
Acronym	ACAPRANE
CNPJ	05.077.627/0001-64
Status (active or irregular)	Active
Date of foundation	18/02/2002
President	Sara Maria Constâncio
Address	Settlement São Domingos I, s/n - Rural area of Cubati
Location (owned, rented, leased)	It has its own headquarters
Membership numbers (men, women and young people)	58, 30 men, 28 women and 8 young people
Have you ever been involved in projects with non-reimbursable resources?	Yes. Fresh Water Project (desilter), P1MC Project and P1+2.

### **Main problems, challenges and positive points identified**

#### **Productive Area:**

- Extensive animal husbandry, resulting in poultry with low carcass standards;

- The mortality rate is high, both because of the low level of sanitary management and the lack of suitable chicken houses to protect the birds from predators;
- Lack of specialized technical assistance;
- Unavailability of equipment to grind corn and produce homemade feed;
- Lack of knowledge and guidance on how to produce poultry feed on the farm.
- Positive points:
  - Knowledge of rustic health management using homemade medicine techniques.

#### Access to TA:

- At the moment, the settlement has no specialized technical advice on poultry farming, limiting the development of the activity;
- EMPAER's technical advice is insufficient and generic in scope, and does not cover important areas such as marketing, management, the environment, among others.

#### Marketing:

- Very small production (family consumption);
- Poultry with a lower carcass standard than that required by the market;
- Lack of knowledge about the institutional market (PAA and PNAE);
- Few farmers participate in the open-air fairs in the municipalities near the settlement.
- Positive points:
  - Some families manage, even sporadically, to earn a small income by selling eggs at open-air fairs, the Solidarity Economy House in Soledade and through orders.
  - Existence of local and regional demand for quality poultry and free-range eggs

#### Environmental issues:

- Inadequate disposal of solid household waste in the community resulting in the burning of garbage;
- Positive points:
  - They preserve the settlement's legal reserve;
  - They carry out agroecological practices, such as using Creole seeds;
  - They practice reforestation by distributing seedlings at the settlement's school;
  - The association organizes environmental awareness activities for the settlement's young people and children

#### Access to water for household consumption:

- There are few artesian wells with drinking water, making the community dependent on the municipal water tanker program during the dry season.
- Positive points:
  - There are individual cisterns in each house in the community, which allows for assistance from the municipal water tanker program;

- There is a desalination plant in the settlement by the Água Doce project, which allows desalination for human consumption.

Access to water for irrigation and animal watering:

- Dependence on dam flooding to guarantee animal watering;
- Most of the families plant their crops in a rainfed system.
- Positive points:
  - The presence of wells is relatively sufficient for animal watering;
  - Two families have a water reuse system to irrigate their productive backyards

Social issue (young people, women, people with disabilities, LGBTQIA+, etc.):

- Low participation by young people in the social activities promoted by the association.
- Positive points:
  - Encouraging the involvement of young people in social projects through revolving funds;
  - Projects aimed at women (ATER mulher, Project Empreender Mulher);
  - The association's board is made up of women from the settlement.

Access to public policies: PRONAF, CROP INSURANCE, PAA, PNAE, OTHERS

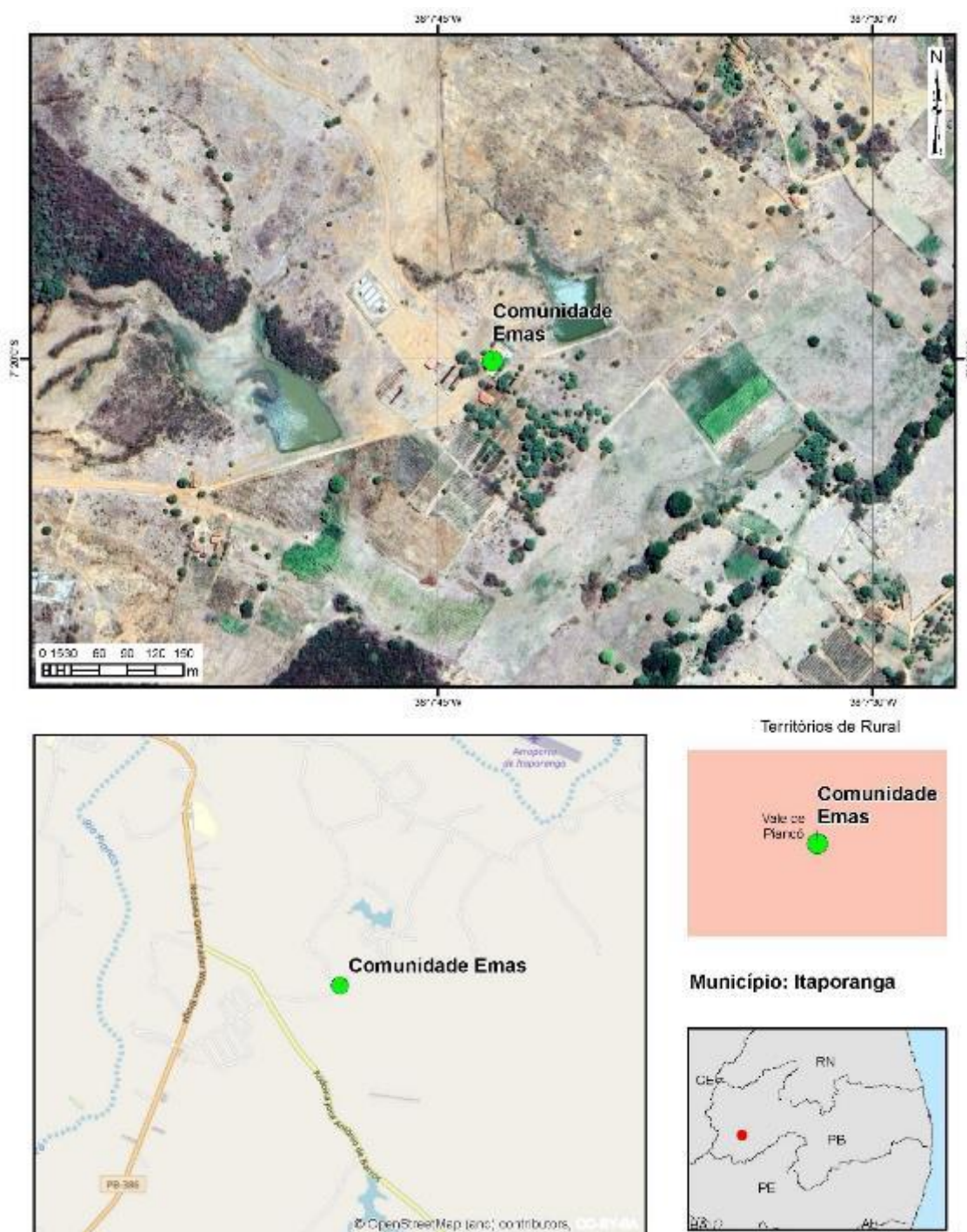
- Limited involvement of the association with potential partners, such as banks (Banco de Nordeste and Banco do Brasil) and the Rural Workers' Union;
- Limited knowledge of how to access the PAA and PNAE.
- Positive points:
  - The association has access to public policies such as crop insurance and Pronaf (Pronaf A, Semiarid);
  - They accessed Fomento Mulher, Fomento for house renovations and construction;
  - They accessed Empreender Mulher;
  - One family accesses the PAA and PNAE institutional markets.

#### **4.4.2 Emas Community and APLMITA**

Below is information and an illustration of the municipality and territory where the Emas community is located.



**Figure187 - Location of the Emas Community**



Source: Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Itaporanga
IBGE code	2507002
Population (CENSO/year)	23,940 people (CENSO 2022)
GDP per capita (value and year)	R\$ 13.671,27 (2021)
MHDI	0,615 (2010)

Biome	Caatinga
Territory of Identity	Piancó Valley
Annual rainfall (mm)	2022 - 1,063.1 mm 2023 - 1,052.5 mm
Distance from the state capital and other economically important municipalities	416 km to João Pessoa and 112 km to Patos

- Community information

Name	Emas community and surrounding areas.
Type of community	Family dairy farmers.
Location and access	10 km from the seat of the municipality of Itaporanga.
Number of families and people	60 families, an average of 240 people.
Main production activities carried out	Dairy farming and family agriculture.
Average property area and % of productive area	40 hectares - 50% (20 hectares of productive area)
Land situation	80% own their own land (with public and private deeds)
Environmental Registration (CAR)	80% of families have a CAR
Electricity supply: type, number of families served	All the families have access to single-phase power, with some having three-phase power.
Main water sources for human consumption and production	Human and production: well and weir.
Other relevant information	The partners work in family farming in general.

- Information about the organization

Name	Association of Milk Producers of the Municipality of Itaporanga
Acronym	APLMITA
CNPJ	06.201.635.0001-33
Status (active or irregular)	Active
Date of foundation	14/04/2004
President	Francisco de Sales Soares Júnior
Address	Rua Pedro Gondim, SN, centro - Itaporanga, CEP: 58.780-000
Location (owned, rented, leased)	Own headquarters
Membership numbers (men, women and young people)	60 members: 50 men, 10 women, 6 young men
Have you ever been involved in projects with non-reimbursable resources?	They have not accessed any projects through the association.

## **Main problems, challenges and positive points identified**

### **Productive Area:**

- Lack of specialized technical assistance;
- Few farmers carry out nutritional management, such as silage and haymaking, due to a lack of machinery and adequate technical guidance;
- Difficulty in feed management related to the volume source due to compromised natural pasture areas;
- High dependence on commercial feed, especially in the dry season, increasing the cost of milk production;
- Low milk productivity
- Positive points:
  - Access to water;
  - Fertile and productive soil.

### **Access to TA:**

- Occasionally, some farmers receive technical advice from SENAR and EMPAER, but the service offered is not specialized in dairy farming and does not cover other important topics such as marketing, the environment and others.

### **Marketing:**

- Market concentrated in a few private industries in the region;
- There is little competition, so farmers have little bargaining power;
- Low organizational level of the association to negotiate jointly;
- They don't have their own milk cooling tank, reducing their trading capacity;
- Lack of regulation of the Municipal Inspection Seal (SIM), limiting the installation of other small local industries.
- They don't have access to the PAA and PNAE markets due to the lack of milk processing/pasteurization.
- Positive points:
  - Guaranteed sale of milk to a private dairy in the municipality of Sousa

### **Environmental issues:**

- Use of pesticides;
- Lack of solid waste disposal;
- Burning garbage;
- Fires caused by deforestation.
- Positive points:
  - They have preservation areas, especially on riverbeds and dams

Access to water for household consumption:

- Well and reservoir water are not treated.
- Positive points:
  - All the families have access to water from wells and dams.

Access to water for irrigation and animal watering:

- All the beneficiary families have water from wells and reservoirs for irrigation and animal consumption.

Social issue (young people, women, people with disabilities, LGBTQIA+, etc.):

- Difficulty in involving women and young people in milk production;
- Lack of collectivity.
- Positive points:
  - Within the productive activity, some women in the communities produce cheese and sweets with the milk.
  - There are 6 young people in the association who are active in milk production, the others support their parents in production.

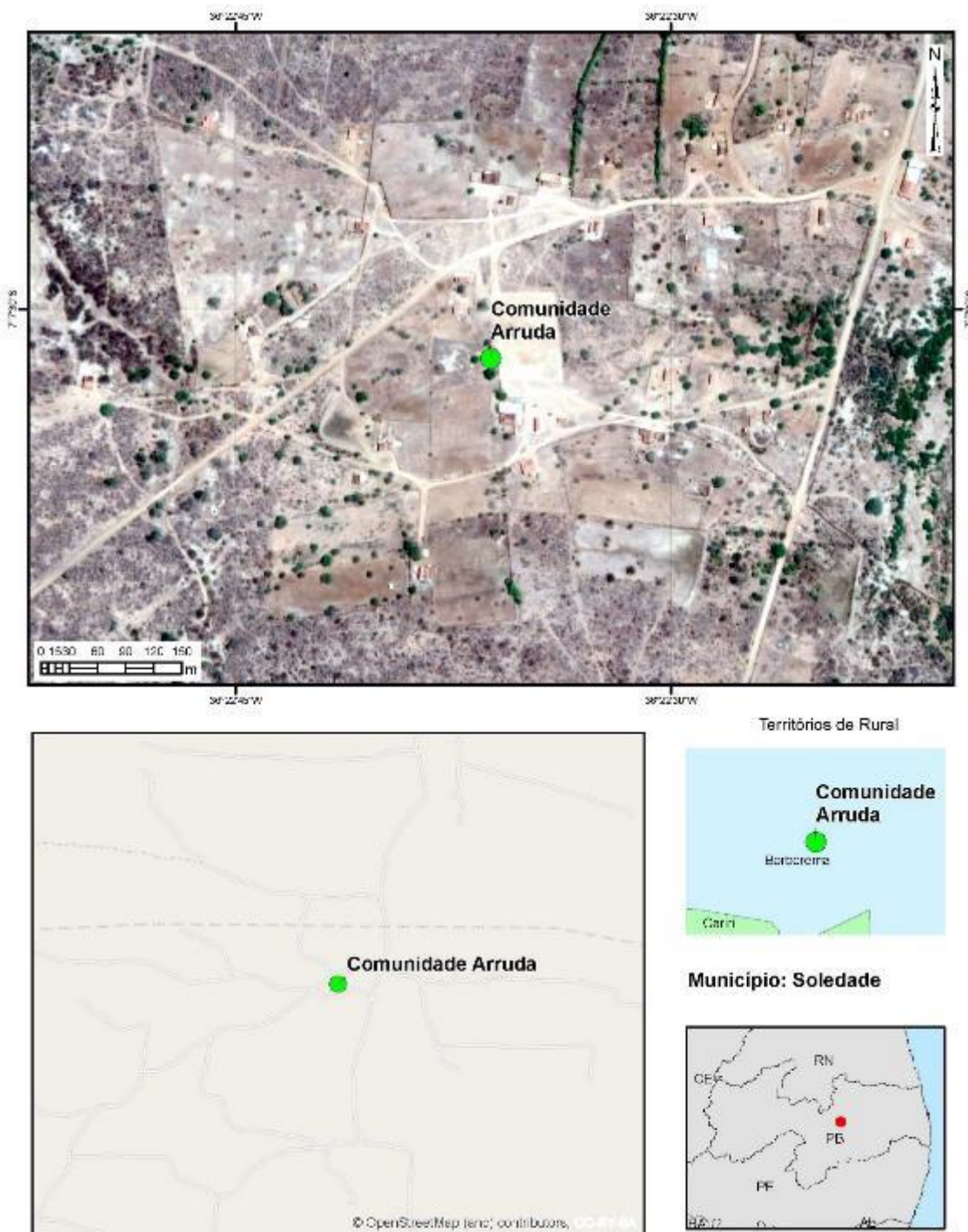
Access to public policies: PRONAF, CROP INSURANCE, PAA, PNAE, OTHERS

- CONAB closes in Itaporanga;
- They don't have access to the institutional market (PAA and PNAE) due to the lack of a processing structure;
- Lack of government action for dairy farming.
- Positive points:
  - Some of the farmers have access to PRONAF and Seguro Safra.

#### **4.4.3 Community of Arruda and ASCCO**

Below is information and illustration about the municipality and the territory where the Arruda community is located.

**Figure188 - Location of Arruda Community**



Source: Image Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Soledade
IBGE code	2516102
Population (CENSO/year)	13,968 inhabitants - Population census (year 2022)
GDP per capita (value and year)	R\$ 13.377,14 (2021)
MHDI	0,616 (2010)

Biome	Caatinga
Territory of Identity	Borborema
Annual rainfall (mm)	400.9 mm
Distance from the state capital and other economically important municipalities	186 km from João Pessoa and 58 km from Campina Grande

- Community information

Name	Municipal coverage - Arruda, Livramento, Melancias, Santa Teresa, Faustino and Belo Monte.
Type of community	Family farming
Location and access	Rural area 08 km from the town center on a dirt road
Number of families and people	35 families - 105 people
Main production activities carried out	Goats and sheep are the main activities, in addition to some secondary activities such as cattle, poultry and crops (corn and beans).
Average property area and % of productive area	An average of no more than 10 hectares, 80% of which is productive land
Land situation	Most rural lenders
Environmental Registration (CAR)	They all have
Electricity supply: type, number of families served	The families have single-phase electricity, with the exception of one family that still doesn't have electricity, as they recently moved away
Main water sources for human consumption and production	Cisterns, dams and artesian wells
Other relevant information	The Arruda community has a school for the children of this and neighboring communities.

- Information about the organization

Name	Soledad Association of Goat and Sheep Breeders
Acronym	ASCCO
CNPJ	35.614.622/0001-94
Status (active or irregular)	Active
Date of foundation	18/10/2019
President	Pablo Albuquerque Araújo
Address	Livramento Community, s/n - Rural Area of Soledade
Location (owned, rented, leased)	No headquarters The meetings take place at a member's house on the first Friday of every month
Membership numbers (men, women and young people)	35, 19 men, 16 women and 12 young people
Have you ever been involved in projects with non-reimbursable resources?	Social technologies project by PB Rural Sustentável/Cooperar

## **Main problems, challenges and positive points identified**

### **Productive Area:**

- Lack of reproductive control of the herd;
- Lack of specialized technical assistance;
- Few farmers carry out nutritional management (silage, haymaking), but they don't have the technical guidance and the right equipment to guarantee the quality and conservation of the products;
- Difficulty in food management related to the source of volume: both in the rainy and dry seasons, grazing in the caatinga area;
- High dependence on external inputs (feed) increasing the cost of milk production;
- Farmers have basic knowledge of health management (vaccination, deworming).

### **Access to TA:**

- Lack of qualified TA available to provide frequent and regular monitoring, focused on dairy goat farming;
- When available, TA does not provide guidance on environmental and marketing issues.

### **Marketing:**

- They sell their milk to a cooperative in the region, where it is collected twice a week (Monday and Thursday) from a 1,000-liter cooling tank located in the town of Soledade;
- Other associations in the neighboring towns of São Vicente do Seridó, Pocinhos and Olivedos also put milk in this tank, which makes it difficult to increase production because there is no longer a storage place or tank available;
- The municipal government supports the project by providing the place where the cooling tank is located and with the cost of electricity;
- There is a technician responsible for receiving the milk from each farmer at the collection point from 07:00 to 08:00 every day. He tests the quality of the milk delivered and keeps track of incoming and outgoing milk. At the end of the month, the associations pay this technician R\$0.19 per liter of milk for his services;
- They don't process the milk due to the difficulty of accessing the market without formalizing the activity;
- They can't access the PAA and PNAE markets due to the lack of milk processing/pasteurization

### **Environmental issues:**

- They reforest their property and preserve the legal reserve and APPs;
- They perform the zero base bus;
- They carry out agroecological practices, such as using Creole seeds

Access to water for household consumption:

- Consumption is through the storage of rainwater in a 16,000 L household cistern, which is sufficient throughout the year. In more critical periods, the cisterns are supplied by a water tanker paid for by the municipality;
- For the daily cleaning of the house, they use mud water

Access to water for irrigation and animal watering:

- For the animals, they use water from dams and some wells in the communities;
- Farmers do not use irrigation practices.

Social issue (young people, women, people with disabilities, LGBTQIA+, etc.):

- They don't have a specific project to benefit or encourage the involvement of women and young people in the association's activities, but they do take part in meetings and events organized by the organization.

Access to public policies: PRONAF, CROP INSURANCE, PAA, PNAE, OTHERS

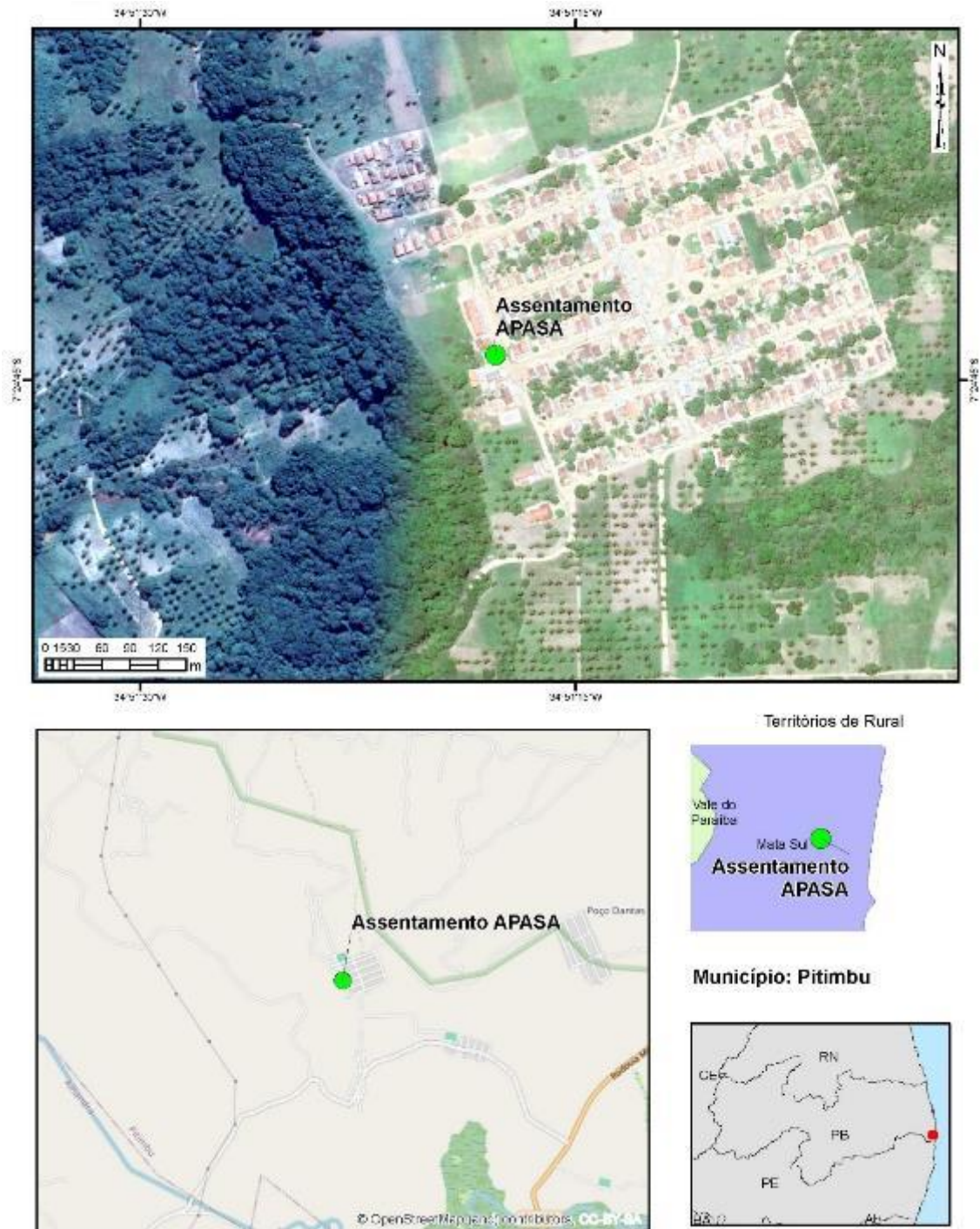
- Through the association, some of the farmers have access to public policies such as Seguro Safra and Pronaf;
- They don't have access to the institutional market (PAA and PNAE) due to a lack of processing facilities, health inspection seals, technical guidance and incentives;
- There is a lack of support and encouragement for the introduction of goat's milk products in school meals.

#### **4.4.4 APASA Settlement and Association of Agroecological Farmers of the South Coast of Paraíba**

Below is information and an illustration of the municipality and territory where the APASA settlement is located.



**Figure189 - Location of the Apasa Settlement**



Source: Image Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Pitimbu
IBGE code	2511905
Population (CENSO/year)	16,751 inhabitants - Source: IBGE, 2022
GDP per capita (value and year)	R\$ 22,092.43 - Source: IBGE, 2021
MHDI	0.570 - Source: IBGE, 2010

Biome	Atlantic Forest
Territory of Identity	Mata Sul
Annual rainfall (mm)	2022: 2,123.9 mm 2023: 2,089.6 mm Source: AESA PB
Distance from the state capital and other economically important municipalities	47 km to João Pessoa and 33 km to Conde

- Community information

Name	APASA Settlement
Type of community	Family farmers
Location and access	Rural area 12 km from the municipality's headquarters on a paved and dirt road.
Number of families and people	150 families and approximately 800 people.
Main production activities carried out	Growing vegetables, cassava, yams, sweet potatoes, beans and corn. Fruit for family consumption: papaya, cashew, cajá, green and dried coconut.
Average area of properties and % of productive area	5.6 ha and 80% productive area.
Land situation	All the partners have title to the land.
Environmental Registration (CAR)	100%
Electricity supply: type, number of families served	In the Agrovila, all 150 families are served by single-phase electricity.
Main water sources for human consumption and production	An artesian well supplies the APASA Settlement Agrovillage and another has been drilled, but without a pump and accessories.
Other relevant information	The settlement has a primary school, a basic health unit and the headquarters of the Pitimbu Department of Agriculture. There is a fenced collective area of 5.0 hectares.

- Information about the organization

Name	Association of Agroecological Farmers of the South Coast of Paraíba.
Acronym	Eco South Association
CNPJ	07.628.011/0001-60
Status (active or irregular)	Active
Date of foundation	30/09/2005
President	Criselde Maria dos Santos
Address	Eco Sul shed, next to the Assembly of God. Rua não projetada, s/n - rural area. Pitimbu, PB. CEP: 58.324-000
Location (owned, rented, leased)	Own
Membership numbers (men, women and young people)	68 members: 28 women, 40 men, including 23 young people

Have you ever been involved in projects with non-reimbursable resources?	No
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### **Main problems, challenges and positive points identified**

#### Productive Area:

- Lack of technical assistance.
- Dependence on seedlings from EMPAER and UFPB.
- Lack of knowledge about soil management.
- Problems with erosion.
- Drainage problems in the soil.
- Inadequate and insufficient irrigation.
- Positive points:
  - Basic experience in vegetable production;
  - Availability of a fenced collective area with an artesian well (without pump and accessories).

#### Access to TA:

- The technical assistance offered by Pitimbu's Department of Agriculture is provided on demand, which means that it is not continuous and does not fully meet farmers' needs.
- Positive points:
  - Provision of free tractor hours by the municipality's Department of Agriculture

#### Marketing:

- The products are sold at a fixed price in João Pessoa at the Bessa, Jardim Oceania and Ponto de Cem Réis markets (weekly);
- High transportation costs for farmers to travel to fairs to sell small quantities;
- The practice of selling to middlemen is still very common. They usually set the value of the products, especially yams and manioc.
- Positive points:
  - There are a few collapsible market stalls.
  - Pitimbu City Hall provides a truck to transport the products to the fairs, but the driver's daily rate, diesel and maintenance of this vehicle are the responsibility of the Eco Sul Association.
  - Potential for expanding marketing at fairs in other districts of João Pessoa and nearby municipalities

#### Environmental issues:

- Lack of preservation of riparian forest and springs.

- The practice of burning by some farmers to clear the area.
- Burning residential waste

Access to water for household consumption:

- Reduced flow from the well during the driest periods of the year, compromising the supply to families.
- Positive points:
  - In the Agrovila, there is an artesian well that supplies the water tank responsible for distributing water to the settlers. Every month, Pitimbu Town Hall analyzes the water to ensure that it is safe to drink;
  - Individualized cisterns in each house in the community

Access to water for irrigation and animal watering:

- Unavailability of electricity in the production areas, making the use of irrigation unfeasible;
- The well drilled in the collective production area is not equipped with a pumping system.
- Positive points:
  - Presence of a borehole in the collective area

Social issue (young people, women, people with disabilities, LGBTQIA+, etc.):

- Lack of social and cultural activities for young people in the community;
- Few activities developed collectively.
- Positive points:
  - 30% of the positions on the association's board are held by women from the settlement;
  - Participation of young people in productive and commercial activities.

Access to public policies: PRONAF, CROP INSURANCE, PAA, PNAE, OTHERS

- Families have little knowledge and do not receive adequate guidance on how to access public policies (PRONAF, Seguro Safra, PNAE, etc.);
- Positive points:
  - Some families access the PAA quite frequently

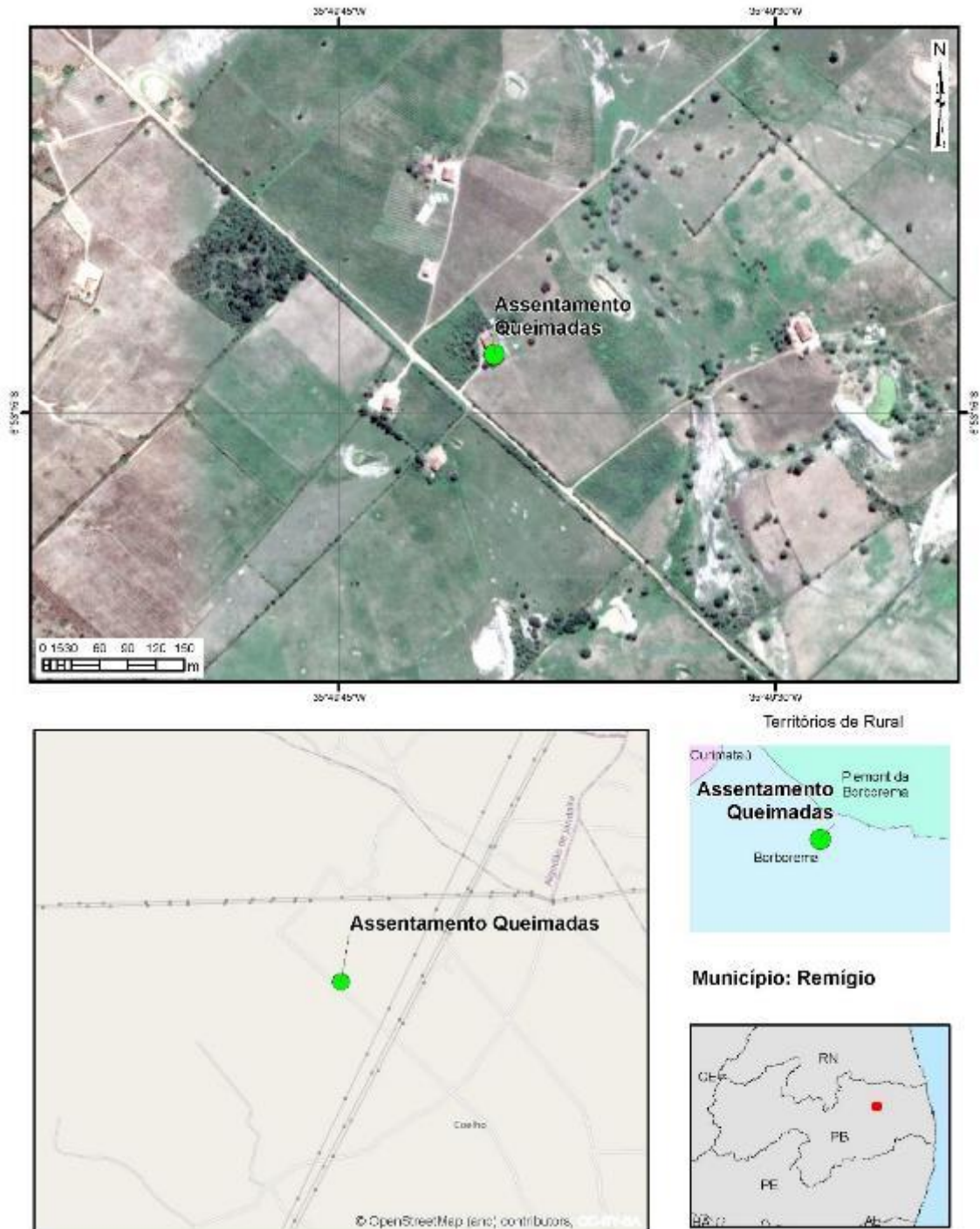
Others not mentioned above

- The municipality has no forest nursery or seed bank to supply farmers.
- The company responsible for garbage collection passes through the APASA settlement twice a week, but some settlers still burn their garbage.
- The black water goes into the pits and the gray water is left out in the open

#### 4.4.5 Queimadas Settlement and Borborema Agroecology Network

Below is information and an illustration of the municipality and territory where the Queimadas settlement is located.

Figure190 - Location of the Queimadas Settlement



Source: Image Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Remígio
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IBGE code	2512705
Population (CENSO/year)	17,885 (2022 census)
GDP per capita (value and year)	R\$ 9.080,26 (IBGE 2021]
MHDI	0.607 (IBGE 2010)
Biome	Caatinga
Territory of Identity	Borborema
Annual rainfall (mm)	708.0 mm (2020) Source: AESA website.
Distance from the state capital and other economically important municipalities	150 km from João Pessoa and 45 from Campina Grande.

- Community information

Name	Queimadas Settlement
Type of community	Settlement area
Location and access	Rural area 12 km from the town center (dirt roads and asphalt).
Number of families and people	Approximately 150 families and 600 people.
Main production activities carried out	Maize, beans, cotton, sweet potatoes and livestock farming
Average property area and % of productive area	Individual plot of 10 hectares, with an average of 40% productive area.
Land situation	Title has not yet been granted by Incra
Environmental Registration (CAR)	The settlement has a Rural Environmental Registry issued by INCRA.
Electricity supply: type, number of families served	All the families have single-phase electricity.
Main water sources for human consumption and production	Cisterns (supplied by the municipality and the army), dams and reservoirs.
Other relevant information	<p>- Young people and women are part of the Borborema Agroecology Network groups, as representatives of commissions and councils within certification activities;</p> <p>- Development of social inclusion activities for children and people with disabilities in the settlement.</p>

- Information about the organization

Name	Borborema Agroecology Network
Acronym	RBA
CNPJ	19.939.948/0001-35
Status (active or irregular)	Active
Date of foundation	23/07/2013
President	José Sinésio da Silva
Address	Queimadas Settlement, SN, Remígio-PB, Cep: 58.398-000.
Location (owned, rented, leased)	Provided (the shed belongs to the queimadas settlement association).

Membership numbers (men, women and young people)	90 members, 44 men, 46 women, 14 of them young people
Have you ever been involved in projects with non-reimbursable resources?	No

### **Main problems, challenges and positive points identified**

#### **Access to raw materials:**

Agroecological cotton production in the Borborema region is carried out by small family farmers in rainfed areas. To make organic production viable, the farmers founded the Borborema Agroecology Network (RBA) and began to develop participatory organic certification activities. Production is linked to climatic conditions, which is why not everyone is able to produce. Normally, cotton is planted in a consortium with other crops (beans, sweet potatoes, sesame, corn) and under normal conditions the yield is 500 kg/ha of cotton. The table below illustrates the average production data for a family.

Information provided by RBA/PROCASE:

Descrição	Parâmetros
Área média de produção por agricultor (ha)	2,5
Produtividade média algodão em rama (kg/ha)	500
Rendimento pluma (%)	38%
Rendimento caroço (%)	60%
Impureza (%)	2%
Produção anual de algodão em pluma (kg/agricultor)	475

- Main problems:
  - Incidence of pests;
  - Extreme weather events (prolonged drought or concentrated rainfall - flooding);
  - Difficulty on the part of some farmers in maintaining participatory organic certification;
  - Lack of water sources in quantity and quality for use in irrigation systems;
  - Lack of mechanization adapted for family farming.
- Positive points:
  - Organic production (preservation of the farmer's health, maintenance of soil fertility, differentiated price).

#### **Infrastructure for processing:**

The RBA does not have its own processing structure, and it is necessary to carry out the process in a private mill located in the municipality of Juarez Táavora - PB, approximately 50 km from the settlement.

- Main problems:
  - High transportation costs to take the cotton stalks and return with the lint and seeds;

- Payment of per diem for the driver and maintenance of the truck (support from the town hall);
- A problem of transgenic contamination, since the mill processes cotton from other municipalities outside the agroecological cotton network and not all of them produce organically;
- Lack of control against pathogens in the processing plant causing problems with contamination (contaminated branches from other producers);
- The plant's difficulty in satisfactorily serving all the farmers, limiting its capacity to expand the activity.
- Positive points:
  - There is a shed in the settlement ready to receive a mini-power plant (in the process of transforming the single-phase electricity network into three-phase);
  - Volume of cotton production in the settlement and region sufficient to justify the investment.

#### Marketing:

There is a well-defined strategy that guarantees the purchase of all agroecological cotton produced by the RBA, under differentiated price conditions, making the activity an important source of job and income generation for family farmers in the Borborema region.

- Main problems:
  - Compromised plume quality, caused by the lack of control over the processes in the mini-mill (outsourced service);
  - Lack of a person responsible for the marketing process;
  - RBA's visibility is limited (absence of a website and little use of social networks).
- Positive points:
  - Guaranteed purchase of production through a contract with two companies: Veja Fair Trade (French sneaker manufacturer) and Flávia Aranha LTDA (clothing company in São Paulo);
  - Buyers encourage an increase in production with a guarantee of purchase through the payment of premiums and bonuses (Fair Trade);
  - Differentiated payment for agroecological and organic cotton (1 kg of organic cotton lint R\$ 19.95 and 1 kg of conventional lint R\$ 8.69);
  - Buyers pay cash on invoice;
  - Growing market (other companies interested).

#### Management:

The RBA is made up of family farmers. Its board of directors is made up of the president (José Sinésio, 79), treasurer (Adivânia, 39) and executive secretary (Suzana Aguiar, 28).

#### *Theme 1: Articulation with the countryside*

- Main problems:



- Limited capacity to meet demands.
- Positive points:
  - Credibility and trust in the work carried out by the RBA;
  - Participatory organic certification by the Borborema Agroecology Network.

#### *Topic 2: Administrative, financial and commercial*

- Main problems:
  - Small management team with technical limitations;
  - Lack of IT infrastructure.
- Positive points:
  - Formation of the Financial Autonomy Incentive Fund (FIAF), from the payment of premiums by Veja Fair Trade;
  - Basic knowledge of management processes;
  - Keeps statutory commitments up to date;
  - Internet access.

#### *Theme 3: Articulation with partners (public policies, TA, social issues, etc.)*

- Main problems:
  - Public TA is not very accessible and is not specialized;
  - Limited capacity to meet all demands.
- Positive points:
  - The RBA partially makes up for the lack of TA, due to the exchange of experiences and knowledge between farmers;
  - Access to the PAA to market tubers and legumes produced in consortium with cotton;
  - It offers technical guidance to farmers on accessing public policies (PRONAF, Seguro Safra, etc.).
  - Encourages the participation of women and young people in activities.

#### *Theme 4 - Partnerships*

- The RBA has good institutional relations with the state government and with most of the municipal managers in its area of coverage. It has important partnerships with EMBRAPA Cotton, the Association for Supporting Policies to Improve Quality of Life, Coexistence with Drought, the Environment and Verticalization of Family Production - ARRIBAÇÃ, Remígio City Hall, among others.

#### *Environmental issues:*

Through the participatory organic certification process, the RBA works directly to raise farmers' awareness of environmental preservation.

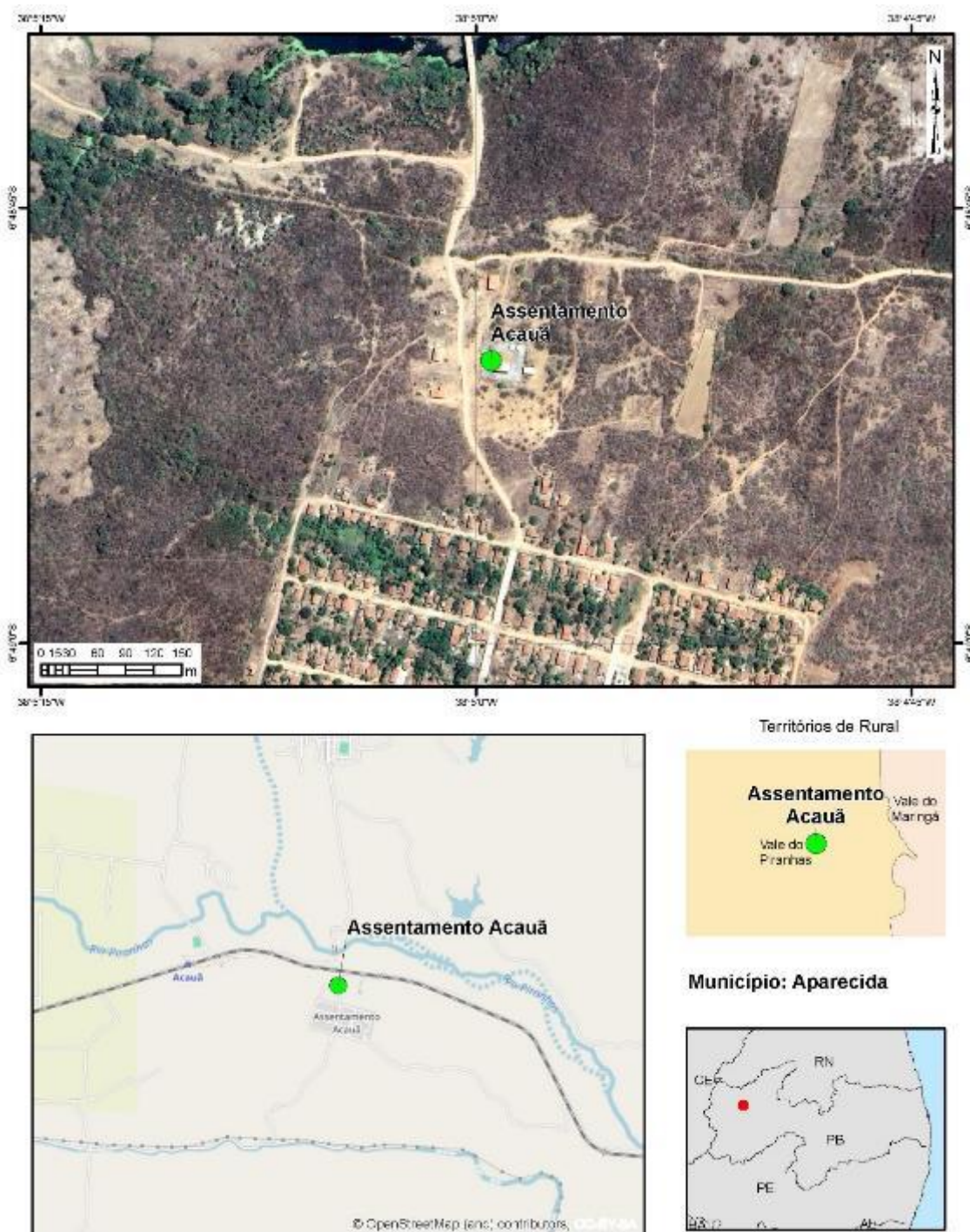
- Main problems:
  - No specific place in the settlement to dispose of household waste;

- Frequent burning of household waste by families in the settlement;
- Risk of loss of production associated with climate change.
- Positive points:
  - Organic certification;
  - The use of agroecological techniques to maintain favorable soil moisture and nutrition conditions.

#### **4.4.6 Acauã Settlement and COASPA**

Below is information and an illustration of the municipality and territory where the Acauã Settlement is located.

**Figure191 - Location of the Acauã Settlement**



Source: Image Google Earth Pro / Open Street Map, 2023. Prepared by Consultoria, 2024

- Information about the municipality and territory

Name	Aparecida
IBGE code	2500775
Population (CENSO/year)	7,960 inhabitants - 2022 Demographic Census (IBGE)
GDP per capita (value and year)	R\$ 12.405,76 (2021)
MHDI	0,578

Biome	Caatinga
Territory of Identity	Piranhas Valley
Annual rainfall (mm)	2023- 733.9 mm 2022- 1,055.5 mm
Distance from the state capital and other economically important municipalities	412 km to João Pessoa and 16.8 km to Sousa

- Community information

Name	Acauã Settlement
Type of community	Family farmers
Location and access	Rural area 4.2 km from the town center on a dirt road
Number of families and people	130 families - 394 people
Main production activities carried out	Agriculture: corn, beans and fruit trees Livestock: cattle
Average property area and % of productive area	15 hectares, with 10% productive area
Land situation	60% have provisional title to the land
Environmental Registration (CAR)	Everyone has done the CAR
Electricity supply: type, number of families served	All families served with single-phase electricity
Main water sources for human consumption and production	Well and individual cisterns. Collectively, they have two 55,000 liter cisterns
Other relevant information	All families have internet access

- Information about the organization

Name	Cooperative of Beekeepers of the Sertão Paraibano - COASPA
Acronym	COASPA
CNPJ	28.812.481/0001-59
Status (active or irregular)	Active
Date of foundation	07/03/2015
President	Francisco Mangueira Soares Peixoto
Address	Acauã Settlement, S/N, Rural Area, Aparecida - PB. ZIP CODE: 58823-000
Location (owned, rented, leased)	Own
Membership numbers (men, women and young people)	82 members - 43 men, 7 of them young, and 39 women, 5 of them young
Have you ever been involved in projects with non-reimbursable resources?	Yes. Banco do Brasil Foundation and Paraíba Rural Sustentável - formerly COOPERAR

## **Main problems, challenges and positive points identified**

### **Access to raw materials:**

Background: Honey production has been growing considerably in COASPA's area of operation, but the production chain faces numerous difficulties in operating professionally in the market.

- Information provided by COAPASA

<b>Características gerais</b>	<b>2022</b>	<b>2023</b>	<b>2024 (previsão)</b>
Nº de famílias envolvidas na produção de mel	50	80	120
Quantidade média de colméias por família	20	30	40
Quantidade média anual de colméias povoadas por família	15	23	35
Quantidade de colheitas de mel/ano	2	3	2
Produtividade média de mel por colméia (kg/ano)	22	25	25
Produção total de mel (kg/ano)	16.500	46.000	105.000

- Main problems:
  - A dispersed production base, with cooperative beekeepers in 15 municipalities;
  - Insufficient primary honey extraction units - Honey Houses - that meet the health standards required by the responsible bodies;
  - Long distances between the apiaries and the few legalized honey houses (only 1 and the warehouse), increasing transport costs;
  - Lack of organization of the productive base to act collectively;
  - There is a strong presence of middlemen who buy the honey, regardless of how it is extracted, paying prices below those practiced by the cooperative;
  - The producer sells the honey at fairs and other markets (improvised extraction);
  - Lack of encouragement from beekeepers and associations to invest in honey houses due to the difficulty and lack of knowledge in accessing the Municipal Inspection Seal (SIM);
  - Predominantly small beekeepers, with limited access to credit.
- Positive points:
  - Production of enough honey in the cooperative's area of operation to meet current and future demand

### **Infrastructure for processing:**

In beekeeping, the first processing usually takes place in honey houses, which are simpler structures and usually focus on primary extraction of the honey and storing it in 25 kg plastic buckets or 300 kg metal drums. The honey warehouse, as well as being able to carry out the primary extraction of the honey, is the place where the standardization stages are carried out, fractionation into retail packaging, etc. Both types of structures must be legalized with the competent bodies (federal, state or municipal) depending on their purpose.

- Main problems:
  - Lack of a network of certified honey houses, strategically located to serve as many beekeepers as possible, with the lowest possible transportation costs;

- There is only one certified honey house in the cooperative's area of operation;
- Lack of a small unit for the production of honeycomb wax to meet the needs of cooperative members at a more affordable cost.
- Positive points:
  - There is an equipped honey warehouse with the seal of the Federal Inspection Service (SIF), which allows products to be marketed nationwide.

#### Marketing:

Currently, the low supply of honey with a guarantee of origin is a major obstacle to the cooperative's commercial expansion, whether it's to increase sales in wholesale, retail or the institutional market with the PNAE. In addition, the small volume of honey processed prevents the development of more robust partnerships with exporting companies (cooperatives or private companies), which depend on larger volumes and constancy of supply to make their operations viable.

- Main problems:
  - Lack of a consolidated brand in the market;
  - Production scale limited to the availability of raw materials with guaranteed origin;
  - Poor distribution channels (logistics);
  - Lack of promotion of the cooperative and its products on the internet;
  - Lack of marketing strategies;
  - Low participation in fairs and events to promote products.
- Positive points:
  - Products certified by the Federal Inspection Service (SIF);
  - Growing market;
  - Final stage of negotiations with a supermarket wholesale chain;
  - Sale of honey in sachets and tubes to the PNAE

#### Cooperative management:

The cooperative's board of directors is committed to meeting the needs of its members, but its management capacity is limited to act in all cooperative dimensions.

#### *Theme 1: Articulation with the countryside*

- Main problems:
  - Lack of active technical assistance;
  - Poor control and recording of information;
  - Little coordination with community associations to support the organizational process.
- Positive points:
  - Credibility and trust between the cooperative and its members.

#### *Topic 2: Administrative, financial and commercial*

- Main problems:
  - Small management team with technical limitations;
  - Lack of IT infrastructure.
- Positive points:
  - Basic knowledge of management processes;
  - Keeps statutory commitments up to date;
  - Internet access.

*Theme 3: Articulation with cooperative members (public policies, TA, social issues, etc.)*

- Main problems:
  - Limited capacity to meet all demands;
- Positive points:
  - It offers technical guidance to cooperative members on access to public policies (PRONAF, Seguro Safra, etc.).
  - Good coordination with banks, unions and municipalities (agriculture department).
  - Encourages the participation of women and young people in activities.

*Theme 4 - Partnerships*

- COASPA has a good institutional relationship with the state government and with most of the municipal managers in its catchment area. Through the municipal agriculture departments, SENAR, SEBRAE and trade unions, it has been able to get some technical support for the development of the production chain.

Environmental issues:

The cooperative seeks to disseminate information about environmental preservation and has generally achieved satisfactory results.

- Main problems:
  - Frequent burning of household waste by some beekeepers;
  - Deforestation by some cooperative and non-cooperative members.
- Positive points:
  - This topic is widely covered in courses, training sessions, field days and TA activities.

## **5 IDENTIFICATION AND CHARACTERIZATION OF ENVIRONMENTAL RISKS AND IMPACTS**

The characterization of the environmental and social impacts is presented below, first with an assessment of the impacts through a matrix and then an analysis of the impacts, including the indication of mitigating or enhancing measures.

According to ESPS 2 to 9, the identification of environmental risks and impacts should take into account risks to nearby communities, as well as environmental risks and risks to ecosystem services and, based on these impacts, appropriate protection measures should be drawn up in the Environmental and Social Management Plan to reduce these risks.

The reference and development scenarios were evaluated to define the Impacts or Effects from the point of view of the critical factors. To this end, the indicators listed in the Socio-Environmental Diagnosis presented in this document were used.

The Impacts or Effects described below were considered to be of a general nature and, for the most part, occur during the Implementation phase of most Procasa II components.

Considering the environmental and social assessment criteria summarized, it can be said that there are large groups of interferences that will generate negative and positive impacts during the planning, implementation and operation phases of the project. It is expected that the operation of the project will have more positive impacts than negative ones.

## 5.1 Concepts

The main concepts used in this chapter are briefly described below.

**Cumulative impacts assessment:** is a tool for assessing the cumulative impacts of the project in combination with impacts from other relevant past, present and reasonably foreseeable developments, as well as unplanned but foreseeable activities that have been enabled by the project and that may occur later or in a different place.

**Cumulative impact:** the additional impact of the project when added to relevant past, present and reasonably foreseeable development impacts, as well as unplanned or foreseen activities allowed by the project that may happen later or in a different location. Cumulative impacts can arise from small individual but significantly collective activities that take place over a period of time. Cumulative impacts are limited to impacts generally recognized as important in science-based concerns and/or concerns of people affected by the project. Examples of cumulative impacts are: additional contribution in the emission of gases in the atmospheric basin; reduction of water flow in watersheds due to multiple withdrawals; increase in sediment volume in watersheds; interference in migratory routes or wildlife displacement; or more congestion and accidents due to increased vehicle traffic on common roads.

**Indirect impact:** is the impact that is not directly caused by the project activity, but contributed to by that activity, often at a distance, or resulting in a complex impact path. Other factors and third parties outside the direct control of the project are also associated factors.

**Impact:** Social and environmental impacts refer to any change, potential or actual, (i) to the physical, natural or cultural environment; and (ii) impacts on the adjacent community and workers resulting from the business activity being supported.

**Social and Environmental Risk:** is the combination of the expected severity of (i) a project that may cause or contribute to a potential adverse environmental and social impact, or (ii) problems that may negatively affect the provision of environmental and social mitigation measures and results; and the probability of one or both of these occurring.



**Environmental Aspect:** According to Sánchez (2020): An element of an organization's activities, products or services that can interact with the environment.

**Activities:** Set of actions necessary for the implementation of a given project. The environmental impacts will be identified by correlating the environmental aspects with the actions.

**Mitigation Hierarchy:** Order of preference in the application of mitigating measures, namely, prevention of adverse environmental impacts first; when they are unavoidable, application of measures to minimize them; when they cannot be totally avoided or minimized, rehabilitation of the affected areas; and finally compensation or offsetting of residual impacts, after prevention, minimization or rehabilitation. The term "mitigation hierarchy" is a tool commonly applied in Environmental Impact Assessments to help manage risks. It includes measures taken to avoid impacts from the outset of development activities and, when this is not possible, to implement measures that minimize, then restore and, as a last resort, offset possible residual adverse impacts.

**Residual Impacts:** these are those related to the project and which may remain after the mitigation hierarchy has been applied, including measures to avoid or minimize them. If compensation is required, a review of all residual impacts discovered through an assessment process must be carried out (IDB, Nov./2015).

**Ecosystem services:** these are the benefits that people, including companies, obtain from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulating services, which are the benefits that people obtain from regulating ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services. Examples are as follows: (i) provisioning services can include food, fresh water, timber, fibers and medicinal plants; (ii) regulating services can include surface water purification, carbon storage and sequestration, climate regulation and protection against natural hazards; (iii) cultural services can include natural areas that are sacred sites and important areas for recreation and aesthetic pleasure; and (iv) supporting services can include soil formation, nutrient cycling and primary production.

**Vulnerable Individuals or Groups:** are people or groups of people who may be more adversely affected by project impacts than others because of characteristics such as disability, health status, indigenous status, gender identity, sexual orientation, religion, race, color, ethnicity, age, language, personal or political opinions, national or social origin, property, birth, economic disadvantage, or social status. Other vulnerable individuals and/or groups may include people or groups in vulnerable situations, including the poor, the landless, the elderly, single-parent families, refugees, internally displaced persons, communities dependent on natural resources or other displaced persons who cannot be protected through national legislation and/or international law.

## 5.2 Impact Assessment Methodology

According to the Environmental and Social Performance Standard - ESPS 1, the Project must establish and maintain a process to identify the environmental and social risks and impacts of the project. Therefore, this analysis of environmental impacts in this document has also been prepared on the basis of the IDB's Environmental and Social Performance Standard 1:

*The process will consider all relevant direct, indirect and cumulative environmental and social risks and impacts of the project, including the issues identified in ESPS 2 to 10 and those likely to be affected by these risks and impacts. The process of identifying risks and impacts will consider, among other things: (i) risks that negative project impacts will fall disproportionately on individuals and groups who, because of their particular circumstances, are in a position of vulnerability; (ii) any prejudice or discrimination assessed against individuals or groups in the provision of access to development resources or project benefits, particularly in the case of those who are in a situation of disadvantage or vulnerability; (iii) those defined by the EHSs; (iv) those related to the health, safety and well-being of workers and communities affected by the project, including associated risk of pandemics, epidemics or the transmission of any other contagious disease caused or exacerbated by project activities; (v) GHG emissions, risks and impacts associated with natural disasters and climate change, caused or exacerbated by the project, including opportunities for adaptation and other potential transboundary effects, such as air pollution or use or pollution of international waterways; (vi) those related to community safety, including the safety of project infrastructure and threats to people's safety from risks of aggravation of individual or community conflicts or violence that could be caused or increased by the project; (vii) adverse social and economic impacts related to the appropriation or restriction of involuntary use of land; (viii) risks and impacts associated with the tenure and use of natural resources and land, including (where relevant) potential impacts of the project on local land use patterns or tenure arrangements, availability of and access to land, food and land security and values, and any other risk related to conflict or contestation of land and natural resources; (ix) any material threat to the protection, conservation, maintenance and restoration of natural habitats and biodiversity; (x) those related to ecosystem services and the use of natural resources, including risks and impacts at watershed and/or transboundary level; (xi) adverse impacts on communities of Indigenous Peoples; (xii) risks to cultural heritage; (xiii) gender-related risks, including exclusion and gender-based violence (sexual exploitation, human trafficking and the spread of sexually transmitted diseases) and potential risks of discrimination based on gender or sexual orientation, among others. (ESPS 1 - Paragraph 9).*

It is important to consider the need for the environmental and social studies to present sufficient information on the possible risks and impacts of the project and for this information to be made available to stakeholders in a timely manner and with relevant information and in easy-to-understand language so that they can take a position. It is also relevant to establish that, according to paragraph 39 of ESPS 1 "The grievance mechanism should be scaled according to the risks and adverse impacts of the project and have the people affected by the project as its main user".

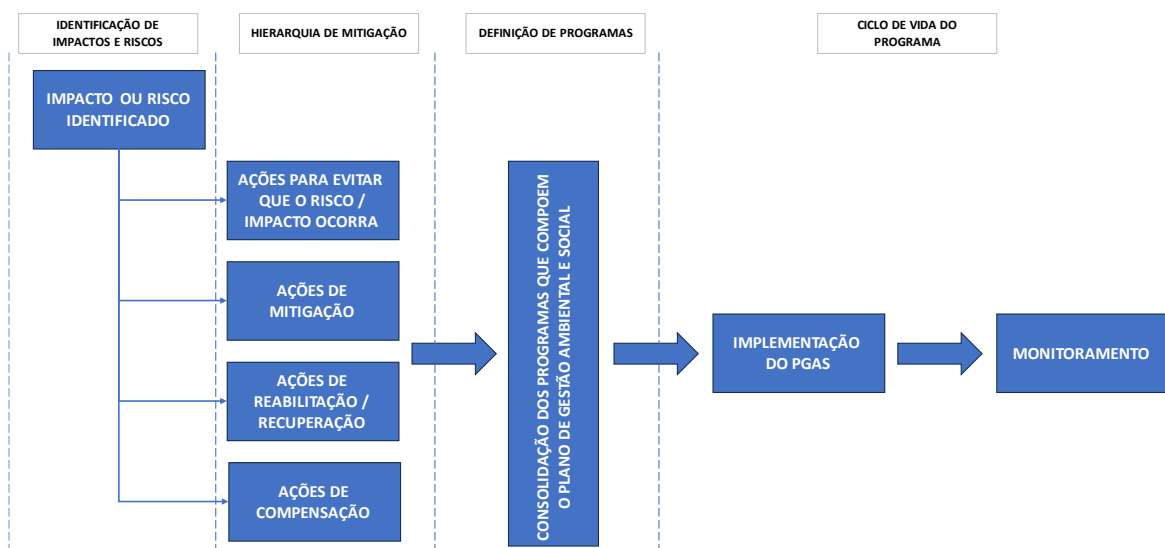
During the analysis of impacts, the mitigation hierarchy approach was also adopted:

- a) anticipate and avoid risks and impacts;
- b) when it is not possible to avoid, minimize or reduce risks and impacts to acceptable levels;
- c) once the risks and impacts have been minimized or reduced, mitigate them;
- d) where residual significant impacts remain, offset or neutralize them, where technically feasible<sup>47</sup> and financially feasible<sup>48</sup>.

Finally, it is important to consider that the social and environmental management instruments to be employed during the project life cycle should be assessed in accordance with the project's risks and impacts, as well as the definition of the measures and actions identified to manage these risks and impacts. These instruments will take into account the experience and capacity of the parties involved in the project, including control bodies, legislation, the communities affected by the project and other stakeholders, and aim to support better social and environmental performance.

Based on the process of identifying and defining the hierarchy of impact mitigation, the programs to be implemented are defined, consolidated in the Environmental and Social Management Plan (PGAS), the aim of which is to present the appropriate environmental and social management for the project, and which must be implemented throughout the life cycle of Procace II, with monitoring being necessary to adequately define the success rates of environmental and social management, or to define corrections to actions, as well as new strategies.

**Figure192 - Impact analysis and definition of the ESMP**



47 Technical feasibility is based on whether the proposed measures and actions can be implemented with commercially available expertise, equipment and materials, taking into account local factors such as climate, geography, demographics, infrastructure, security, governance, capacity and operational reliability.

48 Financial viability is based on relevant financial considerations, including the relative magnitude of the additional cost of adopting such measures and actions compared to the investment, operation and maintenance costs of the project, and whether this additional cost could make the project unviable for the Borrower.

Elaboration: consultancy, 2023.

### 5.3 Identifying impacts

The identification of impacts was based on the description of Proc case II sub-projects, as presented in Chapter 2.

The following table shows the attributes defined in the impact assessment, followed by a matrix of the most relevant impacts identified and their classification according to the selected attributes. It is also anticipated that the mitigation, control and monitoring measures or potentialization of the impacts will be presented.

**Table 193 - Description of Impact Attributes**

ATTRIBUTE	DESCRIPTION
<b>Nature</b>	Nature can be <b>Negative</b> (when it generates adverse effects) or <b>Positive</b> (when it generates beneficial effects).
<b>Spatiality</b>	Form of impact repercussions: <b>Localized</b> (spatializable) and <b>Dispersed</b> (non-spatializable).
<b>Probability</b>	<b>Certain, Probable</b> and <b>Possible</b> impact, depending on whether they can be avoided or are considered dependent on other factors.
<b>Occurrence</b>	Time for the impact to occur: <b>Short-term, Medium-term</b> or <b>Long-term</b> .
<b>Duration</b>	The impact can be <b>Temporary</b> (when it only occurs during one or more phases of the project) or <b>Permanent</b> (when the impact lasts).
<b>Reversibility</b>	If the intervention ceases, the environmental conditions return to the previous situation ( <b>Reversible</b> ) or not ( <b>Irreversible</b> ).

Source: Consultancy.

It is important to note that there are two components to be assessed in terms of environmental and social impacts: Component 1 - Resilient Production Systems and Environmental Recovery and Component 2 - Water security and rural sanitation. These components were analyzed together in the matrix.

### 5.3.1 Matrix for identifying environmental and social impacts

Impact		Impacting Cause / Action	Phase	Nature	Spatiality	Probability	Occurrence	Duration	Reversibility	Program / Measure
1	Generating expectations in the population about the project	Circulation of unofficial or incomplete information about the project	Elaboration of Study, Project and dissemination of Project	Adverse	Localized	Right	Medium Term	Temporary	Reversible	Stakeholder Communication, Consultation and Engagement Plan MQR implementation
2	Changes in water quality, affecting aquatic habitats and water resources by carrying soil and other materials into nearby rivers	Movement and handling of soils in agricultural activities and earthworks, cut and fill. exposed soils	Implementation phase	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Water quality control
3	Contamination of soil and water resources - from civil works .	Production of unserviceable soil from excavation, unused inputs and materials and leftover materials from civil works with inadequate waste disposal	Phases of implementation of social structures and technologies	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Waste management from the installation of structures
4	People hit by cars	Circulation of project vehicles on the roads used by the population between their origin and destination.	Project implementation phases	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Traffic Program and Stakeholder Communication, Consultation and Engagement Plan
5	Proliferation of vector-borne diseases	Accumulation of water in poorly drained areas presence of organic matter, such as food waste, which favors the development of micro and macro vectors	Project implementation phases	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Vector and Disease Control
6	Accidents at work	Agricultural activities with hazardous levels and associated risks (use of cutting tools, handling of species and animals, risk of being run over on roads, etc.)	Project implementation phases	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Labor Management
7	Increase in gender-based violence	Presence and movement of people (workers) not belonging to the community	Project implementation phases	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Prevention and care of gender-based violence
8	Proliferation of new pests due to climate change.	Implementation of production projects associated with altering the cycles of temperature, humidity, rainfall and other climate factors, providing better environments for the uncontrolled reproduction of pests.	The entire Program Life Cycle, in the application of RIPs	Adverse	Localized	Possible	Long term	Permanent	Reversible	Disaster and Climate Change Risk Management Plan

Impact	Impacting Cause / Action	Phase	Nature	Spatiality	Probability	Occurrence	Duration	Reversibility	Program / Measure	
9	Non-adherence to project resources	Distorted information or misunderstanding on the part of the community about possible bureaucracies, requirements and practices required for participation in the Project	The entire life cycle of the program	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Stakeholder Communication, Consultation and Engagement Plan
10	Engaging the communities covered by the project in better agro-ecological practices	Understanding and convergence of communities to the Project's practices	The entire Program Life Cycle, in the application of PIRs and NPs	Positive	Localized	Right	Medium Term	Permanent	Irreversible	Stakeholder Communication, Consultation and Engagement Plan
11	Loss of production, production systems and/or equipment due to climatic events, mainly related to excess or lack of rainfall.	Unexpected extreme weather events	The entire Program Life Cycle, in the application of RIPs	Adverse	Localized	Possible	Long term	Permanent	Reversible	Disaster and Climate Change Risk Management Plan
12	Soil improvement	Community adherence to best practices and solutions on agricultural organic waste with Use of plant waste from mowing, pruning, trimming or thinning as mulch to protect plants and conserve soil moisture, increasing the organic matter content in the soil	The entire life cycle of the program, especially during the maintenance of the agroforestry systems.	Positive	Localized	Right	Medium Term	Permanent	Irreversible	Production waste management
13	Soil and water pollution (surface and/or groundwater) - from the operation of production systems	Inadequate disposal of packaging, including pesticide packaging	The entire life cycle of the program, in the application of Community Development Plans	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Production waste management and Management and control plan for contaminating products
		Inadequate disposal of bagasse and other solids from production and processing								
		Use of restricted, prohibited and banned products - Stockholm Convention								
		Accidental spillage of chemical inputs or discharge of untreated effluent								
14	Increased GHG emissions from the use of combustion engines and/or the burning of wood or garbage	Usual practices of burning crop residues (branches, garbage, etc.)	Implementation of Community Productive Systems	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Energy Efficiency in Projects and Installations
15	Pressure on natural areas and habitats	Increase in vegetation suppression for use in wood-burning stoves	Implementation of Community Productive Systems	Adverse	Scattered	Possible	Medium Term	Permanent	Irreversible	Management and restoration of natural habitats
		expansion of planting areas not foreseen in the project and in non-sustainable systems								
		greater demand for water using local sources for production or irrigation								

Impact	Impacting Cause / Action	Phase	Nature	Spatiality	Probability	Occurrence	Duration	Reversibility	Program / Measure
16	Changes in gene flow altering the pattern of production and ecosystems in order to promote loss and resilience of ecosystems and production systems	Movement of people between areas with unwanted species	Adverse	Scattered	Possible	Medium Term	Permanent	Irreversible	Management and restoration of natural habitats
		Insertion of invasive exotic species when planting reforestation seedlings and for production							
		Compromised phytosanitary status of seeds and seedlings							
17	Increased gender-based violence due to women's greater engagement	Implementation of PIR and PN projects	Adverse	Scattered	Possible	Medium Term	Temporary	Reversible	Prevention and care of gender-based violence
18	Improving environmental quality and ecosystem flows by restoring modified habitats, increasing vegetation and forming ecological corridors	Implementing reforestation projects and agro-ecological systems	Positive	Localized	Right	Medium Term	Permanent	Irreversible	Management and restoration of natural habitats
19	Interruption of services due to lack of power, water, telephone, internet	Unplanned power outage and/or interruption of other essential services	Adverse	Localized	Possible	Medium Term	Temporary	Reversible	Energy efficiency and sustainable sources for energy generation in projects and installations Control and Mitigation of Temporary Social and Economic Impacts
20	Security and reduction of costs with the implementation of energy generation and supply infrastructure independent of the public system and based on renewable and available sources	The use of photovoltaics to supply electricity.	Positive	Localized	Right	Medium Term	Permanent	Irreversible	Energy efficiency and sustainable sources for energy generation in projects and installations
21	Access to adequate sanitation in communities	Implementation and operation of adequate sanitation systems	Positive	Scattered	Right	Medium Term	Permanent	Irreversible	Water and effluent quality monitoring
22	Increased security and stability in people's lives by increasing resilience to the risks of disasters and climate change, improving quality of life and increasing income, adding value to the production chain, access to the market and the efficiency of production processes.	Achievement of the results defined in the Project with the implementation and operation of the systems and Plans	Positive	Scattered	Right	Medium Term	Permanent	Irreversible	Stakeholder Communication, Consultation and Engagement Plan
23	Increased spending by families due to the need to pay fees to access the Association's resources from the Project (such as maintenance fees for the sanitation system or industrial kitchens), which can have a significant effect on low-income family budgets, affecting their budgetary capacity and even causing the Project to run out of steam.	The need for financial resources to fund the operation and maintenance of systems and associations.	Adverse	Scattered	Possible	Long term	Permanent	Irreversible	Stakeholder Communication, Consultation and Engagement Plan
24	Alteration or destruction of paleontological sites	Implementation of social technology associated with stone tanks	Adverse	Localized	Possible	Short Term	Permanent	Irreversible	Cultural Heritage and Fortuitous Finds Protection Program

### 5.3.2 Environmental and Social Impact Assessment Sheets

The summary sheets of the environmental and social impacts identified are presented below. These sheets contain an analysis of the impacts, their sources, the aspects and activities involved and the mitigation measures, following an appropriate mitigation hierarchy for each impact identified, in accordance with the degree of importance of each impact.



**Impact 01 - Generation of expectations in the population about the project**

Impact 01	
Generating expectations in the population about the project	
<b>Impacting Cause / Action</b>	Circulation of unofficial or incomplete information about the project
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Stakeholder Communication, Consultation and Engagement Plan Implementation of the Complaints and Redress Mechanism
<b>Qualitative aspects</b>	<p>Expectations of where the projects will take place are expected to increase, and it is estimated that expectations linked to the effects of both the implementation of the projects and their entry into operation will increase.</p> <p>At the same time, there may be an increase in the ability of groups (both in favour and against the project) to mobilize, as the project moves beyond the plane of intentions and promises and begins to become a fact and a goal. Also at the local level, considering the existing situation where the economy is fragile with high unemployment rates, there may also be a condensation of expectations of obtaining opportunities.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>It is considered that this impact cannot be avoided, to some degree people will always expect it.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>Social Communication actions provided for in the Communication, Consultation and Stakeholder Engagement Plan, described in the ESMP, which should be adopted even before the start of the works in order to inform the general public and the population closest to the highways about the project, as well as relevant issues arising from its implementation and operation. These actions must be maintained throughout the project's life cycle</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>Critical evaluation of social communication actions and the Engagement Plan, with emphasis on the application of measures already carried out or the implementation of new communication actions</li> </ul>

**Impact 02 - Alteration in water quality affecting aquatic habitats and water resources by carrying soil and other materials into nearby rivers**

Impact 02	
Changes in water quality, affecting aquatic habitats and water resources by carrying soil and other materials into nearby rivers	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Movement and handling of soils in agricultural activities and earthworks, cuttings and embankments.</li> <li>• exposed soils</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Water quality control
<b>Qualitative aspects</b>	Agricultural activities and interventions to set up structures or manage the soil can pose a risk of carrying and contaminating water resources.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Contaminating materials handled at project sites must be stored in appropriate locations.</li> <li>• Production systems must be set up respecting the local geomorphology and geology, including strengthening the soil and following contour lines in agriculture.</li> <li>• The use of chemical inputs such as pesticides must be curbed.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• If contaminating material leaks, rapid action measures must be taken using sawdust or other material to contain and prevent the leak from spreading, and the material used (considered contaminated) must then be disposed of properly.</li> <li>• In the event of erosion, the soil should be remediated and the siltation of downstream water bodies monitored.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• If areas of degradation are identified (e.g. a water channel with siltation or chemicals), actions must be taken to rehabilitate the areas, such as channel cleaning, desilting, removal of contaminated soil, scraping of concrete cream, among others.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• There are no problems, however - any problems that may infringe on environmental licenses must be reported to the environmental agency, also showing what measures have been taken to correct the problem identified, as well as the improvements to the environmental and social management system that have been implemented to prevent such situations from recurring. In this case, the environmental agency may impose fines and additional compensation - which must be duly complied with.</li> </ul>

**Impact 03 - Contamination of soil and water resources - from civil works**

<b>Impact 03</b>	
<b>Contamination of soil and water resources - from civil works</b>	
<b>Impacting Cause / Action</b>	Production of unserviceable soil from excavation, unused inputs and materials and leftover materials from civil works with inadequate waste disposal
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Waste management
<b>Qualitative aspects</b>	Construction work related to various structures, whether in production processes or water or sewage treatment/reuse systems, has the potential to generate construction waste, even on a small scale. This material should be disposed of according to its nature, in suitable locations, and should not remain in the areas of origin.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• This impact cannot be avoided, as waste will always be generated.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• The waste must be sorted, as set out in the ESMP, in order to provide for the sorting of waste between the different classes, and also which waste requires exclusive separation;</li> <li>• After sorting, packaging must be carried out to ensure that the waste is separated, as planned in the segregation stage, and to facilitate transportation from the construction site to treatment and disposal;</li> <li>• For transport, logistics must be drawn up, providing suitable access, timetables and control of entry and exit of the vehicles that will remove the properly packaged waste, in order to combat the excessive accumulation of waste, improving local organization;</li> <li>• Finally, waste treatment should involve actions aimed at reducing the quantity or polluting potential of solid waste, either by preventing the disposal of waste in an inappropriate place or by transforming it into inert material.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• In the event of inappropriate waste disposal, debris and waste must be removed immediately and properly disposed of in landfills and licensed treatment centers.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 04 - People hit by cars**

Impact 04	
People hit by cars due to the increase in traffic on the roads in the project area	
<b>Impacting Cause / Action</b>	Circulation of vehicles on the roads used by the population between their origin and destination
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Traffic Program Stakeholder Communication, Consultation and Engagement Plan
<b>Qualitative aspects</b>	During the implementation phases of the projects, an increase in the flow of light vehicles is expected, and some heavy vehicles may also circulate. It should be borne in mind that these areas are often located in places where there is a natural movement of local residents and that in many communities there are a significant number of children who are often attracted to construction sites out of curiosity. On the other hand, project workers are also subject to accidents from moving vehicles.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Daytime and nighttime signs;</li> <li>• Speed control;</li> <li>• Courses on defensive driving and good driving practices for drivers and machine operators (TA, contractors, UGP/Procace);</li> <li>• Fencing and restricting access to deployment areas when appropriate.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• All drivers must have knowledge of first aid and how to call emergency services in the event of accidents (TA, contractors, UGP/Procace).</li> <li>• All drivers must receive defensive driving training (TA, contractors, UGP/Procace).</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>

### **Impact 05 - Proliferation of vector-borne diseases**

Impact 05	
Proliferation of vector-borne diseases	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Accumulation of water in poorly drained areas</li> <li>• Presence of organic matter, such as food waste, which favors the development of micro and macro vectors</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Vector and disease control
<b>Qualitative aspects</b>	<p>Different situations can create conditions for the development of disease-transmitting vectors, which can affect public health. These situations are related to the stagnation of volumes of water or the presence of organic matter, such as food waste, which favors the development of micro and macro vectors.</p> <p>The main water-borne, oral diseases are: typhoid fever (<i>Salmonella typhi</i>), paratyphoid fever (<i>Salmonella paratyphi</i>), cholera (<i>Vibrio cholerae</i>), bacillary dysentery (Shigella), amoebic dysentery (<i>Entamoeba histolytica</i>), infectious hepatitis (viruses) and others. In the case of direct contact, the most important and widespread cutaneous-mucosal disease is schistosomiasis (<i>Schistosoma mansoni</i>), which is one of the most serious public health problems in Brazil.</p> <p>In addition to waterborne diseases, water can be a habitat for the <i>Aedes aegypti</i> mosquito and other vectors that transmit arboviruses: Dengue, Zika and Chikungunya.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Drainage of water accumulated on the surface;</li> <li>• Cleaning the workplace;</li> <li>• Monitoring and control of diseases and vectors.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Lectures should be given to workers/producers.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• In the event of the formation of areas with environments conducive to the proliferation of vectors, the area must be rehabilitated by removing the environment and/or implementing suitable systems to prevent the formation of vectors.</li> <li>• In the event of endemic situations being identified, a process of assessing the health of producers/workers should be initiated to identify and refer the sick to appropriate treatment</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

### **Impact 06 - Accidents at work**

Impact 12	
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Accidents at work	
<b>Impacting Cause / Action</b>	Agricultural production activities and the construction of structures can contain levels of danger and associated risks (use of cutting tools, machinery and equipment, presses, accidents with venomous animals, etc.)
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Labor Management Program
<b>Qualitative aspects</b>	During the activities there is a risk of accidents to the workers/producers, and these accidents are directly related to the activities.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Workers/producers should receive adequate information on health and safety at work;</li> <li>• Prophylactic and reinforcement actions, such as safety dialogues, must be observed;</li> <li>• All workers/producers must be provided with PPE, trained in its proper use and charged for its use;</li> <li>• The appropriate New Regulations for the jobs to be performed by the workers must be observed.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Any accident, depending on the degree of seriousness, must stop the activity so that attention can be paid to the occurrence;</li> <li>• It is important that each community has a plan of action (what to do, what not to do, who to warn, where to take the injured) to reduce reaction times.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

### **Impact 07 - Increase in gender-based violence**

Impact 07	
Increase in gender-based violence	
<b>Impacting Cause / Action</b>	Presence and circulation of people (project workers) not belonging to the community
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Prevention and care of gender-based violence
<b>Qualitative aspects</b>	As the flow of workers increases, so can the risk of violence and harassment. These risks are stronger when it comes to women and adolescents, who are often more subject to this impact due to historical and social reasons. The objectification of women ends up making this impact often imperceptible to construction workers and even their superiors.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Project workers must be made aware of this impact, and must also receive guidance on the set of rules that must be followed when dealing with the community in general (code of conduct) and specifically on the issue of sexual harassment and abuse, as well as violence.</li> <li>• It must be made clear to everyone that no attitude will be tolerated and that inaction by managers will be punished, including the possible dismissal of the worker(s) involved.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Measures to care for and protect victims.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Actions to restore the emotional state and health of the victims;</li> <li>• Assessment of cases of harassment or violence with corrective or punitive measures when necessary.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>

**Impact 08 - Proliferation of new pests due to climate change**

Impact 08	
Proliferation of new pests due to climate change	
<b>Impacting Cause / Action</b>	Implementation of production projects associated with altering the cycles of temperature, humidity, rainfall and other climate factors, providing better environments for the uncontrolled reproduction of pests.
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Disaster and Climate Change Risk Management Plan
<b>Qualitative aspects</b>	Growing areas with a low diversity of species, coupled with climate change, could lead to a lack of control and a proliferation of pests in the plantations. This could be due to the appearance of pests that did not previously occur in these environments or pests that already existed but were in balance with the environment.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• The controls indicated in the PIR Investment Plans must be applied.</li> <li>• Periodic monitoring of the appearance of herbivorous insects or plant diseases (PIR) should be carried out.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• If pests are found, measures should be taken using technical guidelines. Agroecological practices based on the manufacture and use of bio-slurries, antagonistic or companion plants or biocontrol agents will be disseminated.</li> <li>• diseased or pest-infested materials should be discarded so as not to spread the pest to other natural areas and/or crops.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• In the event of pest proliferation, measures must be taken to control dispersal and isolate contaminated crops;</li> <li>• In addition, sanitary measures must be taken to combat pests and normalize the agro-ecological balance.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>



**Impact 09 - Non-adherence to project resources**

Impact 09	
Non-adherence to project resources	
<b>Impacting Cause / Action</b>	Distorted information or misunderstanding on the part of the community about possible bureaucracies, requirements and practices required for participation in the Project
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Stakeholder Communication, Consultation and Engagement Plan
<b>Qualitative aspects</b>	The project presents a set of innovations, practices and guidelines for developing production in a sustainable way. It also presents actions to improve water and sewage quality. In certain respects, the Project creates some necessary and beneficial bureaucracy to improve controls and build ecological use and production systems. Such innovations can generate fear on the part of the communities, reducing participation and adherence to the projects.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>It is considered that this impact cannot be avoided, and that to some degree it may occur.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>Social Communication Actions from the Stakeholder Engagement Plan that should be adopted even before the start of the projects in order to inform the general public and the beneficiary population about the project, as well as relevant issues arising from its implementation and operation.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>Apply actions and measures to clarify and raise awareness among the community</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>Critical evaluation of social communication actions and the Engagement Plan, with emphasis on the application of measures already carried out or the implementation of new communication actions</li> </ul>

**Impact 10 - Engaging the communities covered by the project in better agro-ecological practices**

Impact 10	
Engaging the communities covered by the project in better agro-ecological practices	
<b>Impacting Cause / Action</b>	Understanding and convergence of communities to the Project's practices
<b>Nature</b>	Positive
<b>ESMP Associated Program</b>	Stakeholder Communication, Consultation and Engagement Plan
<b>Qualitative aspects</b>	Through TA, agroecological practices will be introduced, with a view to transition, aimed at reducing the use of chemical pesticides and synthetic fertilizers and replacing them with natural inputs (biocaldas, composts, bio-defenders, mechanized mowing, etc.) with expected positive effects on the soil, water and marketed production.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 11 - Loss of production, production systems and/or equipment due to climatic events, mainly related to excess or lack of rainfall**

Impact 11	
Loss of production, production systems and/or equipment due to climatic events, mainly related to excess or lack of rainfall	
<b>Impacting Cause / Action</b>	Unexpected extreme weather events
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Disaster and Climate Change Risk Management Plan
<b>Qualitative aspects</b>	Situations involving more extreme climatic events can profoundly affect production (for example, the death of livestock due to water stress), while flooded areas that have been occupied could suffer from excessive rainfall, putting production at risk, as well as the equipment and structures needed for production systems.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• When planning areas for cultivation or the installation of structures, suitable location options and construction and installation methods should be studied, avoiding areas that are more prone to flooding or have unstable terrain.</li> <li>• The need for access to water and its adequate storage for periods of drought must be observed.</li> <li>• ATER should be involved to help with the processes of choosing areas and managing resources and the land, which could bring new perspectives and technical training.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• It is recommended that an Action Plan be drawn up in the event of situations that threaten production and/or structures, so that in the event of climatic events the communities are aware of what can be done to minimize this impact.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

## **Impact 12 - Soil improvement**

<b>Impact 12</b>	
<b>Soil improvement</b>	
<b>Impacting Cause / Action</b>	Community adherence to best practices and solutions on agricultural organic waste with Use of plant waste from mowing, pruning, trimming or thinning as mulch to protect plants and conserve soil moisture, increasing the organic matter content in the soil
<b>Nature</b>	Positive
<b>ESMP Associated Program</b>	Production waste management
<b>Qualitative aspects</b>	<p>The use of plant residues is an important agroecological practice for Agroforestry Systems, as it helps to maintain moisture in the soil, reduces leaching processes and the need for soil fertilization. It also reduces the excessive appearance of spontaneous plants.</p> <p>On the other hand, it makes use of pruning waste, reducing production costs.</p> <p>This action should be carried out under the guidance of TA technicians to avoid using material contaminated by pests and in a way that brings good results.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 13 - Soil and water pollution (surface and/or groundwater) - from production system operation activities**

<b>Impact 13</b>	
<b>Soil and water pollution (surface and/or groundwater) - from the operation of production systems</b>	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Inadequate disposal of packaging, including pesticide packaging</li> <li>• Inadequate disposal of bagasse and other solids from production and processing</li> <li>• Use of restricted, prohibited and banned products - Stockholm Convention</li> <li>• Accidental spillage of chemical inputs or discharge of untreated effluent</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	<ul style="list-style-type: none"> <li>• Production waste management</li> <li>• Management and control of contaminating products</li> </ul>
<b>Qualitative aspects</b>	<p>There is a risk of improper disposal of packaging and other materials, especially plastics. This material accumulates in natural environments, remaining in action for hundreds of years. In this respect, microplastics also deserve attention, as they are often consumed by fish and other animals, remaining in their systems and causing various health problems in entire populations.</p> <p>There is also the risk of improper disposal of pesticide and chemical fertilizer packaging, which has an even greater impact due to the residues in these packages.</p> <p>Production and processing can generate production waste, bagasse and effluents, while some of this material can be treated easily (e.g. composting peels and stalks). Others may be more complex to treat (e.g. leftovers from pressing cassava dough, which can be rich in cyanide).</p> <p>The production and use of community kitchens will generate effluents, which must be disposed of properly, avoiding contamination of the environment with liquid effluents which, unlike solid production effluents, are more complex to store and easily dispersed in the environment.</p> <p>One example is Manipueira, a cyanide-containing liquid produced during the pressing of cassava dough, which has a high polluting potential and is often disposed of directly into the soil, being absorbed and apparently "disappearing".</p> <p>This impact is also related to the risk of using products that are restricted, prohibited or banned by the Stockholm Convention - to which Brazil is a signatory - in this case with a focus on Persistent Organic Pollutants - POPs. It is important to consider that the use of any substance of this nature could have major local impacts on people's health and local ecosystems, and should be a point of attention in the project.</p> <p>Finally, improper handling of chemical inputs or their uncontrolled release can lead to water and soil contamination, which can affect environments and pose risks to people and animals - both farmed and wild.</p>

<p><b>Actions to Avoid the Impact</b></p>	<ul style="list-style-type: none"> <li>• One of the main actions is related to proper communication, indicating the need to properly dispose of waste and packaging.</li> <li>• In the case of pesticide packaging, TA should be involved to discuss best practices, including taking the opportunity to talk about the harm pesticides can cause, how to store them properly, the need to triple-wash the packaging, render it unusable and hand it over to appropriate collection points.</li> <li>• One of the project's actions involves reducing the use of chemical pesticides and switching to natural pesticides, which will help to reduce part of this impact.</li> <li>• It is suggested that monitoring be carried out in the communities to check whether the packaging is being disposed of inappropriately or not.</li> <li>• It is important that contaminating effluents are not directed to the sewage treatment system, as these structures are not prepared for this.</li> <li>• Oily effluents should not be mixed with non-oily effluents and should be disposed of appropriately, possibly being used for the production of handmade soap that can be used by the community.</li> <li>• Inspection actions should also be carried out in conjunction with other official bodies and production monitoring. In general, it is recommended that the actions are always educational in nature, so as not to create an atmosphere of mistrust between the community and the TA technicians, which has the potential to affect the project.</li> <li>• All chemicals/hazardous products must be properly stored in environments that can contain leaks.</li> <li>• Machinery and equipment must be properly filled with diesel or other fuel in waterproofed areas or using safety trays, avoiding contact with the ground.</li> <li>• Any spillage should be cleaned up, simple actions such as using sawdust or sand, which should be properly packed afterwards, can help in the cleaning process.</li> <li>• Under no circumstances should contaminating effluents be discharged directly onto the ground or into watercourses.</li> <li>• It is recommended that appropriate communication and environmental and health education present a range of information on the contaminants common in plantations and production, as well as their effect on biota and people's health, in order to raise awareness and provide knowledge to communities on how to deal with each contaminant appropriately.</li> </ul>
<p><b>Actions to Minimize Impact</b></p>	<ul style="list-style-type: none"> <li>• It is important for TA to show communities the viable alternatives for disposing of waste properly, depending on its nature.</li> <li>• If packaging is still improperly disposed of, it is important that the community is mobilized, as far as possible, to take action such as collecting packaging that has been thrown</li> </ul>

	<p>into the environment. Such action can help spread best practices, reducing this impact.</p> <ul style="list-style-type: none"> <li>• It is important to segregate waste in kitchens and processing areas, avoiding, for example, putting organic waste together with material that can be recycled (plastics, long-life packaging, etc.).</li> <li>• Alternatives for production waste should be considered, including the use, where possible, of leftover stalks and peels for preparing dishes and food.</li> <li>• For organic material that cannot be reused in the units, sustainable options should be considered, such as animal feed, fertilizer, natural pesticides, among others.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 14 - Increased GHG emissions due to the use of combustion engines and/or the burning of wood or garbage**

Impact 14	
Increased GHG emissions from the use of combustion engines and/or the burning of wood or garbage	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Use of combustion machinery, equipment and vehicles during the implementation phase</li> <li>• Usual practices of burning crop residues (branches, garbage, etc.)</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Energy Efficiency in Projects and Installations
<b>Qualitative aspects</b>	This impact is associated with the use of combustion engines, industrial ovens and the custom of burning the remains of production by rural producers (burning wood, pruning remains, crop remains and garbage in communities).
<b>Actions to Avoid Impact</b>	<ul style="list-style-type: none"> <li>• One of the main actions is related to appropriate communication, voting for the reduction of gas emissions and the abandonment of burning actions.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Monitoring actions are recommended in the communities to check engines, which must be properly regulated, using the Ringelmann Scale for control (less than or equal to standard no. 2 - 40%), in the operating phase it applies to diesel generators.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• If the equipment is not up to standard, it must be adjusted and maintained.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>



**Impact 15 - Pressure on natural areas and habitats**

Impact 15	
Pressure on natural areas and habitats	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Increased suppression of vegetation</li> <li>• Expansion of planting areas not foreseen in the project and in non-sustainable systems</li> <li>• Greater demand for water using local sources for production or irrigation</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Management and restoration of natural habitats
<b>Qualitative aspects</b>	With the progress of the project, the expansion of structures and improvements in production, there could be pressure on areas that are still natural and specific habitats. This pressure would materialize through the need for new areas (expansion of planting areas), indiscriminate collection of plants, hunting, greater demand for water, among others.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• There should be good communication with the communities, with actions to promote the preservation of natural environments, care for water, interaction of agroforestry systems with the natural surroundings, among others.</li> <li>• The project must monitor these situations in order to identify the main problems and define the best actions to take, including taking into account the possible need for extensions</li> <li>• ATER teams should be involved in helping communities to find the best solutions to the needs and demands that may arise.</li> <li>• It should also be pointed out that indiscriminate actions in natural environments can be classified as environmental crimes.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• In the case of situations that damage natural environments or cause imbalances, solutions should be applied together with the communities. Such situations should be used to show the problems that can be triggered.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Recovery of natural environments affected indiscriminately and not foreseen by developments related to project implementation actions</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 16 - Changes in gene flow altering the pattern of production and ecosystems in such a way as to promote loss and resilience of ecosystems and production systems**

Impact 16	
Changes in gene flow altering the pattern of production and ecosystems in order to promote loss and resilience of ecosystems and production systems	
<b>Impacting Cause / Action</b>	<ul style="list-style-type: none"> <li>• Movement of people between areas with unwanted or invasive species.</li> <li>• Insertion of invasive exotic species when planting reforestation seedlings and for production.</li> <li>• Compromised phytosanitary status of seeds and seedlings.</li> </ul>
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Management and restoration of natural habitats
<b>Qualitative aspects</b>	<p>There is the possibility of an impact from the uncontrolled introduction of invasive alien species into communities. This could be due to a lack of knowledge about the subject and/or economic-productive reasons, when a risk is taken for possible monetary gain.</p> <p>On the other hand, pests can be introduced with the purchase of seedlings or seeds without an analysis of the good phytosanitary state of the species.</p> <p>It can also trigger the proliferation of species (animal and plant) through dispersal or lack of control and inadequate management.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• One of the main actions is related to appropriate communication, indicating the need to be careful with the insertion of invasive exotic species or pests, which can jeopardize the entire production or the SAF, generating great losses for the communities and the environment.</li> <li>• Seedlings and seeds purchased for planting in the SAF should be obtained <b>from</b> nurseries that have a RENASEM certificate<sup>49</sup>, accredited farmhouses or research centers. TA technicians should guide this process.</li> <li>• The management of fauna species, such as bees, also requires care to avoid unwanted proliferation if the species escapes.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• In the case of the introduction of pests and invasive exotic species, solutions should be implemented together with the communities to control and reduce them (species suppression, use of wood, for example). These situations should be used to illustrate the problems that can be triggered.</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

<sup>49</sup> National Register of Seeds and Seedlings.

***Impact 17 - Increased gender-based violence due to women's greater engagement***

Impact 17	
Increased gender-based violence due to women's greater engagement	
<b>Impacting Cause / Action</b>	Women's economic and social empowerment giving greater prominence to gender in the community
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Prevention and care of gender-based violence
<b>Qualitative aspects</b>	<p>As women become more involved in environments previously dominated by men or which bring greater financial independence, there may be an increase in gender-based violence, as many men may see this as a rupture in a balance which places them in a position of domination.</p> <p>On the other hand, the increase in women's self-esteem and the perception of their latent capacities could bring to the fore the need to take a stand in the family environment and demand their rights in the face of their new achievements.</p> <p>Such situations end up bringing about the need for a protection and support network, which will often also involve the protection of children.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• The project should promote actions to promote gender equality, highlighting rights and inclusiveness linked to the Communication Program.</li> <li>• It is recommended that the complaints management program provide a channel aimed at supporting and gathering information on situations of violence, and that Procace II should not be limited to informing other official channels.</li> <li>• On the other hand, official channels should be disclosed whenever possible as part of the project's communications.</li> <li>• It is important that a survey is carried out to map regions and/or communities where there is a greater possibility of violence.</li> <li>• There should be monitoring and channels that women can use to report situations of violence. All complaints must be taken seriously and investigated.</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 18 - Improving environmental quality and ecosystem flows by restoring modified habitats, increasing vegetation and forming ecological corridors**

Impact 18	
Improving environmental quality and ecosystem flows by restoring modified habitats, increasing vegetation and forming ecological corridors	
<b>Impacting Cause / Action</b>	Implementing reforestation projects and agro-ecological systems
<b>Nature</b>	Positive
<b>ESMP Associated Program</b>	Management and restoration of natural habitats
<b>Qualitative aspects</b>	<p>With the recovery of currently degraded areas and the increase in species, there will be an improvement in environmental quality and the improvement and re-establishment of ecosystem and gene flows with the restructuring of local ecological corridor systems.</p> <p>To this end, the Resilient Investment Plan (PIR) involving Agroforestry Systems provides for care actions involving the use of natural pesticides, companion plants and other methods aimed at the proper development of agroforestry, as well as pest control that does not involve the use of chemical products.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

***Impact 19 - Interruption of services due to lack of power, water, telephony, internet***

Impact 19	
Interruption of services due to lack of power, water, telephony, internet	
<b>Impacting Cause / Action</b>	Unplanned power outage and/or interruption of other essential services
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Energy Efficiency in Projects and Installations Control and Mitigation of Temporary Social and Economic Impacts
<b>Qualitative aspects</b>	The lack of power and other essential services, such as water, telephony and internet, could interrupt production services, impacting the daily lives of communities.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Systems that use more efficient and safer energy sources;</li> <li>• Maintenance of local supply systems, including pruning trees when necessary, especially before rainy periods or strong gusts of wind.</li> <li>• Attention and support in restoring interrupted essential services</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Restore the supply of essential services by liaising with the concessionaire or public body and supporting the restoration of services.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 20 - Security and reduction of expenses with the implementation of energy generation and supply infrastructure independent of the public system and based on renewable and available sources**

Impact 20	
<b>Security and reduction of costs with the implementation of energy generation and supply infrastructure independent of the public system and based on renewable and available sources</b>	
<b>Impacting Cause / Action</b>	The use of photovoltaics to supply electricity.
<b>Nature</b>	Positive (measures should be implemented to avoid negative impacts)
<b>ESMP Associated Program</b>	Energy Efficiency in Projects and Installations
<b>Qualitative aspects</b>	The use of photovoltaics to supply electricity for production has several advantages, such as lower operating costs for the system and greater stability, since the energy is produced locally and does not depend on transmission systems. Despite this, it is important to take into account the possibility of labor liabilities and human rights violations in the supply chain for this type of material.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Seek out national suppliers and make it possible to monitor the supply chain whenever possible;</li> <li>• Monitoring and investigating the supply chain in order to find evidence to ensure greater certainty about the integrity and behavior of suppliers;</li> <li>• Apply a code of conduct and declaration of commitment to suppliers in the supply chain, including clauses on human rights and the fight against child labor or labor analogous to slavery (modern slavery).</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• If impact-related situations are identified, human rights protection measures for workers and punitive/corrective measures for employers must be applied.</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 21 - Access to adequate sanitation in communities**

Impact 21	
Access to adequate sanitation in communities	
<b>Impacting Cause / Action</b>	Implementation and operation of adequate sanitation systems
<b>Nature</b>	Positive
<b>ESMP Associated Program</b>	Water and effluent quality monitoring
<b>Qualitative aspects</b>	<p>The operation of sewage treatment systems and the supply of treated water will provide environments that are better protected from disease and prevent environmental degradation. In this way, it is hoped that there will be a reduction in the incidence of disease and an improvement in the quality of life of people in the communities.</p> <p>The Social Communication Program should consider actions to enhance these positive effects, in terms of environmental education and communication with the community about best practices in environmental health and sanitation.</p> <p>Conducts that promote the proper use of collective systems, such as not pouring oil down the drain and not disposing of waste, furniture and utensils without discretion on vacant lots or riverbanks, are some of the topics to be addressed with the population benefiting from the project.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 22 - Increased security and stability in people's lives**

Impact 22	
<b>Increased security and stability in people's lives by increasing resilience to the risks of disasters and climate change, by improving quality of life with access to essential sanitation services and by increasing income, adding value to the production chain, access to the market and the efficiency of production processes.</b>	
<b>Impacting Cause / Action</b>	Achievement of the results defined in the Project with the implementation and operation of the systems and Investment Plans
<b>Nature</b>	Positive
<b>ESMP Associated Program</b>	Stakeholder Communication, Consultation and Engagement Plan
<b>Qualitative aspects</b>	It is expected to increase security and stability in community life. This increase is related to various issues and objectives pursued by the project, such as increasing income, adding value to local production chains, better access to markets for the sale of products.
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>



**Impact 23 - Increase in family spending due to the need to pay fees to access the Association's resources from the Project**

Impact 23	
<p><b>Increased spending by families due to the need to pay fees to access the Association's resources from the Project (such as maintenance fees for the sanitation system or industrial kitchens), which can have a significant effect on low-income family budgets, affecting their budgeting capacity and even causing the Project to run out of steam.</b></p>	
<b>Impacting Cause / Action</b>	The need for financial resources to fund the operation and maintenance of the systems.
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Stakeholder Communication, Consultation and Engagement Plan
<b>Qualitative aspects</b>	<p>There may be an increase in household spending related to the payment of association fees, the use of collective infrastructures and connection to water and sewage systems.</p> <p>Even taking into account that the project aims to improve the quality of life of the communities and bring greater gains, this process could have a return during a timeframe that is not the same as the spending of these families, a situation that could affect household budgets, resulting in the emptying of the project in some communities and the exclusion of part of the community.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

**Impact 24 - Alteration or destruction of paleontological sites.**

Impact 24	
<b>Alteration or destruction of paleontological sites</b>	
<b>Impacting Cause / Action</b>	Implementation of social technology associated with stone tanks.
<b>Nature</b>	Adverse
<b>ESMP Associated Program</b>	Cultural Heritage and Fortuitous Finds Protection Program
<b>Qualitative aspects</b>	<p>There could be an impact on archaeological sites if the social technologies associated with stone tanks are implemented, since this type of heritage is formed in the bedrock.</p> <p>With the presence of an area where remains are concentrated in the Sousa region (Peixe River), in the northwestern part of Paraíba, attention should be paid to the risks of installing structures that could affect the sites or flood areas where they are present.</p> <p>The destruction or interruption of access to these sites could mean the loss of prehistoric heritage and scientific knowledge.</p>
<b>Actions to Avoid the Impact</b>	<ul style="list-style-type: none"> <li>• Assessment by a qualified professional of the presence of cultural sites in areas with significant potential</li> </ul>
<b>Actions to Minimize Impact</b>	<ul style="list-style-type: none"> <li>• Rescue of remains or scientific information from sites</li> <li>• Evaluation of alternative sites that do not affect the cultural site</li> </ul>
<b>Actions for Rehabilitation</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
<b>Compensation Actions</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

### 5.3.3 Strategic Environmental and Social Management Plan - ESMP

Based on the assessment of impacts and risks, the following programs were drawn up to make up the ESMP:

- Description of Management Measures
  - Screening Measures, Classification and Scope of Subprojects
  - ESMP Monitoring and Evaluation Measures
- Description of Physical Environment Plans and Programs
  - Disaster and Climate Change Risk Management Plan
  - Waste Management Program for the implementation of structures and production processes
  - Water Quality Monitoring and Control Program
- Description of Biotic Environment Plans and Programs
  - Biodiversity Management, Protection and Restoration Plan
- Description of Socioeconomic and Cultural Plans and Programs
  - Stakeholder Communication, Consultation and Engagement Program
  - Environmental and Health Education Program
  - Contaminating Products Management and Control Plan
  - Energy Efficiency Plan for Projects and Facilities
  - Traffic Program
  - Labor Management Plan
  - Program to Control and Mitigate Temporary Social and Economic Impacts
  - Cultural Heritage Preservation Program
  - Gender Violence Prevention and Care Program
  - Program for Mitigation and Compensation of Impacts on Traditional Communities
  - Disease Vector Control Program
  - Cultural Heritage and Fortuitous Finds Protection Program

## 5.4 Cumulative Impact Assessment

Cumulative Impact Assessment is an internationally recognized practice used in environmental impact assessment processes. This assessment standard - which does not replace, but complements the classic environmental impact assessment process - is particularly important in situations where there is a spatial concentration of undertakings or events (past, current or in the design phase) which may - in combination or by accumulation over time - cause environmental impacts.

Attention should be paid to the fact that some environmental impacts can accumulate over time and act more directly on certain environmental systems, challenging the ability of these environments to recover naturally.

Therefore, certain impacts that may, in a basic matrix of environmental impacts, be considered of low relevance, can accumulate over periods of time and over a given territory.

According to the US Council on Environmental Quality:

*"A cumulative impact is the result of the incremental impact of an action, when added to other actions from the past, present and those that are reasonably foreseeable in the future, regardless of who is responsible for the other actions" (CEQ, 1978 apud DIBO, 2018).*

This item is based on the definition that a cumulative impact is a change in the environment caused by the combination of impacts from various actions, associated with similar or different actions that occurred in the past, that are practiced today, as well as those that may occur in the future, in a given geographical space. Similarly, these impacts can result from actions that are individually minor, but which can be considered significant when analyzed from an integrated and collective perspective on a time scale. Cumulative impacts are also considered to occur through additive and interactive processes (DIBO, 2018).

The main objective of this study is to identify and characterize the cumulative impacts on Procace II.

Valued Ecological Components ("VEC") are environmental and social attributes that are considered important when assessing cumulative impacts and risks. VECs can be many things: physical features, habitats, wild species and populations (e.g. biodiversity), ecosystem services (e.g. fisheries, drinking water, flood protection, etc.), natural processes (e.g. water and nutrient cycles, microclimates), social status (e.g. health, economy, food security) or cultural aspects (e.g. archaeological sites, sacred places, spiritual or traditional ceremonies).

#### **5.4.1 Cumulative Impact Assessment - CIA**

The cumulative impacts identified for the sub-projects are presented below.

##### **Selection and Characterization of Environmental Components**

The Valued Ecological Components (VEC) considered for this Cumulative Impacts Analysis are described below.

##### ***VEC Local Economy and Local Arrangements***

The implementation of Procace II is expected to improve the family economy and local arrangements, favoring local consumption and stimulating various other areas of the economy. This cumulative process can become a virtuous spiral in and around the communities, especially if other programs are taken into account, such as the Food Acquisition Program (PAA) and the National School Feeding Program (PNAE).

- **Projects Involved:** Food Acquisition Program (PAA) and National School Feeding Program (PNAE) - existing projects.

- Natural Factors or Activities: Availability of natural resources or potential for improvement in ecosystem service offering raw material for food production.
- Spatial limits: The entire Procase II area.
- Time Limits: Project Life Cycle and Beyond.
- Carrying Capacity: Improving the carrying capacity of the environment by implementing SAF.
- Positive environmental impact: Increase in vegetation cover and biological diversity of ecosystems.
- Positive economic impact: virtuous cycle in the local economy.
- Positive Social Impact: Improvement in the lives of communities, with positive repercussions on local economic arrangements.

### **VEC Forests**

Once agroforestry systems are implemented and communities are engaged in these systems, there will be a positive environment for the expansion of forested areas, with a potential change in local habits, increasing the gains from simply restoring vegetation. This VEC is in addition to forest restoration programs and PSA - Payment for Environmental Services.

- Projects Involved: PSA - Payment for Environmental Services - existing project.
- Natural Factors or Activities: Expansion of forested areas with the possibility of forming ecological corridors with other preserved areas.
- Spatial boundaries: The entire Procase II area, with a focus on the SAF areas.
- Time Limits: Project Life Cycle and Beyond.
- Support Capacity: Improving local environmental support capacities, enabling cumulative environmental gains.
- Positive environmental impact: increase in forested areas.
- Positive Economic Impact: Increased resilience of the environment, promoting healthier, more protected and naturally diverse environments, enabling quality SAFs.
- Positive Social Impact: Improving people's quality of life.

### **VEC Water Quality**

The project includes the implementation of water collection and treatment/reuse systems and simple sewage systems. This process, combined with projects such as Água Doce and the improvement in people's living conditions and greater commitment to agroforestry systems (expanding knowledge of best practices), has the potential to increase the results of improving water quality. This is not just about water treatment, but about a set of actions that stem from the project and have the potential to change people's perceptions about environmental care and the need to treat water resources seriously.

- Projects Involved: Fresh Water Program - existing projects.

- Natural Factors or Activities: Not identified.
- Spatial boundaries: The entire Procase II area, with a focus on water resources.
- Time Limits: Project Life Cycle and Beyond.
- Carrying Capacity: Improving the environmental carrying capacity of water resources, including the possibility of expanding their use.
- Positive environmental impact: Increased water quality and care by society.
- Positive economic impact: reduction in water treatment or purchase costs.
- Positive Social Impact: Improving people's quality of life.

### **VEC Slope Areas**

Areas where crops are grown on steeper slopes have been identified as part of the community's agricultural activities; if the project supports actions on sites with crops grown on steeper slopes, this could lead to landslides, with potential local impacts (loss of crops, risks to people and structures).

- Projects Involved: Not identified, but may exist sporadically, such as the Food Acquisition Program (PAA) and the National School Feeding Program (PNAE).
- Natural Factors or Activities: Current activities in areas with slopes were identified.
- Spatial boundaries: The entire Procase II area, mainly in the north.
- Time Limits: Project Life Cycle and Beyond.
- Carrying Capacity: Improving the environmental carrying capacity of water resources, including the possibility of expanding their use.
- Negative Environmental Impact: Increased Potential Risk of Mass Movements and partial destruction of ecosystems.
- Negative Economic Impact: Risk to structures and crop areas.
- Negative Social Impact: Risk to people.

## **5.5 Environmental Disaster Risk Assessment**

Initially, it is important to point out that the main dangers to which the regions where the projects are located are subject can be related mainly to landslides and mudflows (mountain areas and those closer to the coast), severe droughts, forest fires and, to a lesser extent, floods and strong winds.

In order to understand the effects of climate change in the area of influence of the Project, information from the Federal Government's Adapta Brasil<sup>50</sup> was consulted, in addition to other sources that are cited throughout the assessment, such as Cunico et al. (2023). Adapta Brasil is an important tool that presents Indices and Indicators of the risk of

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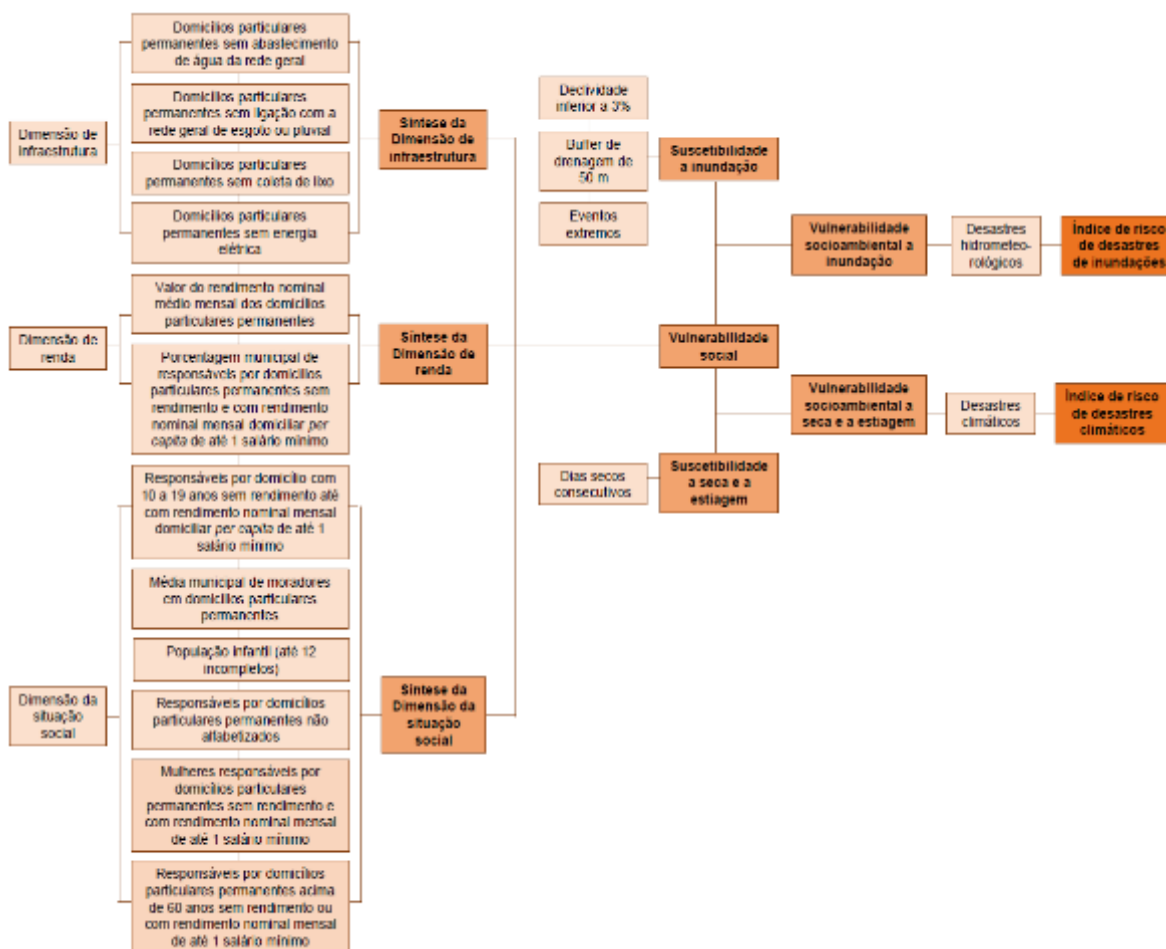
<sup>50</sup> <https://sistema.adaptabrasil.mcti.gov.br/>

climate change impacts in Brazil, integrated into a single platform, linked to the Ministry of Science, Technology and Innovation - MCTI.

### 5.5.1 Risk and Vulnerability in the State of Paraíba

This item presents information from the Atlas: Risks, Vulnerabilities and Environmental Disasters of the State of Paraíba (Cunico *et al.*, 2023) which provides an important insight into the risks and vulnerabilities of Paraíba's municipalities. This study consisted of drawing up Disaster Risk Index (DRI) maps for the state of Paraíba, considering two scenarios of environmental and climatic susceptibility: areas susceptible to flooding and areas susceptible to climatic disasters (drought/drought), the methodological pathway shown in the figure below was carried out.

**Figure193 - Methodological Path - Atlas: Risks, Vulnerabilities and Environmental Disasters in the State of Paraíba**



Source: Cunico *et al.*, 2023

It is interesting to note that the Disaster Risk Indices for both drought and floods were designed to correlate with emergencies and states of public calamity declared by municipalities between 2003 and 2016, which makes the results more robust. This data needs to be correlated with social vulnerability, which is an important indicator of communities' ability to cope with disasters that may strike their territory.

Social vulnerability is the result of a combination of infrastructure, income and social situation, which help to identify areas with greater or lesser capacity to cope with adverse situations, including environmental disasters.

The following table shows the indicators used to define social vulnerability, considering susceptibility to flood and drought disasters.

**Table 194 - indicators used to define social vulnerability - susceptibility to flood and drought disasters**

Dimension	Indicator Description
Infrastructure	Percentage of permanent private households with inadequate housing - no public lighting.
	Percentage of permanent private households with inadequate housing - no manhole.
	Percentage of permanent private households with inadequate housing - no afforestation.
	Percentage of permanent private households with inadequate housing - there is open sewage.
	Percentage of permanent private households with inadequate housing - garbage accumulated in the streets.
Income	Average nominal monthly income of people responsible for permanent private households.
	Percentage of heads of household with a nominal monthly income of up to 1 minimum wage.
	Percentage of heads of household with no nominal monthly income.
Social situation	Percentage of the child population (up to 12 years old).
	Percentage of heads of permanent private households aged 10 to 19.
	Percentage of the elderly population (over 60 years of age).
	Percentage of heads of permanent private households aged over 60.
	Percentage of heads of permanent private households who are not literate.
	Percentage of female heads of household with a nominal monthly income of up to 1 minimum wage.

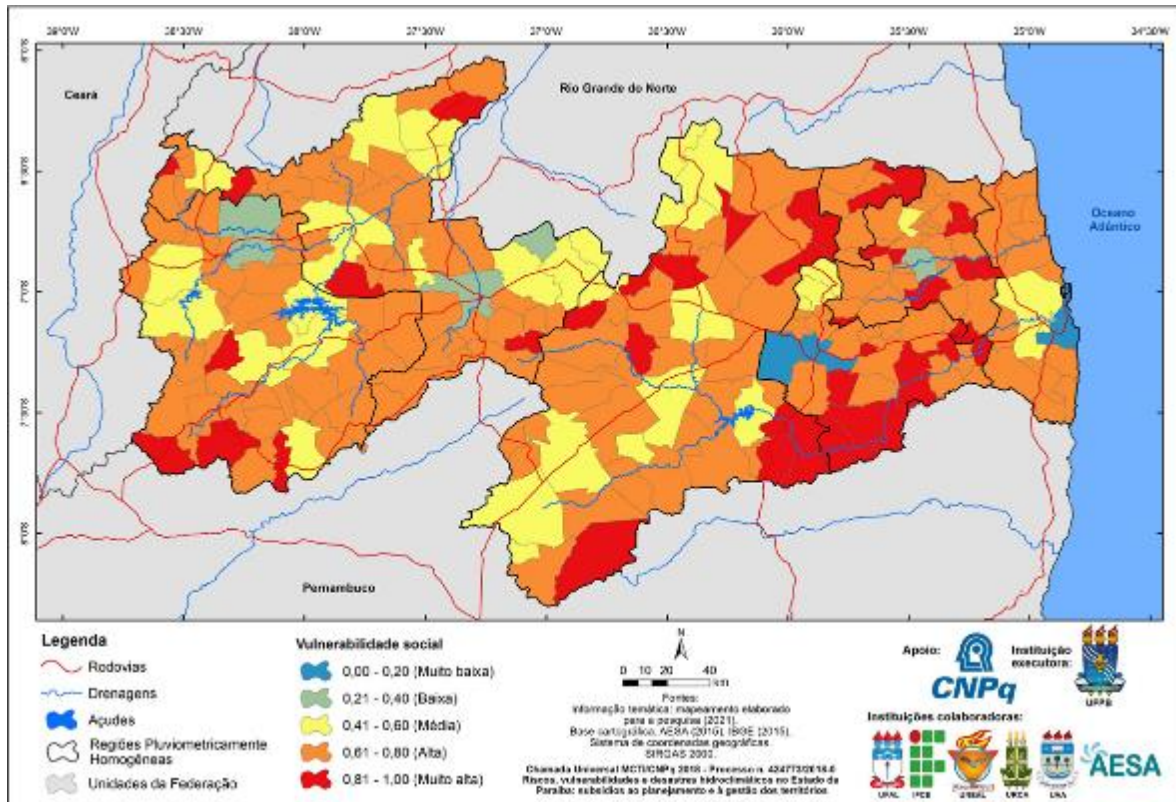


Dimension	Indicator Description
	Percentage of female heads of household with no nominal monthly income.
	Percentage of residents in permanent private households without a mains water supply.
	Percentage of residents in permanent private households without a bathroom for the exclusive use of residents or a toilet.
	Percentage of residents in permanent private households without collected waste.
	Percentage of residents in permanent private households with garbage thrown into a river, lake or sea.
	Percentage of residents in permanent private households without electricity.

Source: Cunico et al., 2023

The figure below shows the resulting map of the Social Vulnerability of Paraíba's municipalities. According to the authors, *"the predominance of the high and very high vulnerability classes is clearly perceptible, totaling 83% of the municipalities (184 municipalities in total, comprising 44% of Paraíba's population)"*. Thus, it can be seen that social vulnerability is high and occurs in a significant part of the state's territory.

**Figure194 - Social Vulnerability - Floods and Droughts**

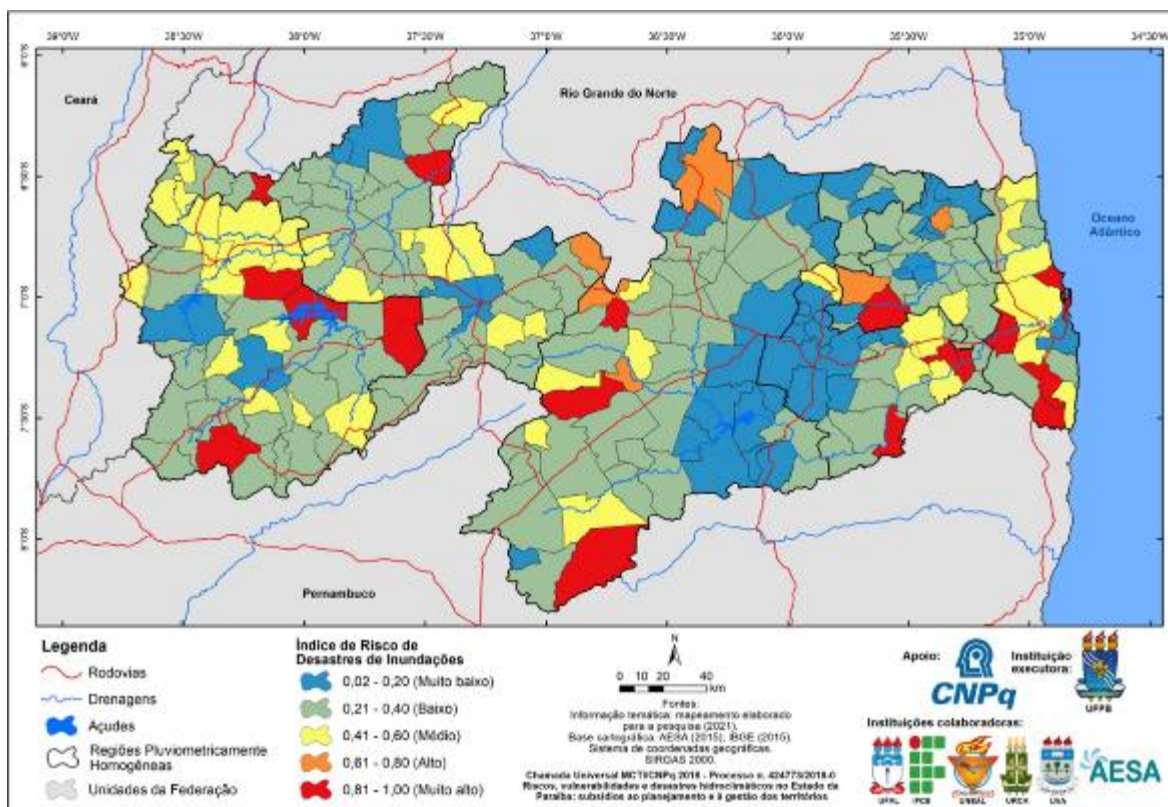


Source: Cunico et al., 2023

The Flood Disaster Risk Index (IRDI) for the state of Paraíba (figure below), is a result corresponding to socio-environmental vulnerability to flooding, integrated with the hydro-meteorological disasters recorded in the state (2003 to 2016).

This mapping reveals that 24 municipalities in the state are at Very High or High risk of flooding. According to the authors, "These two classes correspond to 11% of the entire state and include 9% of the population of Paraíba" (Source: Cunico et al., 2023).

Figure195 - Flood Disaster Risk Index

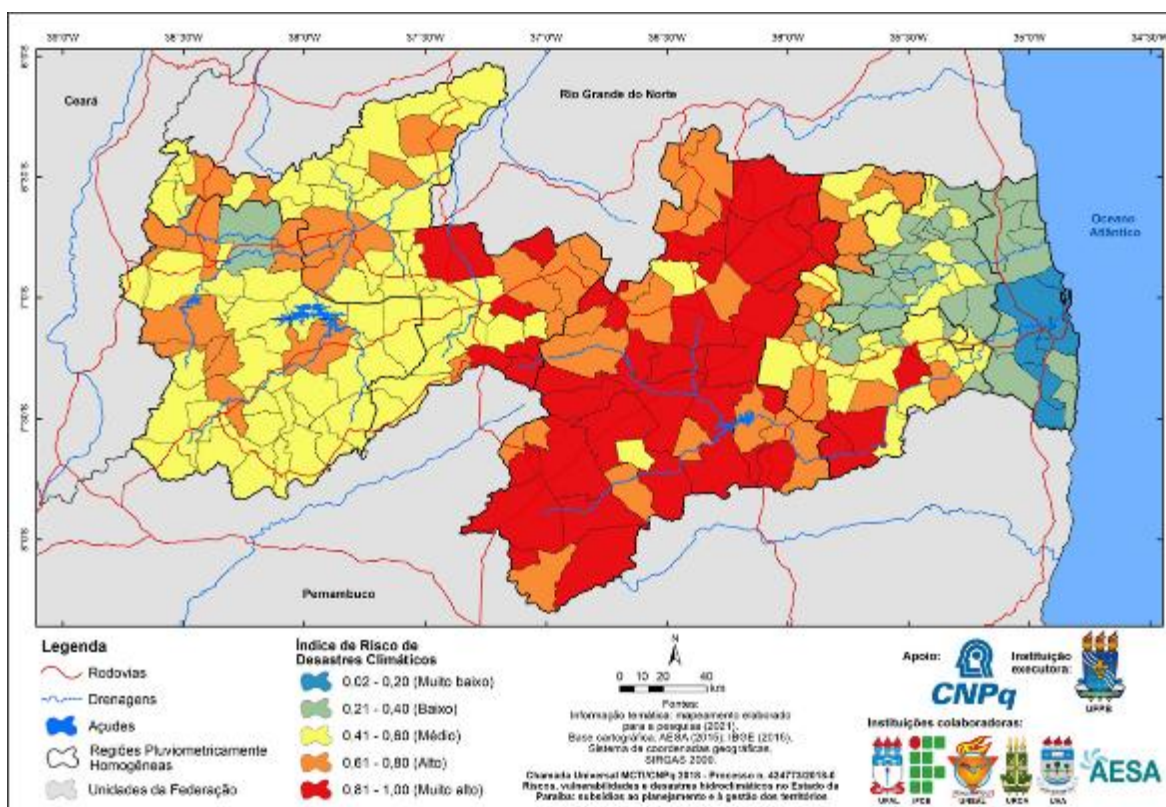


Source: Cunico et al., 2023

Finally, the Climate Disaster Risk Index (CDRI) for the state of Paraíba (figure below) is made up of socio-environmental vulnerability to drought and drought integrated with the climate disasters recorded in the state.

Being in the semi-arid regions of Brazil, the state has 42% of its territory under the condition of High or Very High IRDC, (93 municipalities), spatially concentrated in the central portion of Paraíba and affecting 23% of the population of Paraíba.

**Figure196 - Climate Disaster Risk Index**



Source: Cunico et al., 2023

### 5.5.2 Potential Effects of Climate Change

Changes in climate patterns generate consequences that directly affect natural and human systems (IPCC, 2013). These changes are part of the natural variability of the climate or can be a response to anthropogenic actions (greenhouse gas emissions and land use changes), resulting in climate change. Often, these changes are related to the precipitation regime, and can cause negative impacts depending on their intensity. With regard to the occurrence of droughts and dry spells, downward trends in precipitation have proven to be frequent and severe in various parts of the world. Climate simulations based on global atmospheric circulation models have offered predictions of more extreme climates in the future, sometimes with abundant and short-lived rainfall, sometimes with long dry spells (IPCC, 2012).

This is the risk of the impact of climate change on socio-ecological systems, resulting from the interaction between climatic events and the vulnerability and exposure components of these same systems.

For the study area, we used data from the AdaptaBrasil platform<sup>51</sup>, which presents a very extensive set of indexes and indicators involving issues such as social vulnerability,

<sup>51</sup> The Information and Analysis System on the Impacts of Climate Change (AdaptaBrasil MCTI) was established by the Ministry of Science, Technology and Innovation, through Ordinance No. 3,896, of October 16, 2020, with the aim of consolidating, integrating and disseminating information that makes it possible to advance the analysis of the impacts of climate change, observed and projected in the national territory, providing subsidies to the competent authorities for adaptation actions.

infrastructure and government actions that can bring greater efficiency in prophylactic and control actions during extreme events (such as plans and programs, better designed infrastructure, adherence to programs such as Resilient Cities, among others).

In the analysis, the scenarios were consulted: Current and 2050 (pessimistic).

### Impact of Rain

Rainfall Impact Risk Index for food security, according to Adapta Brasil:

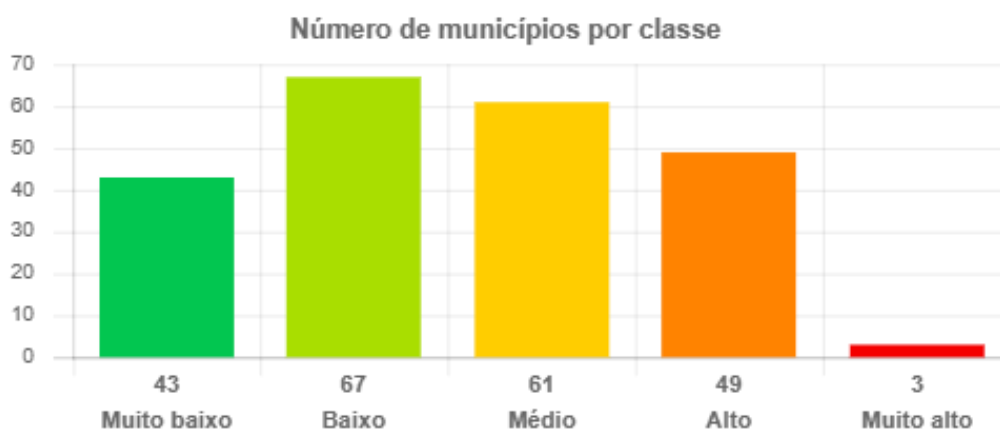
*Heavy rainfall is considered a climate threat when its frequency and duration cause flooding and landslides, for example. The negative and harmful effects on the socio-ecological system can range from material damage and/or the death of people in areas subject to the accumulation and temporary passage of surface water, the death of animals, to crop losses due to excess water, among others.*

*Source: MARENGO, J. A. Mudanças Climáticas, Condições Meteorológicas Extremas e Eventos Climáticos no Brasil. In: FBDS (org). Climate Change and Extreme Events in Brazil. p: 04-19. FBDS & LLOYD'S. 2010.*

The AdaptaBrasil results show that in the current scenario there is already a medium risk prevailing in the coastal portions of the state of Paraíba, with the central territory of the state still having most of its area at low or very low risk. The 2050 (pessimistic) scenario predicts a significant increase in the number of municipalities at very high risk closer to the coast, with an increase in medium risk in the west of the state. The central portion is now at medium risk.

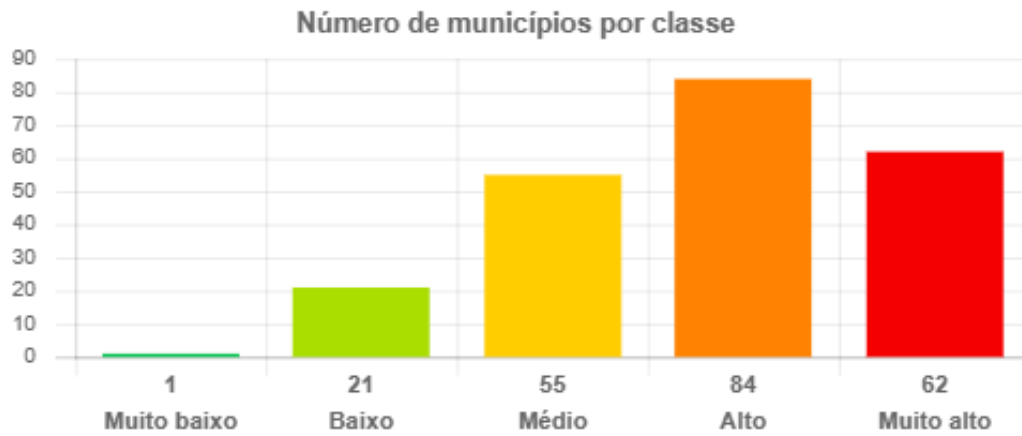
The following figures show the municipalities by class, for the current scenario and in 2050 - pessimistic.

**Figure197 - Impact of Rain - Current Scenario**



Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

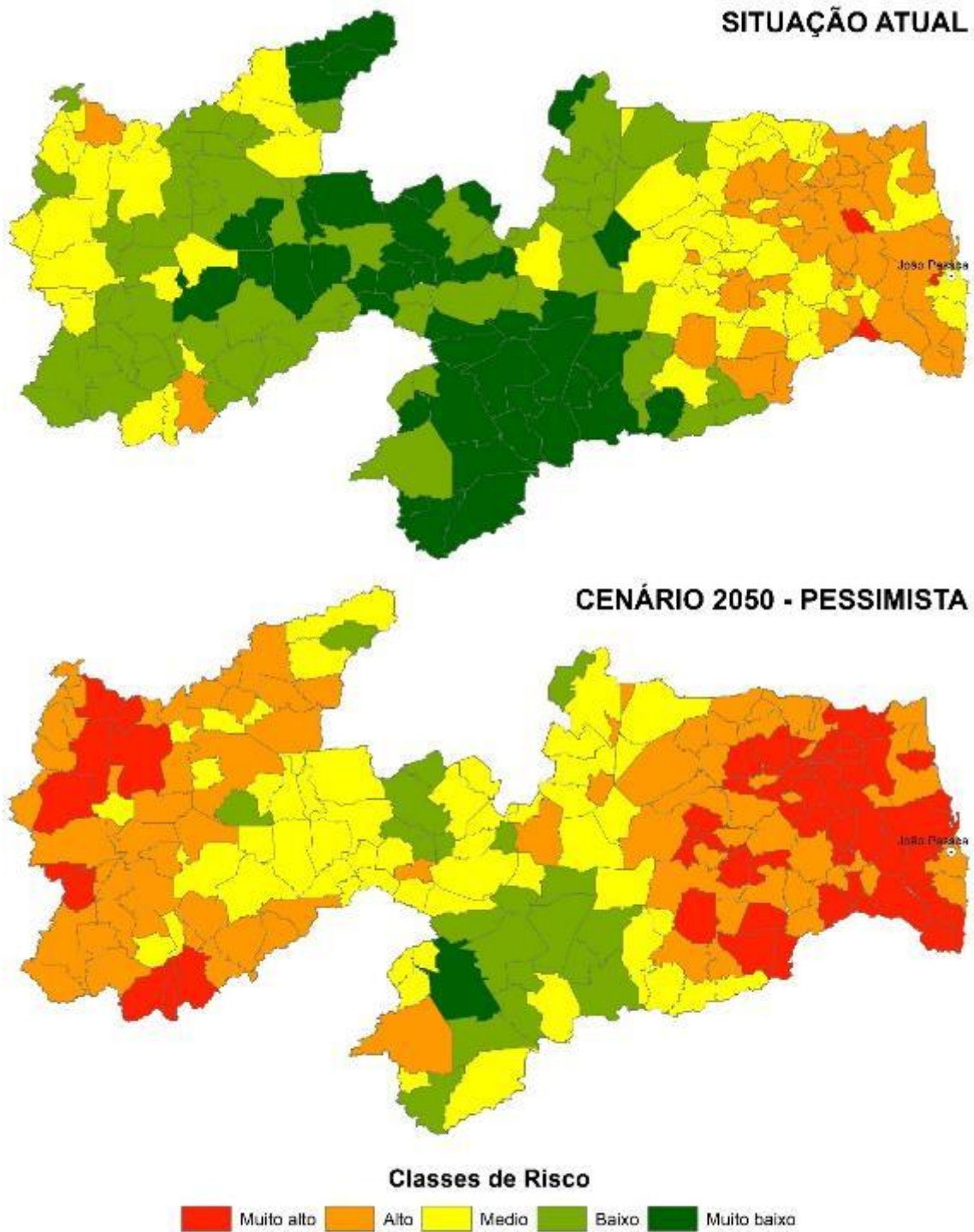
**Figure198 - Rainfall Impact - 2050 Scenario - Pessimistic**



Source: *Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).*

The figure below shows the current and future situation for the impact of rain.

Figure199 - Impact Risk Index for Rain - Food Security



**RISCO DA CHUVA - SEGURANÇA ALIMENTAR**

Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

**Impact of Drought**

Drought Impact Risk Index for food security, according to Adapta Brasil:

*Risk of impact of climate change on socio-ecological systems, resulting from the interaction between climate events related to drought, vulnerability and exposure of these systems. Drought is considered to be a prolonged period - a season, a year or several years - of deficient precipitation compared to the statistical multi-year average for a region that results in a shortage of water for some activity, group or environmental sector.*

Source: FOOD AND AGRICULTURE ORGANIZATION/NATIONAL DROUGHT MITIGATION CENTER - FAO/NDMC. *The Near East Drought Planning Manual. Food and Agriculture Organization of the United Nations (FAO): Rome: Italy, 2008.*

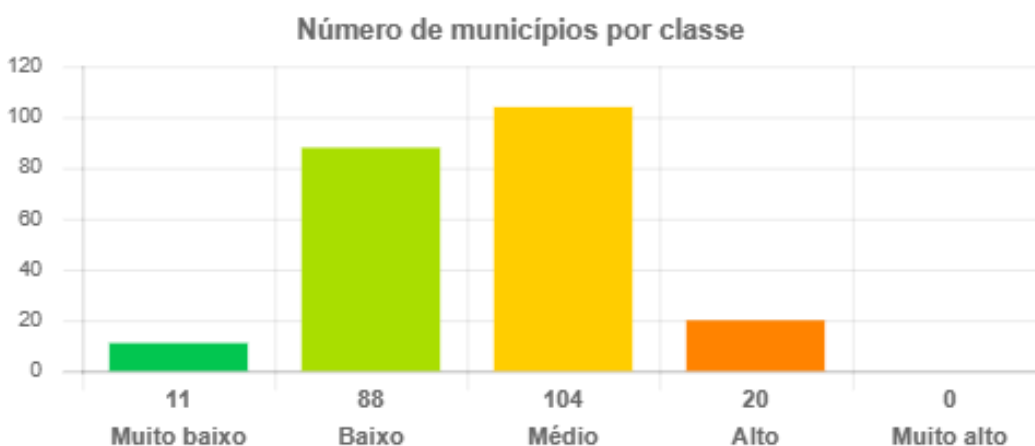
On the issue of drought, we can cite the INDEX OF VULNERABILITY TO NATURAL DISASTERS RELATED TO DRUCES IN THE CONTEXT OF CLIMATE CHANGE (MMA, 2017):

*Firstly, it should be noted that drought is a relative phenomenon that depends on the context in which the analysis is inserted. Therefore, any discussion in terms of precipitation deficit must refer to the particular conditions of a given region (CASTRO et al., 2003). Periods with abnormal precipitation deficits are defined as meteorological droughts and can have consequences for agricultural activities or the hydrological cycle (IPCC, 2012). In a socio-economic view of disasters, drought depends more on the vulnerabilities of the social groups affected than on the climatic conditions themselves*

According to the AdaptaBrasil platform, in the current scenario, a significant portion of the study area is at low or medium risk. Some municipalities in the western part of the state are already at high risk of the impacts of drought on food security. In the 2050 scenario, the incidence of medium to high risk begins to prevail in the state.

According to the figures below, between the current scenario and the 250 (pessimistic) scenario there will be a jump in the high class, from 20 to 70 municipalities.

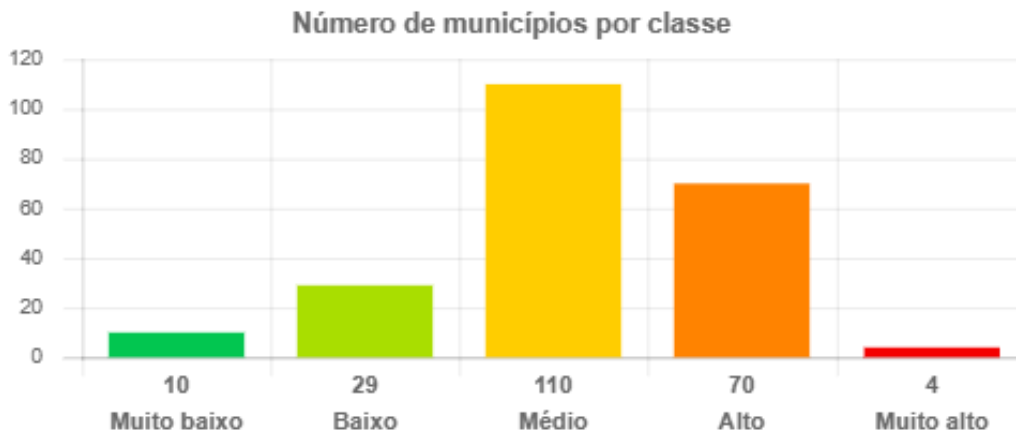
**Figure 200 - Impact of Drought on Food Security - Current Scenario**



Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).



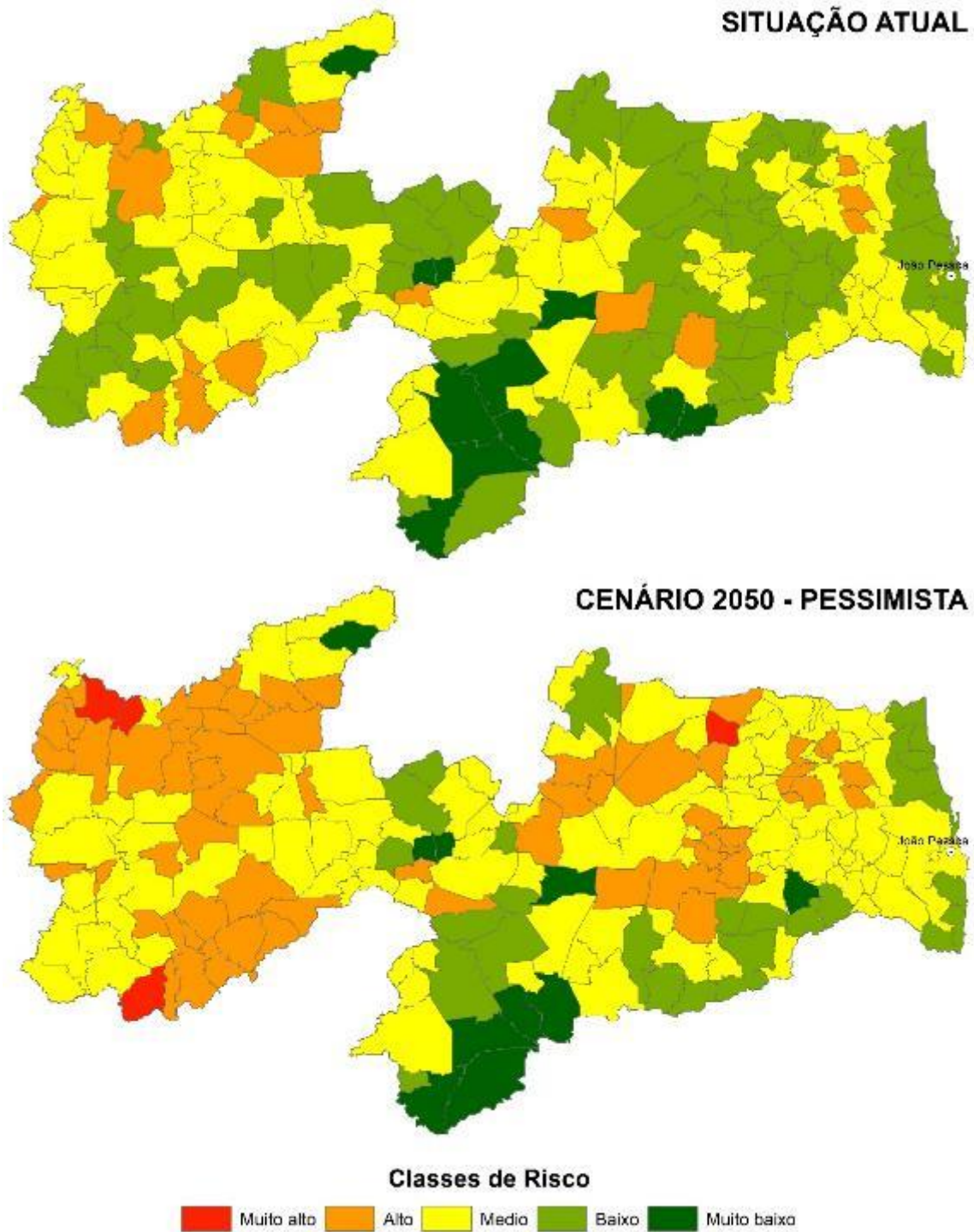
**Figure201 - Impact of Drought on Food Security - 2050 Scenario - Pessimistic**



Source: *Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).*

The figure below shows the current and future situation for the impact of rain.

Figure202 - Drought Impact Risk Index - Food Security

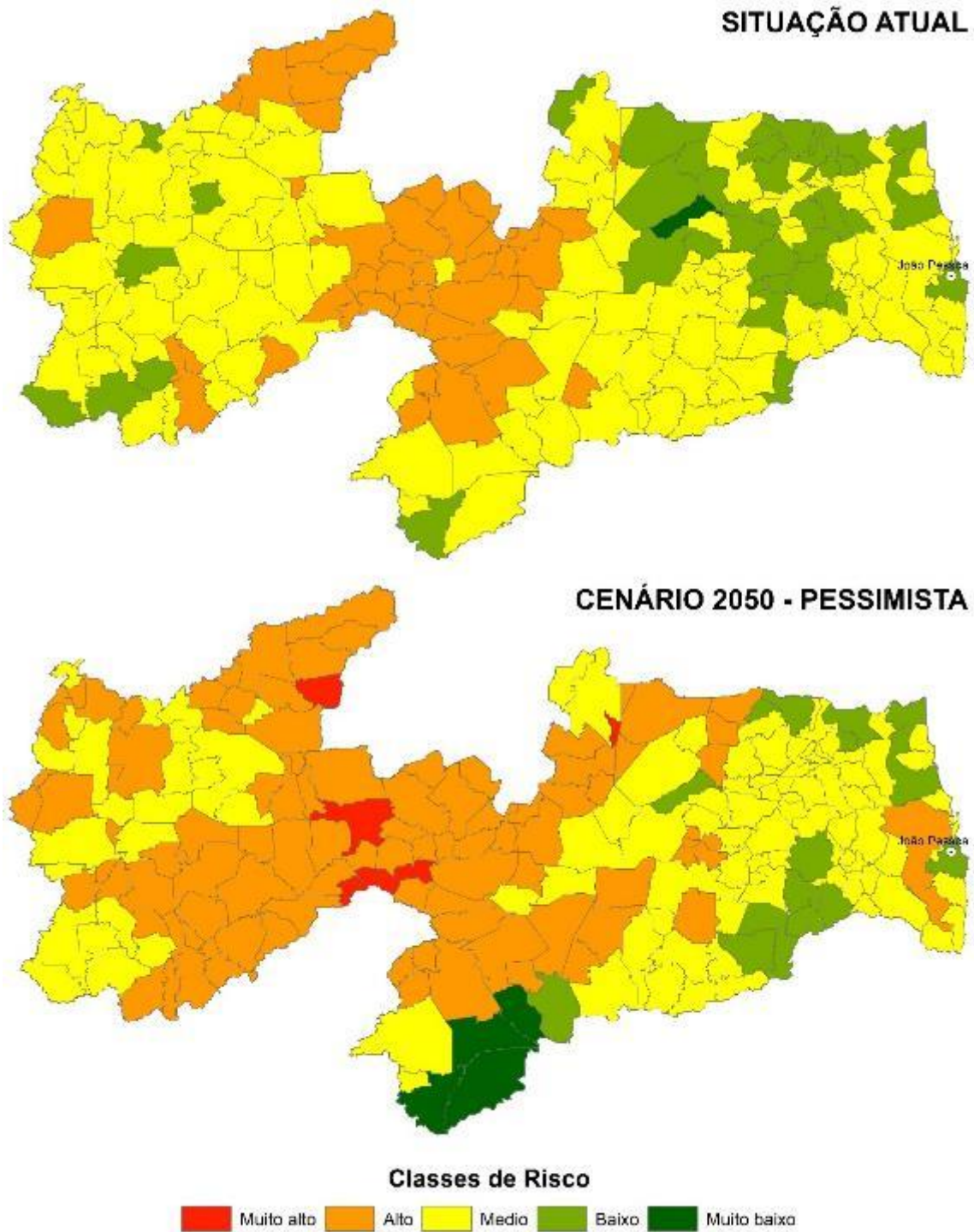


**RISCO DA SECA - SEGURANÇA ALIMENTAR**

Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2023 (consultation).

The figure below shows the impact of drought specifically on local water resources.

Figure203 - Drought Impact Risk Index - Water Resources



**RISCO DA SECA - RECURSOS HÍDRICOS**

Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

**Landslides**

Landslide Impact Risk Index, according to Adapta Brasil:

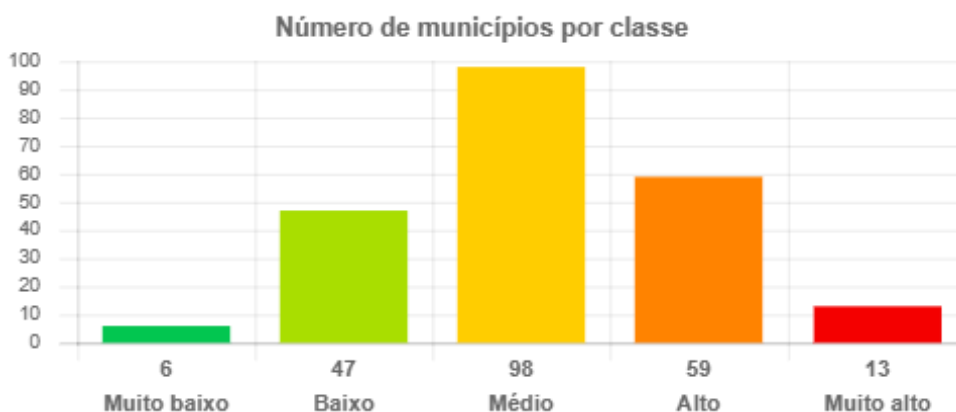
*Risk of impact of climate change on socio-ecological systems, considering the threat of geo-hydrological disaster<sup>52</sup> landslides, considering geomorphological, land use, geological characteristics and climatic indices of intense rainfall (total rainfall in 1 day and 5 days).*

*Source: Information and Analysis System on Climate Change Impacts - AdaptaBrasil MCTI.*

Analyzing the data from Adapta Brasil, we can see that several municipalities in Paraíba are at medium to high risk. It is important here to consider that landslides are usually less extensive phenomena and that, although they do not affect the entire municipal area, they have the potential to cause major damage and put important communities and structures at risk.

According to the figures below, in the current scenario, municipalities at medium risk prevail, while in the 2050 scenario (pessimistic), municipalities at high risk prevail, with a significant increase in municipalities at very high risk.

**Figure204 - Landslide Impact - Current Scenario**



Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

<sup>52</sup> Geo-hydrological disasters are the effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services and infrastructure due to climate change or climatic events that occur within specific periods of vulnerability and exposure of the society or system related to geo-hydrological disasters. A disaster is considered to be "a serious interruption in the functioning of a community or society that causes a large number of deaths, losses and material, economic and environmental impacts that exceed the capacity of the affected community or society to cope with the situation through the use of its own resources. The disaster is characterized by being immediate and localized, but often has an indirect geographic and temporal effect of greater dimensions". The geo-hydrological disasters considered are natural disasters such as landslides and floods (source: UNISDR - United Nations Office for Disaster Risk Reduction. 2009 UNISDR terminology on disaster risk reduction. Geneva: UNISDR, 2009 *apud* AdaptaBrasil, 2024)

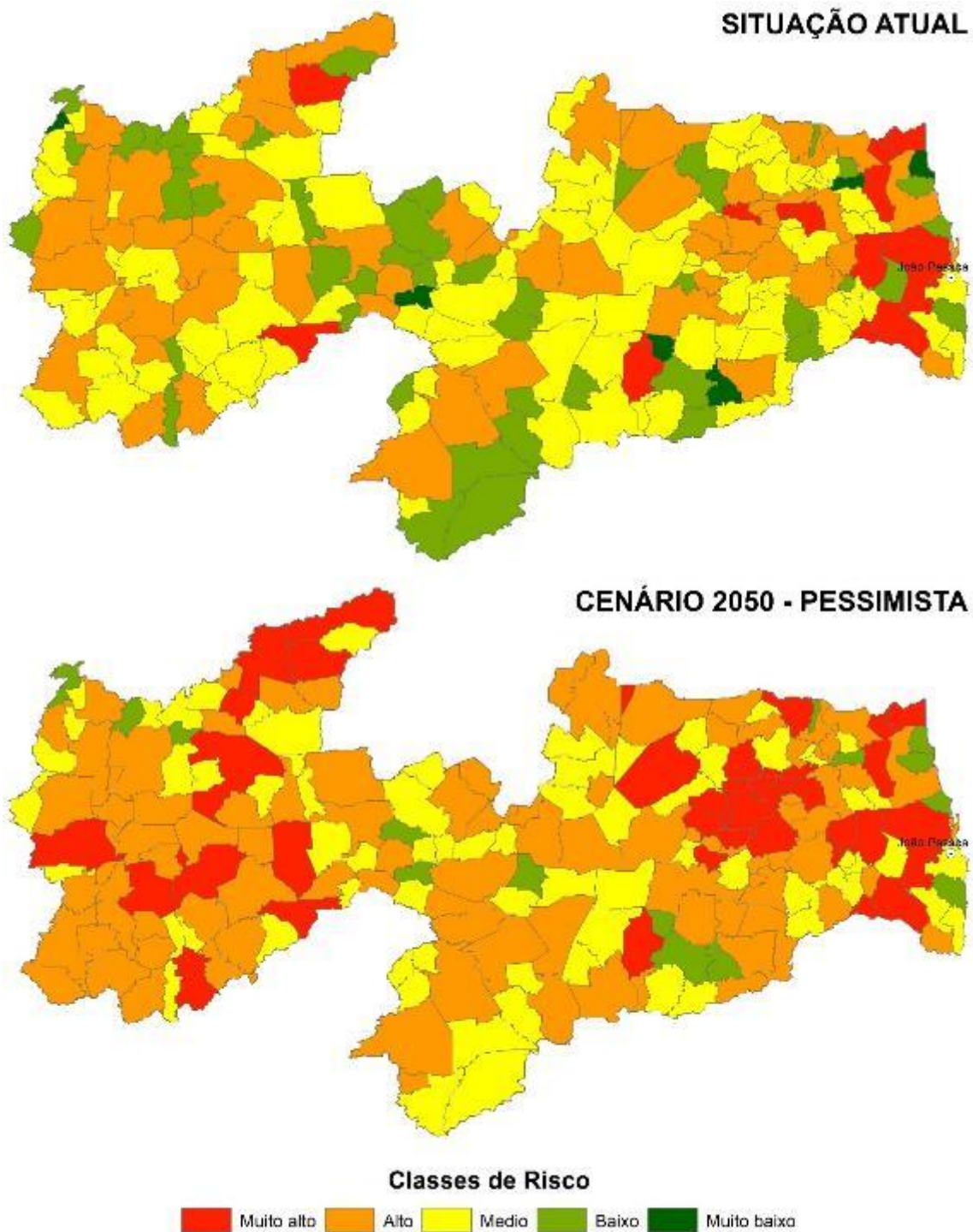
**Figure205 - Landslide Impact - 2050 Scenario - Pessimistic**



Source: *Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).*

The figure below shows the landslide risk index by municipality.

Figure206 - Landslide Risk Index



**RISCO DE DESLIZAMENTO - DESASTRES GEO-HIDROLÓGICOS**

Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2023 (consultation).

**Floods, Flash Floods and Waterlogging**

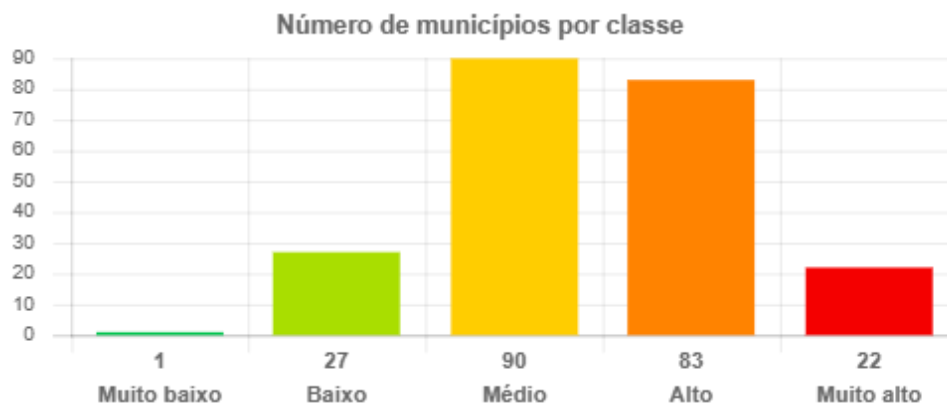
*Risk of the impact of climate change on socio-ecological systems, considering the threat of a geo-hydrological disaster of floods, flash floods and waterlogging, taking into account*

geomorphological characteristics, land use, geology and climatic indices of intense rainfall (total rainfall in 1 day and 5 days).

Source: Information and Analysis System on Climate Change Impacts - AdaptaBrasil MCTI.

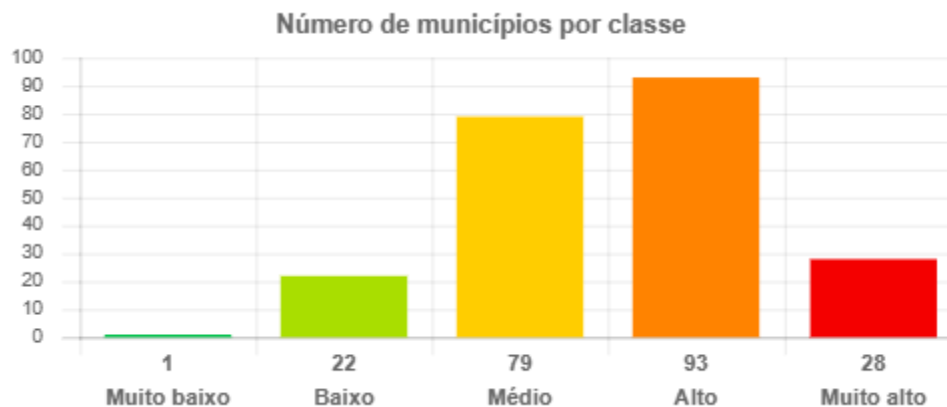
According to the figures below, for floods, flash floods and waterlogging, there are no marked changes between the scenarios, with the medium and high classes prevailing, but there is an increase in the number of municipalities in the medium and high classes, with falls in the low and very high classes.

**Figure207 - Landslide Impact - Current Scenario**



Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

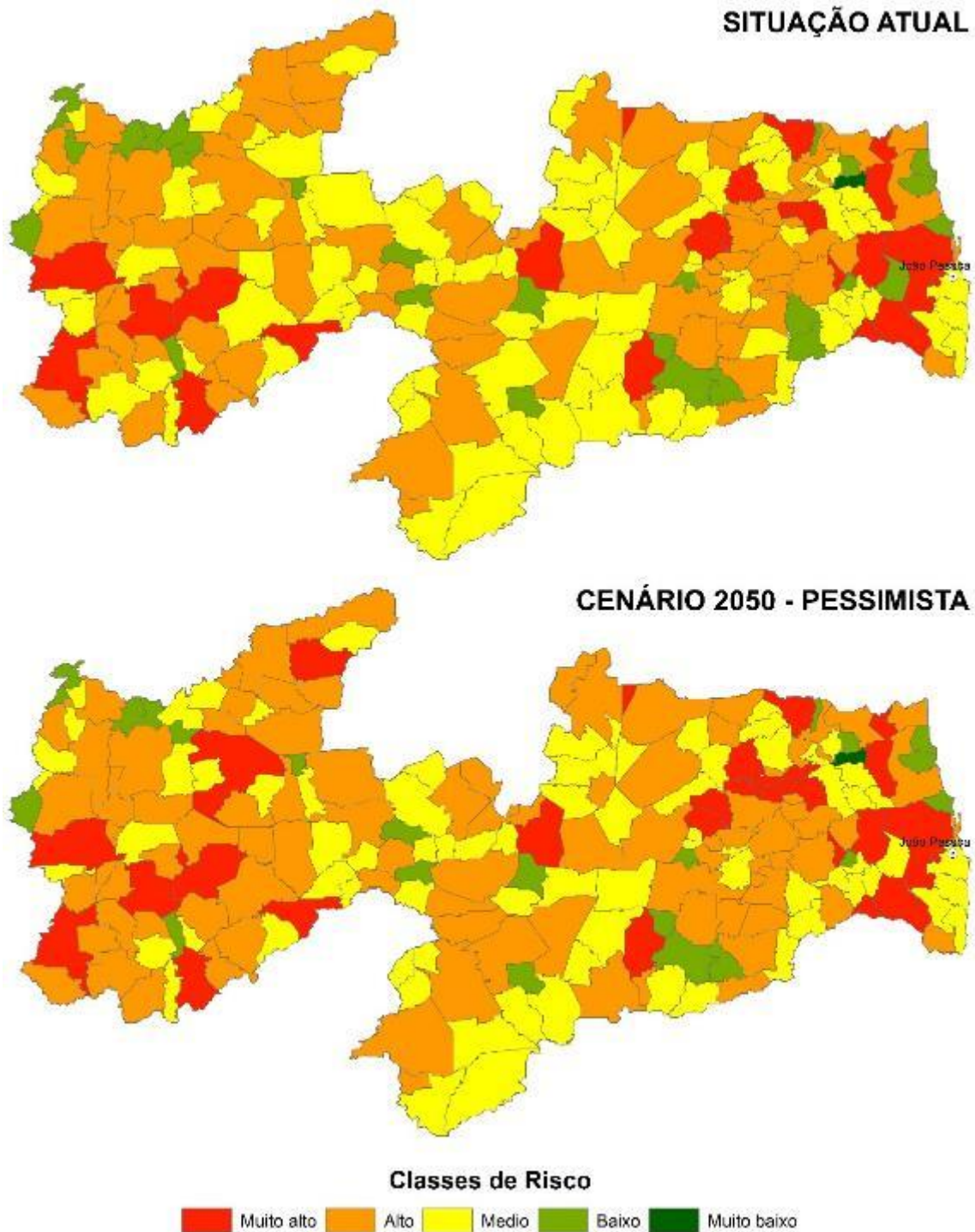
**Figure208 - Landslide Impact - Current Scenario**



Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2024 (consultation).

The following figure shows the risk index for floods, flash floods and waterlogging, by municipality.

Figure209 - Flood, Flash Flood and Waterlogging Impact Risk Index



**RISCO DE INUNDAÇÕES, ENXURRADAS E ALAGAMENTOS  
DESASTRES GEO-HIDROLÓGICOS**

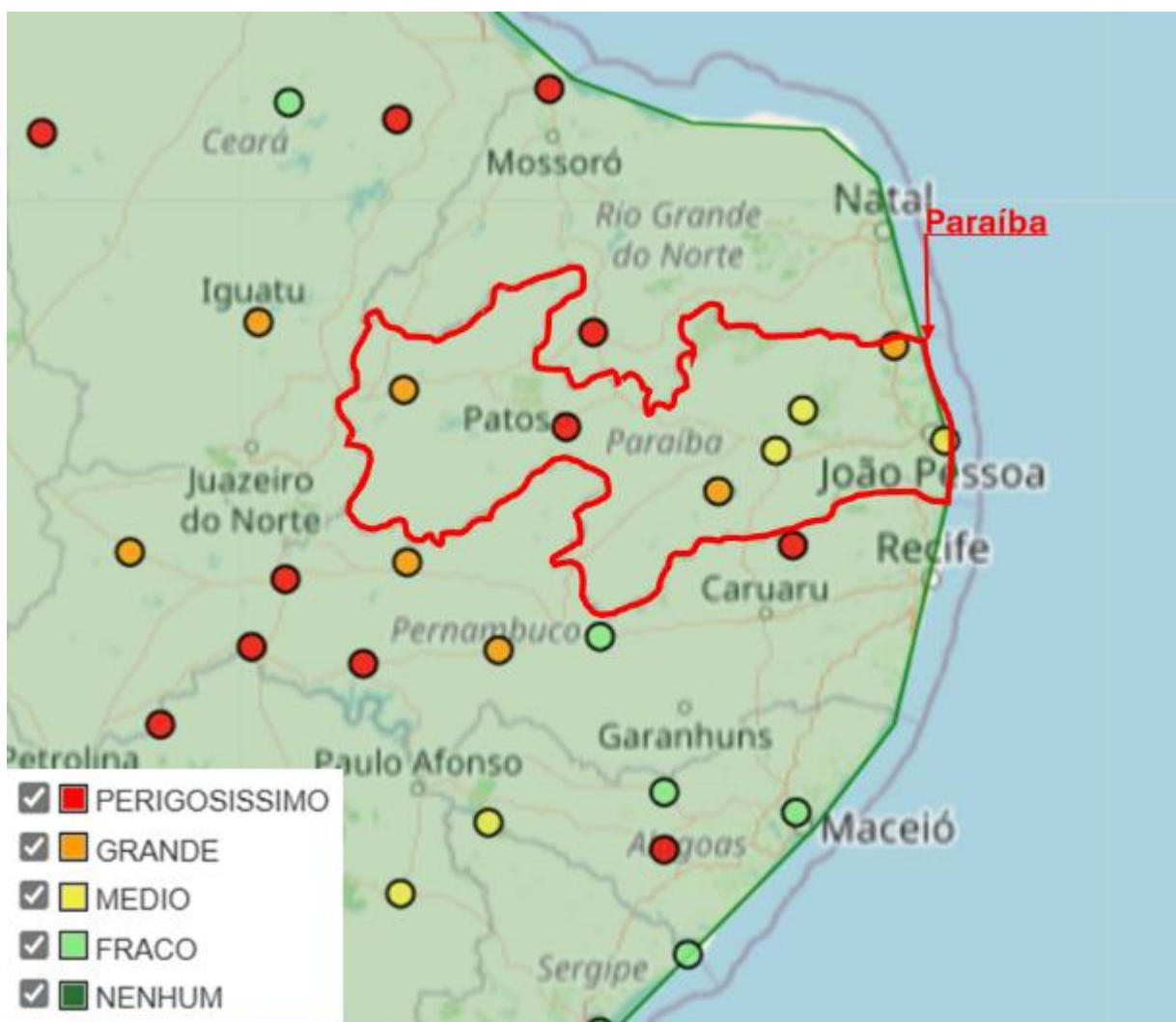
Source: Adapta Brasil - Ministry of Science, Technology and Innovation, 2023 (consultation).

**5.5.3 Flammability Index - Fires**

INMET monitors flammability indices in Brazil on a daily basis, including some stations that are located in the PROCASE II area, as can be seen in the figure below.



Figure210 - Flammability Index - INMET



Source: INMET, <https://portal.inmet.gov.br/paginas/incendio> (consultation, 2024).

## 6 CONCLUSION

The project aims to promote the sustainable development of rural areas in environments that involve the Atlantic Forest and Caatinga biomes, including different ecosystems such as swamps, semi-arid areas, mountain areas, coastal areas, among others. It focuses on the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

The Strategic Environmental and Social Assessment (SEA) is intended to be a support tool for incorporating the environmental and social dimension into the project's decision-making process. Its importance lies in defining criteria and milestones to guide the activities, work and sub-projects that will be carried out within the PROJECT being assessed.

This Strategic Environmental and Social Assessment has been structured to evaluate the geographical region where the Project is located, to have a management tool that integrates the environmental and social dimensions of each of the interventions in the

territory, while also aiming to identify alignments and possible gaps in compliance with IFAD and IDB Safeguard Policies. The interventions proposed in the sub-projects may have an impact on some of the municipalities that are part of the Project.

The area covered involves the so-called Rural Territories of the state of Paraíba, where a baseline was developed involving the physical, biotic and socio-economic environments. This baseline was analysed in the light of the project, seeking to identify socio-environmental impacts that required an appropriate mitigation hierarchy.

In the physical environment, the baseline showed the existence of diverse landscapes, with areas that require technical knowledge to manage properly, so as not to create or increase negative situations such as erosion, material being carried into rivers, among others. As for the biotic environment, the existence of natural, modified and critical habitats was observed, all with varying degrees of pressure, requiring specific attention and care. Finally, the socio-economic environment demonstrated the need for the actions envisaged in the project, seeking to improve income and quality of life in local communities, which will have several positive effects on the region.

In all, 24 socio-environmental impacts were identified with the insertion of the Project. In the case of the negative impacts (18 impacts), the majority are related to the implementation phases, and are transitory in nature. As for the positive impacts (6 impacts), their magnitude and temporality make them very important, in line with the objectives of the project proposal: improving income, food and nutritional security, access to basic services and adapting the rural population to climate change, as well as protecting the natural resource base.

There is also a connection with the specific objectives:

- Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change;
- Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and people with disabilities (PcD);
- Improving the environmental conditions of rural communities and their surroundings;

The programs proposed in the ESMP (listed in item 5.3.3 of this document) are focused on applying a mitigation hierarchy, in accordance with the descriptions in the impact sheets (item 5.3.2), avoiding, mitigating and compensating for the impacts identified.

Thus, the Paraíba Sustainable Rural Development Project (Procasa II) is considered to have very positive elements for the development of its catchment area, and the ESMP must be observed in order to control the impacts identified.

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## 8 ANNEXES

## 8.1 Annex - Other relevant international agreements

### **Agreement Establishing the Inter-American Institute for Global Change Research (Minutes of Montevideo)**

The Constitutive Agreement of the Inter-American Institute for Global Change Research, also known as the Montevideo Act, the fruit of the idea that emerged at the 1990 White House Conference on Scientific and Economic Research on Global Change, aims to guarantee the exchange of scientific information on the study of global climate change.

The agreement aims to create a regional network of institutions linked to scientific research, which will be called the "Institute". The aim of the Institute is to foster cooperation between countries studying climate change, allowing for the exchange of information and thus ensuring a more comprehensive understanding of the transformations that planet Earth is undergoing.

Its nineteen members agreed on the following guidelines: (a) promotion of cooperation in scientific studies to better understand the problem and propose solutions; (b) encouragement of scientific programs and projects to find solutions; (c) implementation of technical and scientific training, as well as promotion of structural possibilities for research; (d) making the information obtained from research available to society, governments and businesspeople, with the aim of enabling plans for climate change; (e) obligation to enable the free movement of people accredited to carry out scientific studies in the territories of the States Parties.

In Brazil, climate studies are carried out by INPE - the National Institute for Space Research - the technical and scientific body responsible for studying the subject of the international document in question. It should be noted that there is no control or implementation mechanism or reports on the problem.

### **Mercosur Environment Agreement**

In 2001, Brazil, Argentina, Paraguay and Uruguay signed the Mercosur Framework Agreement on the Environment, also known as the Mercosur Common Environmental Agenda. It came into force on September 17, 2004, via decree 5208, with the aim of establishing common guidelines for environmental preservation and sustainable development.

In order to achieve the goal of environmental preservation, the signatory countries agreed as follows: (a) using natural resources in the most efficient way possible, basing policies on principles of gradualness, flexibility and balance; (b) all environmental policies should be unified in order to strengthen the measures to be implemented; (c) focusing on sustainable development through cooperation between the States Parties; (d) prioritizing the causes of environmental problems as the focus of protectionist policies; (e) collecting and exchanging information about the environment; (f) encouraging environmental management policies; (g) standardizing environmental standards, taking into account the different geographical environments; (h) finding sources of funding for a sustainable environmental policy; (i) promoting policies for the sustainable development of labor, making the necessary preservation compatible with economic progress; (j) encouraging environmentally friendly production processes, services and activities; (k) promoting clean technological progress; (l) providing information on disasters affecting the States Parties; (m) promoting environmental education; (n)

maintaining the cultural aspects of the local population whenever possible when carrying out public preservation initiatives.

Environmental issues are dealt with by two discussion forums: one technical - the Sub-Working Group No. 6 (SGT-6); and the other political - the Meeting of MERCOSUR Environment Ministers (RMMAM).

The primary objective of SGT-6 is to formulate and propose strategies and guidelines that guarantee the protection and integrity of the environment of the States Parties in a context of free trade and consolidation of the customs union, while ensuring equal conditions of competitiveness. The Ministry of the Environment participates as the national coordinator of this Subgroup.

RMMAM is the MERCOSUR body responsible for dealing with politically sensitive environmental issues, which cannot always be discussed within the framework of the Sub-Working Group. Currently, SGT-6 and RMMAM are working to strengthen the environmental perspective in the other MERCOSUR bodies, following up on various projects and identifying priority technical and political issues in order to make the agenda more effective.

### **Unesco Convention for the Safeguarding of the Intangible Cultural Heritage**

Ratified by Brazil in March 2006.

On October 17, 2003, during the 32nd General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Convention for the Safeguarding of the Intangible Cultural Heritage was approved. This Convention entered into force on April 20, 2006. The 2003 Convention has several objectives:

- (a) safeguarding intangible cultural heritage;
- (b) respect for the intangible cultural heritage of the communities, groups and individuals involved;
- (c) raising awareness at local, national and international level of the importance of intangible cultural heritage and its mutual appreciation;
- (d) international cooperation and assistance.

Claiming to be an instrument that promotes intangible cultural heritage, the main generator of cultural diversity and the guarantor of sustainable development, the 2003 Convention aims to fill a gap in the legal system for the international protection of cultural heritage, whose instruments, until now, did not consider intangible cultural heritage, but only tangible, movable and immovable cultural heritage, so that intangible cultural expressions could not be safeguarded through the international legal instruments that existed at the time.

According to the Convention, intangible cultural heritage is defined as "(...) the practices, representations, expressions, knowledge and skills - as well as the instruments, objects, artefacts and cultural spaces associated with them - which communities, groups and, where appropriate, individuals recognize as forming an integral part of their cultural heritage. This intangible cultural heritage, passed down from generation to generation, is constantly recreated by communities and groups according to their environment, their interaction with nature and their history, instilling in them a sense of identity and

continuity, thus contributing to the promotion of respect for cultural diversity and human creativity" (Article 2).

It is therefore this intangible cultural heritage that the 2003 Convention aims to safeguard, providing, among other measures, for each State Party to draw up inventories of this heritage.

### **UN Declaration on the Rights of Indigenous Peoples - UNDRIP (2007)**

Brazil's intention, as one of the signatories to the UNDRIP (2007), is to recognize indigenous peoples and traditional communities as a group distinct from the rest of its population and to create a legal framework to protect the rights of this group. The basis of this treaty focuses on interrelated areas:

- Indigenous peoples (traditional communities) are clearly a separate group from mainstream society with their own customs and beliefs. This includes collective and individual rights.
- The right to self-determination: indigenous peoples and (traditional communities) have the right to freely determine their political status and freely pursue their economic, social and cultural development.
- Free, prior and informed consent (FPIC). Allows indigenous peoples and traditional communities to give or withhold consent from a project that may affect them or their territories. Once they have given their consent, they can withdraw it at any stage. In addition, FPIC allows them to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated.

### **OAS American Declaration on the Rights of Indigenous Peoples**

The American Declaration on the Rights of Indigenous Peoples (DADPI), approved by the General Assembly of the Organization of American States (OAS), is the first instrument in the history of the OAS to promote and protect the rights of indigenous peoples in the Americas. It was approved by acclamation by the Member States on June 15, 2016, in Santo Domingo, the capital of the Dominican Republic.

The member states of the Organization of American States (OAS) recall that the indigenous peoples of the Americas constitute an organized, differentiated and integral segment of their population and have the right to be part of the national identity of the countries, with a special role in strengthening state institutions and achieving national unity based on democratic principles. It also recalls that some of the democratic concepts and institutions enshrined in the constitutions of the American states have their origins in indigenous peoples' institutions and that many of their current participatory systems of decision-making and authority contribute to the improvement of democracies in the Americas, and that it is necessary to develop national legal contexts to consolidate the multiculturalism of these societies.

The declaration raises issues involving the eradication of poverty and the right to development, respect for indigenous cultural and ecological aspects, coexistence, respect and non-discrimination, the right to territory and survival, security and collective rights.

In Article II, the DADPI affirms states' recognition and respect for the multicultural and multilingual character of indigenous peoples, as an integral part of societies. The issue

is related to the provisions of the Brazilian Constitution (Art. 209 § 2, 215 § 1, 231), as well as other infra-constitutional norms.

Article IX deals with the recognition of the legal personality of indigenous peoples, as well as their forms of organization, also supported by Articles 231 and 232 of the Federal Constitution.

The right of indigenous peoples to maintain and promote their own family systems is guaranteed by Article XVII, which also states that states shall respect and protect the different indigenous forms of family, as well as their forms of matrimonial union, filiation, descent and family name. These guarantees are related to Article 6 of the Indian Statute (Law 6.003/1973). Also in Article XVII, by establishing the right of indigenous children to enjoy their own culture, religion or to speak their own language, among others, the Declaration presents precepts that are compatible with the Statute of the Child and Adolescent (Law 8.096/1990).

With regard to indigenous peoples in voluntary isolation or initial contact, Article XXVI of the American Declaration guarantees their right to remain in this condition and to live freely in accordance with their cultures. The same provision establishes the duty of states to recognize, respect and protect the lands, territories, environment and cultures of these peoples, as already provided for in Brazil's indigenous policy.

### **United Nations Convention to Combat Desertification - UNCCD**

The United Nations Convention to Combat Desertification, officially the United Nations Convention to Combat Desertification in Countries Experiencing Severe Drought and/or Desertification, Particularly in Africa (UNCCD) is a multilateral international treaty whose object is the protection of the natural environment and which, as its name suggests, has the central objective of combating desertification.

Desertification is a major contemporary problem.

It was negotiated during the United Nations Conference on Environment and Development, also known as Eco-92, held in Rio de Janeiro in 1992. It was finally adopted on June 17, 1994 in Paris, opened for signatures on October 14, 1994 and entered into force on December 26, 1996. The Conference of the Parties (COP) is its supreme body.

The work of the UNCCD is put into practice through National Action Programs (NAPs), an instrument for implementing the Convention. These programs outline long-term strategies and are formulated with the active participation of local communities. There are also Subregional Action Programmes (PASR) and Regional Action Programmes (PAR), which help to harmonize and reinforce the national programmes. This is participatory development based on a "bottom-up" method, i.e. programs to combat desertification originate at the local level and are based on this specific participation.

The UNCCD responds to the aim of facilitating a far-reaching alliance for the sustainable development of vulnerable dryland ecosystems and, to this end, of improving the channeling of official development assistance investment. The Convention builds on the lessons of the past and expresses an international consensus on an integrated framework for action.

The Global Mechanism (MM) helps the COP to promote funding for the activities planned under the Convention. It is not in charge of obtaining or administering funds, but supports



and advises donors, beneficiaries, development banks, NGOs, etc. to mobilize financial resources and allocate them where they are most needed.

Since it began its activities in 1998, the MM has been under the support of the International Fund for Agricultural Development (IFAD), one of the main international financial institutions in leveraging small farmers and in "giving poor rural people the chance to get out of poverty".

The COP was established by the Convention as the supreme decision-making body, and comprises ratifying governments and regional economic integration organizations, such as the European Union. The COP oversees the implementation of the Convention. The Conference is the supreme body of the Convention: it establishes the decisions that will subsequently be carried out and integrates the ratifications made by all governments.

Along with 192 other countries, Brazil is a signatory to the United Nations Convention to Combat Desertification and Mitigate the Effects of Droughts (UNCCD). This commitment establishes work standards and convergent international targets for coordinated actions in the search for qualitative solutions that meet socio-environmental demands in arid, semi-arid and dry sub-humid areas, particularly where the poorest populations on the planet live.

The UNCCD is recognized as a key instrument for eradicating poverty and promoting sustainable development in rural areas of drylands, which include Brazilian SSAs. The issue of desertification in the country is at the center of political formulation, both because of the legal framework, as it is the subject of a Bill currently being processed, and because of its strategic significance, as it reflects the new approach to qualifying the sustainable use of natural resources as a transforming element in the relationship between society and the environment.

The historical existence of local practices based on ethnic and traditional knowledge of the populations in the semi-arid zones of Brazil, combined with official state interventions dating back to the time of the empire, have produced the conditions and critical mass necessary for the basis of cultural and social organization in order to enable coexistence with droughts, phenomena that are more common to certain areas than others depending on various environmental factors, and almost always anthropogenic vectors.

In this context, Brazil is seen as one of the Party Countries with the greatest global leadership in the process and is active at international level, building bi- and multilateral partnerships, such as the cooperation carried out within the Community of Portuguese Speaking Countries (CPLP) and the Group of Latin American and Caribbean Countries (GRULAC).

Desertification is defined as a process of environmental degradation caused by the inadequate management of natural resources in arid, semi-arid and dry sub-humid areas, which compromises the productive systems of susceptible areas, environmental services and the conservation of biodiversity. In Brazil there are 1,480 municipalities susceptible to this process, which can be caused by man or by nature itself and aggravated by climate issues. It particularly affects the northeastern states, as well as Minas Gerais and Espírito Santo. The studies carried out by the MMA in partnership with the governments of the 11 states show that the areas susceptible to desertification represent 16% of Brazil's territory and 27% of all municipalities involving a population of 31,663,671 inhabitants, where 85% of the country's poverty is concentrated. It therefore represents a context that demands specific public policies that are important for

combating poverty and improving the living conditions of a significant part of the Brazilian population.

With the United Nations Conference on Environment and Development - Rio 92, the need for a specific convention on the subject was defined, establishing guidelines and commitments for countries. One of the main results of Rio 92 was the start of the negotiation process to draw up three conventions: the Framework Convention on Climate Change, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification in Countries Affected by Severe Drought and/or Desertification, particularly in Africa (UNCCD).

In Brazil, the desertification process is a consequence of the inadequate use of forest resources, mainly in the Caatinga and Cerrado, to supply forest biomass to meet a considerable percentage of the energy matrix in the Northeast and other regions, through deforestation; agricultural practices without adequate soil management, causing erosion processes and depleting the soil; overgrazing in extensive livestock farming, compromising the texture of the soil and thus the regeneration of vegetation; and inadequate management of irrigation systems, with the consequent salinization of the land.

### **Rotterdam Convention**

The Rotterdam Convention, in force since 2004, aims to promote shared responsibility and joint efforts by the Parties in the field of international trade in certain hazardous chemicals, in order to protect human health and the environment from possible harm. The agreement establishes a prior informed consent (PIC) procedure for the import of hazardous chemicals.

In other words, the Convention establishes an "early warning system" to help countries protect themselves against certain hazardous chemicals in international trade. It also aims to complement other international instruments by addressing this fundamental element (international trade) in the area of managing chemicals throughout their life cycle.

The Convention raises issues on hazardous chemicals related to: access to information; product labeling; emissions registration; CIP for the import of hazardous chemicals; non-confidentiality.

### **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**

Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora, or Convention on International Trade in Endangered Species of Wild Fauna and Flora in Brazil, also known as the Washington Convention, is a multilateral agreement signed in Washington DC - United States, on March 3, 1973, bringing together a large number of states, with the aim of ensuring that trade in wild animals and plants, and products derived from them, does not endanger the survival of species or constitute a danger to the maintenance of biodiversity.

The CITES agreement was drawn up as a result of a resolution adopted in 1963 within the World Conservation Union (IUCN). The agreement provides for various levels of protection and today covers around 30,000 species of wild fauna and flora.

This is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed by Brazil in 1975 to effectively regulate trade in species of fauna and flora, preventing them from becoming endangered when the threat is international trade. To this end, it assigns producer and consumer countries their share of the common responsibility and establishes the necessary mechanisms to guarantee the non-damaging exploitation of populations. Based on the procedures proposed by the Convention, the Brazilian government - through the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), has incorporated into its procedures for assessing and issuing export/import licenses.

Around 5,950 animal species and 32,800 plant species from around the world are protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) from overexploitation due to international trade. They are included in the three appendices of CITES, grouped according to their degree of threat. In some cases entire groups are included, such as primates, cetaceans (whales, dolphins and porpoises), sea turtles, parrots, corals, cacti and orchids; in others, only a subspecies or a geographically isolated population of a species (e.g. country-specific) is included.

According to Decree No. 3,607 of September 21, 2000, which implements Cites in Brazil, the species in Appendix I are considered to be endangered, the species in Appendix II are those which, although they are not necessarily currently in danger of extinction, could become so unless trade in specimens is subject to strict regulations, and the species in Appendix III were included in the list at the direct request of the country where their exploitation needs to be restricted or prevented and which requires cooperation in their international control.

### **Inter-American Convention on the Prevention, Punishment and Eradication of Violence Against Women, "Convention of Belém do Pará"**

Adopted at Belém do Pará, Brazil, on June 9, 1994, at the twenty-fourth regular session of the General Assembly

The Inter-American Convention on the Prevention, Punishment and Eradication of Violence Against Women - Convention of Belém do Pará, adopted by the General Assembly of the Organization of American States - OAS in 1994, is considered an international milestone in the attempt to curb violence against women. Brazil ratified the Belém do Pará Convention in 1995. In 2006, the Brazilian government complied with General Recommendation 19 of the Committee on the Elimination of All Forms of Discrimination against Women - CEDAW, the Belém do Pará Convention and the 1988 Federal Constitution.

### **Convention for the Protection of the Flora, Fauna and Natural Scenic Beauties of the Countries of America**

It came into force on October 12, 1940 and was ratified by Brazil via decree 58.054 of March 23, 1966. Its objective is the protection and conservation of indigenous fauna and flora, as well as migratory birds, extensive habitat sites, landscapes of great beauty and extraordinary geological formations.

The States Parties signed the Convention for the Protection of the Flora, Fauna and Natural Scenic Beauties of the Americas with the aim of protecting and conserving in

their natural environment specimens of all species and genera of indigenous flora and fauna, including migratory birds, in sufficient numbers and in locations that are extensive enough to prevent their extinction by all human means. In addition, the States Parties have aimed to protect and conserve landscapes of great beauty, extraordinary geological formations, regions and natural objects of aesthetic interest or historical or scientific value, and places characterized by primitive conditions within the cases to which this Convention refers.

### **Unesco Convention Concerning the Protection of the World Cultural and Natural Heritage**

The Convention Concerning the Protection of the World Cultural and Natural Heritage, also known as the Paris Recommendation, is an international commitment created at the seventeenth session of the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which met in Paris from October 17 to November 21, 1972.

The Convention was established in parallel with the United Nations Conference on the Human Environment, the first major international meeting dealing with the basic principles of environmental protection, where the United Nations Environment Program was also created. It is an important regulatory framework for the protection of the cultural and natural heritage of the world's nations. It defined essential concepts of world heritage, understanding it as "an irreplaceable source of life and inspiration", and provides the basis for the inscription of properties on the World Heritage List.

According to Silvia Helena Zanirato, from the State University of Maringá,

*Throughout the text, the understanding was expressed that the protection of such areas could not be carried out solely on a national scale, due to the magnitude of the means required for this procedure, which often went beyond the economic, scientific and technological resources possessed by the countries that housed the heritage elements. It was then that the concept of world heritage was developed, consisting of works of exceptional interest, sometimes unique testimonies, which should be considered as belonging not only to the states in which they were located, but to the whole of humanity, which should be involved in their defense and safeguarding, in order to ensure their transmission to future generations.*

### **Convention for the Safeguarding of the Intangible Cultural Heritage**

On October 17, 2003, the Convention for the Safeguarding of the Intangible Cultural Heritage was signed in Paris on November 3, 2003, and entered into force in Brazil on April 12, 2006, via Decree 5.753/06 and Legislative Decree No. 22/06. Its aim is to protect cultural and intangible heritage by promoting respect for the cultural and intangible heritage of the communities, groups and individuals that make up the societies of the States Parties, awareness in all spheres and without borders of the importance of the object of the international document, its recognition by all the nations involved and mutual international cooperation to safeguard it.

To facilitate the identification and limits of international legal protection, Article 2 of the document contains the following definitions:

For the purposes of this Convention:

*(1) "Intangible cultural heritage" means the practices, representations, expressions, knowledge and techniques - together with the instruments, objects, artefacts and cultural places associated with them - that communities, groups and, in some cases, individuals recognize as an integral part of their cultural heritage. This intangible cultural heritage, which is passed down from generation to generation, is constantly recreated by communities and groups as a function of their environment, their interaction with nature and their history, generating a sense of identity and continuity and thus helping to promote respect for cultural diversity and human creativity. For the purposes of this Convention, only intangible cultural heritage that is compatible with existing international human rights instruments and with the imperatives of mutual respect between communities, groups and individuals, and of sustainable development, shall be taken into account.*

*2. Intangible cultural heritage", as defined in paragraph 1 above, manifests itself in particular in the following fields:*

*a) oral traditions and expressions, including language as a vehicle for the*

*intangible cultural heritage;*

*b) artistic expressions;*

*c) social practices, rituals and festive acts;*

*d) knowledge and practices related to nature and the universe;*

*e) traditional craft techniques.*

## **Convention on Biological Diversity**

The Convention on Biological Diversity (CBD) is a United Nations treaty and one of the most important international instruments related to the environment.

The Convention was established during the notorious ECO-92 - the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in June 1992 - and is today the main global forum for issues related to the topic.

More than 160 countries have already signed the agreement, which came into force in December 1993. It was ratified in Brazil by Federal Decree No. 2,519 of March 16, 1998.

The Convention is structured on three main bases - the conservation of biological diversity, the sustainable use of biodiversity and the fair and equitable sharing of the benefits arising from the utilization of genetic resources - and refers to biodiversity at three levels: ecosystems, species and genetic resources.



## 8.2 Annex - Other complementary federal laws

### Vegetation cover

- Federal Law No. 7.754, of April 14, 1989, which establishes measures for the protection of forests at river sources and makes other provisions.
- IBAMA Ordinance No. 37-N, of April 3, 1992, which provides for the official list of species of Brazilian flora threatened with extinction.
- Normative Instruction No. 06 of September 23, 2008, which lists species of Brazilian flora threatened with extinction.
- Law No. 12.651, of May 25, 2012 (the New Brazilian Forest Code), as amended by Law No. 12.727, of October 17, 2012, which provides for the protection of native vegetation; amends Laws No. 6.938, of August 31, 1981, No. 9.393, of December 19, 1996, and No. 11.424, of December 22, 2006; repeals Laws No. 4.771, of September 15, 1965, and No. 7.754, of December 14, 2006.393, of December 19, 1996, and 11.428, of December 22, 2006; repeals Laws 4.771, of September 15, 1965, and 7.754, of April 14, 1989, and Provisional Measure 2.166-67, of August 24, 2001; and makes other provisions. This law establishes general rules on the protection of vegetation, Permanent Preservation Areas and Legal Reserve areas; forest exploitation, the supply of forest raw materials, control of the origin of forest products and the control and prevention of forest fires, and provides for economic and financial instruments to achieve its objectives. Article 8 establishes that intervention or suppression of native vegetation in a Permanent Preservation Area will only take place in cases of public utility, social interest or low environmental impact.

According to Article 4 of the Brazilian Forest Code, which defines the areas of permanent preservation, in section III, the areas surrounding artificial water reservoirs, resulting from the damming or impounding of natural watercourses, are considered APP, within the range defined in the project's environmental license.

### Fauna

- Federal Law No. 5.197, of January 3, 1967 (amended by Laws No. 7.584/87, No. 7.653/88, No. 97.633/89 and No. 9.111/95), which instituted the Fauna Protection Code.
- IBAMA Ordinance No. 1.522, of December 19, 1989, which provides for the official list of species of Brazilian fauna threatened with extinction.
- MMA Normative Instruction No. 03, of May 27, 2003, with the official list of species of Brazilian fauna threatened with extinction.
- IBAMA Normative Instruction No. 146, of January 10, 2007, which establishes the criteria for procedures relating to the management of wild fauna (survey, monitoring, rescue, salvage and disposal) in areas of influence of undertakings and activities considered to be effectively or potentially causing impacts on fauna subject to environmental licensing, as defined by Federal Law No. 6938/81 and CONAMA Resolutions No. 001/86 and No. 237/97.

### **Conservation Units and other Protected Areas**

- Federal Decree No. 84.017, of September 21, 1979, approving the regulations for Brazilian National Parks.
- Law No. 6.902, of April 27, 1981, which provides for the creation of Ecological Stations and Environmental Protection Areas.
- Federal Decree No. 89.336, of January 31, 1984, which provides for Ecological Reserves and Areas of Relevant Ecological Interest.
- Federal Decree No. 99.274, of June 6, 1990, which regulates Law No. 6.902, of April 27, 1981, and Law No. 6.938, of August 31, 1981, which provide, respectively, for the creation of Ecological Stations and Environmental Protection Areas and for the National Environmental Policy.
- CONAMA Resolution No. 13, of December 6, 1990, which establishes rules for the surroundings of Conservation Units with a view to protecting existing ecosystems.
- Federal Decree No. 1.298, of October 27, 1994, approving the National Forests Regulations.
- Federal Decree No. 1.922, of June 5, 1996, which provides for the recognition of Private Natural Heritage Reserves (RPPN).
- Federal Decree No. 2.119, of January 13, 1997, which provides for the Pilot Program for the Protection of Brazil's Tropical Forests and its Coordination Commission.
- Federal Law No. 9.985, of July 18, 2000, which institutes the National System of Nature Conservation Units (SNUC), establishes criteria and norms for the creation, implementation and management of conservation units, amended by Law No. 11.132/2005.
- CONAMA Resolution No. 302, of March 20, 2002, which sets out the parameters, definitions and limits of Permanent Preservation Areas of artificial reservoirs and the use regime of the surrounding area.
- CONAMA Resolution No. 303, of March 20, 2002, which sets out the parameters, definitions and limits of Permanent Preservation Areas.
- Federal Decree No. 4.340, of August 22, 2002, which regulates articles of Law No. 9.985/00, which provides for the National System of Nature Conservation Units - SNUC.
- Federal Decree No. 5.092, of May 21, 2004, which defines rules for identifying priority areas for the conservation, sustainable use and sharing of the benefits of biodiversity, within the scope of the Ministry of the Environment.
- Federal Law No. 11.132, of July 4, 2005, which adds an article to Law No. 9.985, of July 18, 2000, which regulates Article 225, § 1, items I, II, III and VII of the Federal Constitution and establishes the National System of Nature Conservation Units.
- Federal Law No. 11.284, of March 2, 2006, which provides for the management of public forests for sustainable production; establishes, within the structure of the Ministry of the Environment, the Brazilian Forestry Service - SFB; creates the National Forestry Development Fund - FNDF; amends Laws Nos. 10.683, of May 28, 2003, 5.868, of December 12, 1972, 9.605, of February 12, 1998, 4.771, of



September 15, 1965, 6.938, of February 12, 1998.683, of May 28, 2003, 5.868, of December 12, 1972, 9.605, of February 12, 1998, 4.771, of September 15, 1965, 6.938, of August 31, 1981, and 6.015, of December 31, 1973.

- CONAMA Resolution No. 369, of March 28, 2006, which sets out the exceptional cases of public utility, social interest or low environmental impact that make it possible to intervene or suppress vegetation in a Permanent Preservation Area (APP).
- Decree No. 5.746, of April 5, 2006, which regulates Article 21 of Law No. 9.985/00, which provides for the National System of Nature Conservation Units - SNUC. This article deals with the Private Natural Heritage Reserve - RPPN.
- CONAMA Resolution No. 371, of April 5, 2006, which establishes guidelines for environmental agencies for calculating, collecting, applying, approving and controlling the spending of funds from environmental compensation, in accordance with Law No. 9.985, of July 18, 2000, and makes other provisions.
- Federal Decree No. 5.758, of April 13, 2006, which establishes the National Strategic Plan for Protected Areas - PNAP, its principles, guidelines, objectives and strategies.
- Ordinance No. 09, of January 23, 2007, article 1 of which establishes that the areas referred to in paragraph 2, called Priority Areas for the Conservation, Sustainable Use and Benefit Sharing of Brazilian Biodiversity or Priority Areas for Biodiversity, are recognized as priority areas for the conservation, sustainable use and benefit sharing of Brazilian biodiversity, for the purpose of formulating and implementing public policies, programs, projects and activities under the responsibility of the Federal Government aimed at: I - in situ conservation of biodiversity; II - sustainable use of biodiversity components; III - sharing of benefits derived from access to genetic resources and associated traditional knowledge; IV - research and inventories on biodiversity; V - recovery of degraded areas and over-exploited or endangered species; and VI - economic valorization of biodiversity.
- CONAMA Resolution No. 429, of February 28, 2011, which sets out the methodology for recovering Permanent Preservation Areas (APPs).

### **Water Resources**

- Federal Decree No. 24.643, of July 10, 1934, establishing the Water Code.
- Federal Law No. 7,990 of December 28, 1989, which instituted financial compensation for states, the Federal District and municipalities for the results of the exploitation of oil or natural gas, water resources for the purpose of generating electricity, mineral resources in their respective territories, continental platforms, territorial sea or exclusive economic zone.
- Federal Law No. 8.001, of March 13, 1990, which defines the distribution percentages of the financial compensation referred to in Law No. 7.990, of December 28, 1989.
- Federal Law No. 9.433, of January 8, 1997, which instituted the National Water Resources Policy, created the National Water Resources Management System, regulates item XIX of article 21 of the Federal Constitution and amends article 1 of

Law No. 8001, of March 13, 1990, which amended Law No. 7.990, of December 28, 1989. The objectives of the National Water Resources Policy (Article 2) are: I - to ensure the necessary availability of water for current and future generations, at quality standards appropriate to their respective uses; II - the rational and integrated use of water resources, including waterway transport, with a view to sustainable development; III - prevention and defense against critical hydrological events of natural origin or resulting from the inappropriate use of natural resources.

- CNRH Resolution No. 05, of April 10, 2000, which establishes guidelines for the formation and operation of River Basin Committees, in order to implement the National Water Resources Management System, as established by Law No. 9.433/1997.
- MMA Normative Instruction No. 4, of June 21, 2000, which approves the administrative procedures for issuing grants for the right to use water resources in bodies of water in the Union's domain, as set out in the Annexes to this Normative Instruction.
- Federal Law No. 9.984, of July 17, 2000 (amended by Provisional Measure 2.216-37, of August 31, 2001), which provides for the National Water Agency - ANA, the federal entity responsible for implementing the National Water Resources Policy and coordinating the National Water Resources Management System.
- CONAMA Resolution No. 274, of November 29, 2000, which revises the criteria for bathing in Brazilian waters.
- Federal Decree No. 3.692, of December 19, 2000, which establishes the regimental structure of the National Water Agency - ANA.
- CNRH Resolution No. 15 of January 11, 2001, which establishes general guidelines for groundwater management.
- CNRH Resolution No. 16, of May 8, 2001, which provides for the granting of water resources.
- Federal Decree No. 4.613, of March 11, 2003, which regulates the National Water Resources Council.
- CNRH Resolution No. 32 of October 15, 2003, which establishes the National Hydrographic Division into Hydrographic Regions for the purpose of guiding, supporting and implementing the Water Resources Plan.
- Federal Decree No. 4.895, of November 25, 2003, which provides for the authorization of the use of physical spaces of bodies of water in the Union's domain for aquaculture purposes.
- Federal Decree No. 5.069, of May 5, 2004, which provides for the composition, structure, powers and functioning of the National Aquaculture and Fisheries Council (CONAP).
- Federal Law No. 10.881, of June 9, 2004, which provides for management contracts between the National Water Agency and entities delegating the functions of Water Agencies related to the management of water resources in the Union's domain.
- ANA Resolution No. 707, of December 21, 2004, which sets out the technical and administrative procedures to be observed when examining grant applications.

- CONAMA Resolution No. 357, of March 17, 2005, which defines the classification of bodies of water and their environmental guidelines, as well as defining the conditions and standards for discharging effluents.
- CNRH Resolution No. 48, of March 21, 2005, which establishes general criteria for charging for the use of water resources.
- CNRH Resolution No. 58, of January 30, 2006, which approves the National Water Resources Plan (PNRH).
- CNRH Resolution No. 65, of December 7, 2006, which establishes guidelines for linking the procedures for obtaining the granting of the right to use water resources with environmental licensing procedures.
- ANA Resolution No. 308, of August 6, 2007, which sets out the procedures for collecting the revenue from charging for the use of water resources in bodies of water under the Union's domain.
- Federal Law No. 11.959, of June 29, 2009, which provides for the National Policy for the Sustainable Development of Aquaculture and Fishing, regulates fishing activities, repeals Law No. 7.679, of November 23, 1988, and provisions of Decree-Law No. 221, of February 28, 1967.
- CNRH Resolution No. 129, of June 29, 2011, which establishes general guidelines for the definition of remaining minimum flows.
- CNRH Resolution No. 145, of December 12, 2012, which establishes guidelines for the preparation of River Basin Water Resources Plans.

### **Noise Emission**

- CONAMA Resolution No. 01 of March 8, 1990, which provides for the emission of noise as a result of any industrial, commercial, social or recreational activities, determining standards, criteria and guidelines. The emission of noise as a result of any industrial, commercial or recreational activities will comply, in the interests of health and public quiet, with the standards, criteria and guidelines established by NBR 10.151/2000.
- Brazilian Standard ABNT NBR 10151/2000, which deals with the assessment of noise in inhabited areas with a view to community comfort. It establishes the conditions required to assess the acceptability of noise in communities, regardless of the existence of complaints. It outlines methods for measuring noise, the application of corrections to the measured levels if the noise has special characteristics and a comparison of the corrected levels with a criterion that takes various factors into account.

### **Air Quality**

- CONAMA Resolution No. 05, of June 15, 1989, which provides for the National Air Pollution Control Program - PRONAR.
- CONAMA Resolution No. 03, of June 28, 1990, which establishes air quality standards and defines the objective to be achieved through the control strategy established by the emission standards that should guide the preparation of Regional Air Pollution Control Plans. It defines air quality standards as the concentrations of

atmospheric pollutants which, if exceeded, could affect the health, safety and well-being of the population, as well as causing damage to flora and fauna, materials and the environment in general and establishes that (i) Primary Air Quality Standards - are the concentrations of pollutants which, if exceeded, could affect the health of the population. Secondly (ii) Secondary Air Quality Standards - are the concentrations of pollutants below which the minimum adverse effect on the well-being of the population is expected, as well as the minimum damage to fauna, flora, materials and the environment in general.

- CONAMA Resolution No. 382, of December 26, 2006, which establishes the maximum emission limits for atmospheric pollutants from fixed sources.

### **Solid Waste**

- CONAMA Resolution No. 1A, of January 23, 1986, which establishes rules for the transportation of dangerous products that circulate near densely populated areas, the protection of water sources and the natural environment.
- Federal Law No. 7.802, of July 11, 1989, which provides for research, experimentation, production, packaging and labeling, transport, storage, marketing, commercial advertising, use, import, export, final destination of waste and packaging, registration, classification, control, inspection and inspection of pesticides, their components and the like.
- Federal Decree No. 98.816, of January 11, 1990, which regulated Law No. 7.802/1989.
- CONAMA Resolution No. 307, of July 5, 2002, which establishes guidelines, criteria and procedures for the management of construction waste, regulating the necessary actions in order to minimize environmental impacts. It defines the responsibilities of public authorities and private agents with regard to construction waste and makes it compulsory for municipalities to adopt integrated management plans, as well as waste management projects at construction sites, while creating legal conditions for the application of Federal Law No. 9.605/1998 (Environmental Crimes Law) with regard to construction waste.
- Brazilian standard ABNT NBR 10004/2004, which classifies solid waste according to its potential risks to the environment and public health, so that it can be managed properly.
- CONAMA Resolution No. 362, of June 23, 2005, which provides for the collection, disposal and final destination of used or contaminated lubricating oil.
- Law No. 12.305, of August 2, 2010, which defines the National Solid Waste Policy and provides for its principles, objectives and instruments, as well as guidelines for the integrated management and management of solid waste, including hazardous waste, the responsibilities of generators and public authorities and the applicable economic instruments. Classifies solid waste:
  - I - By origin: a) household waste; b) urban cleaning waste; c) urban solid waste; d) waste from commercial establishments and service providers; e) waste from public basic sanitation services; f) industrial waste; g) waste from health services; h) construction waste; i) agroforestry waste; j) waste from transport services; k) mining waste;

- II - In terms of hazardousness: a) hazardous waste; b) non-hazardous waste.
- Federal Decree No. 7.404, of December 23, 2010, which regulates Law No. 12.305/2010, which instituted the National Solid Waste Policy, creates the Interministerial Committee of the National Solid Waste Policy and the Guidance Committee for the Implementation of Reverse Logistics Systems.
- CONAMA Resolution No. 454 of November 1, 2012: establishes the general guidelines and reference procedures for the management of material to be dredged in waters under national jurisdiction.

### **Soil and Groundwater Quality**

- Federal Decree No. 303 of February 28, 1967, which creates the National Council for Environmental Pollution Control.
- Federal Decree No. 1.413, of August 14, 1975, which provides for the control of environmental pollution caused by activities.
- CONAMA Resolution No. 396, of April 3, 2008, which provides for the classification and environmental guidelines for the classification of groundwater and other provisions.
- CONAMA Resolution No. 420, of December 29, 2009, which sets out criteria and guideline values for soil quality in terms of the presence of chemical substances and establishes guidelines for the environmental management of areas contaminated by these substances as a result of anthropic activities. With a view to preventing and controlling soil quality, undertakings that carry out activities with the potential to contaminate soil and groundwater must, at the discretion of the competent environmental body: I - implement a soil and groundwater quality monitoring program in the area of the undertaking and, when necessary, in its area of direct influence and in surface waters; and II - submit a conclusive technical report on soil and groundwater quality, with each application for a license renewal and prior to the closure of activities.

### **Environmental licensing**

Environmental licensing was instituted throughout the country by Law No. 6.938/1981 and regulated by Decree No. 88.351/1983 (modified by Decree No. 99.274 of 1990), which established its main guidelines. It was structured into three mandatory licenses: Preliminary License (LP), Installation License (LI) and Operation License (LO), which correspond to the different phases of planning and implementing a project. Each license contains restrictions that condition the execution of the project and the activity's environmental control measures. The process also includes the follow-up routines for the licenses granted, i.e. the inspection and monitoring of the environmental effects of the project, essential components of the system, as well as the technical and administrative standards that regulate it.

All undertakings capable of modifying the environment are subject to licensing, i.e. those that potentially or effectively affect environmental quality, cause any form of pollution or use environmental resources, developed by individuals or legal entities, including public administration entities, that are installed in national territory. Licensing therefore applies

to the installation or expansion of private or governmental activities, including the installation of equipment or works of an industrial, commercial, extractive, agricultural, urban, transport infrastructure, energy and water generation and basic sanitation nature.

Since then, a series of resolutions by the National Environmental Council (CONAMA) have introduced other guidelines for the licensing of certain types of activity, as well as procedural and administrative elements. Of particular note are the criteria for applying environmental impact assessment to projects with significant polluting potential (Resolution 001/86). In general, the complementary rules and administrative procedures for their effective use are determined by the state environmental entities, in cases of state competence, or by the Brazilian Institute for the Environment - IBAMA, in cases of federal competence. In this context, the following CONAMA resolutions may be applied to the Project's interventions:

- CONAMA Resolution No. 01, of January 23, 1986, which establishes the definitions, responsibilities, basic criteria and general guidelines for the use and implementation of Environmental Impact Assessment as one of the instruments of the National Environmental Policy.
- CONAMA Resolution No. 05/88, which establishes rules subjecting sanitation works to environmental licensing;
- CONAMA Resolution No. 06, of September 16, 1987, which provides for the environmental licensing of works in the electricity generation sector.
- CONAMA Resolution No. 09, of December 9, 1987, which provides for public hearings.
- CONAMA Resolution No. 237, of December 19, 1997, which provides for the revision and complementation of the procedures and criteria used for environmental licensing established by CONAMA Resolution No. 001/86, in addition to requiring the presentation of Municipal Land Use and Occupation Certificates and technical examinations and manifestations by the municipalities affected by the project.
- CONAMA Resolution No. 274/2000, which establishes bathing standards for fresh, brackish and saline waters.
- CONAMA Resolution No. 302/2002, which sets out the parameters, definitions and limits of permanent preservation areas in artificial reservoirs and the regime for using the surrounding area.
- CONAMA Resolution No. 458/2013, which establishes procedures for environmental licensing in agrarian reform settlements.

### **Family farming**

**Law No. 11.326 of July 24, 2006** establishes the guidelines for formulating the National Policy for Family Farming and Rural Family Enterprises. In addition to this law, the following pieces of legislation related to the topic should also be considered:

### **Decree 11.635/23**

Amends Decree No. 7.572, of September 28, 2011, which regulates provisions of Law No. 12.512, of October 14, 2011, which deal with the Environmental Conservation Support Program - Bolsa Verde Program. The Bolsa Verde Program will be implemented

through the direct transfer of financial resources, under the responsibility of the Ministry of the Environment and Climate Change. The benefit is aimed at low-income families who practice some kind of natural resource conservation activity.

**Decree 11.636/23**

Establishes the National Commission for Employed Rural Workers to manage the National Policy for Employed Rural Workers.

**Decree 11.637/23**

It introduces the definition of an encampment as a group of families in a situation of social vulnerability, living in the same locality, who require Incra actions for their inclusion in the PNRA, enrolled in the Federal Government's Single Registry for Social Programs as encamped people and registered by Incra, in accordance with the procedures established by the municipality. It also updates the scores for the selection process

**Decree 11.638/23**

Establishes the National Commission to Combat Violence in the Countryside

**Decree 11.639/23**

Establishes an Interministerial Working Group for the National Plan for Youth and Rural Succession

**Decree 11.640/23**

It establishes the National Pact for the Prevention of Femicide, with the aim of preventing all forms of discrimination, misogyny and gender violence against women through the implementation of intersectoral government actions, from a gender perspective and its intersectionalities.

**Decree 11.641/23**

Establishes the National Citizenship and Good Living Program for Rural Women, which aims to guarantee access to basic civil documentation, joint land titling and the territory occupied by rural women, understood as women from the countryside, forests and waters, so that they can live with dignity, ensuring their civil, political and social rights

**Decree 11.642/23**

Establishes the Productive Backyard Program for Rural Women, within the scope of the Ministry of Agrarian Development and Family Agriculture and the Ministry of Development and Social Assistance, Family and Fight against Hunger, with the aim of promoting the economic autonomy of rural women through: I - structuring productive backyards; II - bringing women together in groups or collective organizations; III - helping them access public policies to support food production and marketing; IV - access to equipment, machinery, implements, utensils and supplies needed to set up or expand productive backyards; and V - social technologies for accessing water.

## National Solid Waste Policy

The National Solid Waste Policy, established by Law No. 12.305 of August 2, 2010, sets out the principles, objectives and instruments, as well as the guidelines for the integrated management and management of solid waste, including hazardous waste; the responsibilities of generators and public authorities and the applicable economic instruments.

This law established the shared responsibility of waste generators: manufacturers, importers, distributors, traders, citizens and holders of urban solid waste management services in the Reverse Logistics of post-consumer waste and packaging.

It also set important targets that will contribute to the elimination of landfills and instituted planning instruments at the national, state, micro-regional, inter-municipal and metropolitan and municipal levels; as well as requiring private entrepreneurs to draw up their Solid Waste Management Plans.

The National Solid Waste Policy puts Brazil on an equal footing with the main developed countries in terms of the legal framework and innovates with the inclusion of waste pickers of recyclable and reusable materials, both in Reverse Logistics and in Selective Collection.

## Occupational Health and Safety

The following are the legal diplomas and technical standards considered most relevant within the scope of the Program, with regard to Occupational Health and Safety.

- Decree-Law 5452 of May 1, 1943, Chapter V of Title II of the Consolidation of Labor Laws - CLT.
- Decree 62.130 of 29/07/2017 - Creates, within the direct, indirect and foundational Administration, work teams called "Brigade against Aedes aegypti" whose function is to create specific brigades to combat the mosquito and reduce the incidence of arboviruses.
- Ordinance 3.523 of 28/08/1998 of the Ministry of Health: Approves Technical Regulations containing basic measures relating to procedures for visually checking the state of cleanliness, removing dirt by physical methods and maintaining the state of integrity and efficiency of all components of air conditioning systems, in order to guarantee Indoor Air Quality and prevent risks to the health of occupants of air-conditioned environments.
- Law 6514 of December 22, 1977 - which amends Chapter V of Title II of the CLT, relating to Occupational Safety and Medicine.
- Ordinance 3214 of June 8, 1978 - Approves the NRs - Regulatory Norms of Chapter V of Title II of the CLT.

**NR 01 - General Provisions:** aims to inform about the scope of the NRs, as well as the obligations of the employer and employee with regard to the legal document.

**NR 04 - Specialized Services in Safety Engineering and Occupational Medicine:** aims to inform the sizing of Specialized Services in Safety Engineering and Occupational Medicine, linked to the risk gradation of the main activity and the total number of employees in the establishment,



**NR 05 - Comissão Interna de Prevenção de Acidentes (Internal Accident Prevention Commission):** aims to prevent accidents and illnesses arising from work, in order to make work permanently compatible with the preservation of life and the promotion of workers' health.

**NR 06 - Personal Protective Equipment - PPE:** aims to provide information on the definition, mandatory use and specifications for the use of PPE.

**NR 07 - Occupational Health Medical Control Programs:** aims to establish guidelines and requirements for the development of the Occupational Health Medical Control Program - PCMSO in organizations, with the aim of protecting and preserving the health of their employees in relation to occupational risks, according to the risk assessment of the organization's Risk Management Program - PGR.

**NR 09 - Evaluation and Control of Occupational Exposures to Physical, Chemical and Biological Agents:** establishes the requirements for evaluating occupational exposures to physical, chemical and biological agents when identified in the Risk Management Program - PGR, provided for in NR-1, and subsidizing it in terms of preventive measures for occupational risks.

**NR 10 - Safety in Electrical Installations and Services:** aims to establish the minimum requirements and conditions for the implementation of control measures and preventive systems, in order to guarantee the safety and health of workers who, directly or indirectly, interact in electrical installations and services with electricity.

**NR 12 - Safety at Work in Machinery and Equipment:** aims to define technical references, fundamental principles and protection measures to guarantee the health and physical integrity of workers and establishes minimum requirements for the prevention of accidents and occupational diseases in the design and use phases of machinery and equipment of all types, as well as their manufacture, import, sale, exhibition and assignment in any capacity, in all economic activities.

**NR 13 - Boilers, Pressure Vessels And Piping:** Establishes minimum requirements for managing the structural integrity of steam boilers, pressure vessels and their interconnecting piping in aspects related to installation, inspection, operation and maintenance, with a view to the safety and health of workers.

**NR 15 - Unhealthy Activities and Operations:** its purpose is to inform about the activities that are considered unhealthy by the MTE, due to exposure above the legal Tolerance Limits or through qualitative assessment of worker exposure.

**NR 16 - Hazardous Activities and Operations:** aims to inform about activities and operations considered hazardous due to exposure to explosives, flammables, electrical energy, ionizing radiation and exposure to physical violence.

**NR 17 - Ergonomics:** aims to establish parameters that allow working conditions to be adapted to the psycho-physiological characteristics of workers, in order to provide maximum comfort, safety and efficient performance. Working conditions include aspects related to lifting, transporting and unloading materials, furniture, equipment and the environmental conditions of the workplace and the organization of work itself.

**NR 18 - Conditions and Environment of Work in the Construction Industry:** aims to establish administrative, planning and organizational guidelines for the implementation of control measures and preventive safety systems in the processes, conditions and environment of work in the construction industry.

**NR 19 - Explosives:** The manufacture, use, import, export, traffic and trade of explosives must comply with the provisions of specific legislation, in particular the Brazilian Army's Regulations for the Inspection of Controlled Products (R-105), approved by Decree No. 3,665 of November 20, 2000.

**NR 20 - Flammable and Combustible Liquids:** Establishes minimum requirements for occupational health and safety management against accident risk factors arising from the extraction, production, storage, transfer, handling and manipulation of flammable and combustible liquids.

**NR 21 - Open-air work:** This establishes standards for work in the open, making it compulsory to have shelters, even rustic ones, capable of protecting workers from inclement weather. It also requires special measures to protect workers from excessive sunlight, heat, cold, humidity and inconvenient winds. Finally, it stipulates that workers who live at the workplace must be provided with accommodation that offers adequate sanitary conditions

**NR 24 - Sanitary and Comfort Conditions in Workplaces:** Establishes parameters for (i) Sanitary facilities, (ii) Changing rooms, (iii) Cafeterias, (iv) Kitchens, (v) Accommodation and (vi) Hygiene and comfort conditions during meals.

**NR 26 - Safety Signs:** Establishes parameters for safety signs in workplaces to warn local workers about risks and dangerous products.

**NR 31 - Rural Work:** Aims to establish the precepts to be observed in the organization and environment of rural work, in order to make the planning and development of the sector's activities compatible with the prevention of accidents and illnesses related to rural work.

**NR 33 - Safety and Health at Work in Confined Spaces:** Establishes the minimum requirements for identifying confined spaces and recognizing, evaluating, monitoring and controlling existing risks, in order to permanently guarantee the safety and health of workers who interact directly or indirectly in these spaces.

**NR 35 - Work at Height:** Work at height is considered to be any activity carried out above 2.00 m (two meters) from the lower level, where there is a risk of falling. Access by ropes is regulated in Annex 1 and for work on inclined planes, the application of this annex must be established by Risk Analysis.

With regard to legislation related to workers' health and safety, the Ministry of Labor and Social Security is the body responsible for the rights and protection of workers' health and safety in Brazil. Documents such as the PCMSO, the PPRA, or the constitution of the CIPA, linked to worker health and safety, as recommended by the Ministry's Regulatory Norms (NR), must be drawn up and reported to the Federal Government's eSocial system.

eSocial is a computerized system of the Public Administration and all the information it contains is protected by secrecy. Unauthorized access, voluntary or accidental provision of the access password or information and breach of confidentiality constitute infractions or illicit acts that subject the user to administrative, criminal and civil liability. Employers must access eSocial by logging in to the Gov.br system (the Federal Government's unified system), having previously registered and been awarded the respective seal of trust on the Gov.br Portal, requiring an official Digital Certificate for access.

The Work and Social Security Card (CTPS) is a mandatory document for workers in Brazil. The CTPS is one of the only documents that can reproduce, clarify and prove data about the worker's working life and must be used by the employer to make the appropriate functional records that will be linked to the records of the Ministry of Labor and Social Security systems.

Work cards in Brazil are issued by the Ministry of Labor and Social Security, and only those over the age of 14 can obtain a work card.

Federal Decree-Law 5,452 of May 1, 1943 approves the Consolidation of Labor Laws. The Regulatory Norms (NR), which are complementary provisions to Chapter V (On Occupational Safety and Medicine) of Title II of the Consolidation of Labor Laws (CLT), amended by Law No. 6,514 of December 22, 1977, must be taken into account. They consist of obligations, rights and duties that employers and workers must fulfill in order to guarantee a safe and healthy workplace, preventing the occurrence of illnesses and accidents at work.

The various Regulatory Norms were drawn up to provide safety for workers, and articles 8 and 11 (among other specific points in the norm) indicate the requirement to comply with workers' fundamental rights.

Regarding the protection of women's work, mentioned in Chapter III, it should be noted: Children and migrants are detailed in paragraphs 12 and 23 in terms of rights, however, the understanding of this paragraph brings special measures, therefore, anomalous situations that require attention on the part of the taker.

Chapter IV - On the Protection of Child Labor establishes working standards for minors between the ages of 14 and 18. It prohibits exploitative, degrading or offensive work and dangerous work.

Title II - General Labor Protection Standards - includes all rights related to working conditions and terms of employment, including, for example: wages and benefits; wage deductions; working hours; overtime and payment arrangements; rest days; and sick leave, maternity leave, vacations or vacations.

In relation to general provisions and occupational risk management, item 1.5.3 Responsibilities states that the organization must implement, by establishment, occupational risk management in its activities and that occupational risk management will constitute a Risk Management Program - RMP. The organization must consider working conditions, in accordance with RS-17 [Ergonomics], as well as taking the necessary measures to improve OSH [Occupational Health and Safety] results. The main NRs related to the scope of the Procasa II Program are listed below:

- NR-5 - internal accident prevention committee
- NR-7 - Occupational Health Medical Control Program
- NR-9 - environmental risk prevention program
- NR-10 - safety in electrical installations and services
- NR-11 - transportation, movement, storage and handling of materials
- NR-12 - occupational safety in machinery and equipment
- NR-15 - unhealthy activities and operations
- NR-16 - dangerous activities and operations

- NR-17 - ergonomics
- NR-18 - working conditions and environment in the construction industry
- NR-20 - occupational health and safety with flammable and combustible materials
- NR-21 - open-air work
- NR-23 - fire protection
- NR-24 - sanitary and comfort conditions in the workplace
- NR-25 - industrial waste
- NR-26 - safety signs
- NR-35 - working at heights

### **National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT)**

Another very important issue related to cultural diversity and traditional populations is addressed in Brazil by the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT), established in 2007 by Decree No. 6.040/2007. The Policy establishes that the National Commission for the Sustainable Development of Traditional Peoples and Communities - CNPCT, created by Decree of July 13, 2006, is responsible for coordinating the implementation of this Policy.

The PNPCT's specific objective is to promote the aforementioned "sustainable development" with an emphasis on recognizing, strengthening and guaranteeing their territorial, social, environmental, economic and cultural rights. It also advocates respecting and valuing the identity of traditional peoples and communities, as well as their forms of organization and their different institutions. This policy is structured around four strategic axes: 1) Access to Traditional Territories and Natural Resources, 2) Infrastructure, 3) Social Inclusion and 4) Promotion and Sustainable Production.

Specifically with regard to the infrastructure axis and other related axes, Article 3 states:

- III - to set up infrastructure suited to the socio-cultural realities and demands of traditional peoples and communities;
- IV - guarantee the rights of traditional peoples and communities directly or indirectly affected by projects, works and undertakings;
- V - to guarantee and value traditional forms of education and strengthen dialogic processes as a contribution to the development of each people and community, guaranteeing participation and social control in both formal and non-formal educational training processes;
- X - guarantee access to public social policies and the participation of representatives of traditional peoples and communities in social control bodies;
- XI - ensure that social inclusion programs and actions specifically target traditional peoples and communities;
- XII - to implement and strengthen programs and actions aimed at gender relations in traditional peoples and communities, ensuring women's vision and participation

in government actions, valuing the historical importance of women and their ethical and social leadership;

- XVII - to support and guarantee productive inclusion with the promotion of sustainable technologies, respecting the social organization system of traditional peoples and communities, valuing local natural resources and traditional practices, knowledge and technologies.

The CNPCT's mission is to agree on joint action by representatives of the direct public administration and members of the non-governmental sector for the social, economic, cultural and environmental strengthening of traditional peoples and communities. Created by the Decree of December 27, 2004 and modified by the Decree of July 13, 2006, the body has a deliberative and consultative nature. It is chaired by the Ministry of Social Development and Fight against Hunger (MDS) and secretariat by the Ministry of the Environment (MMA). It is also made up of other representatives from federal bodies and entities and non-governmental organizations, who meet every four months. These include the National Indian Foundation FUNAI (for indigenous peoples), the Ministry of Fisheries and Aquaculture (for fishing communities) and the Palmares Foundation (for quilombola communities). As a direct result of the body's work, the National Policy for the Sustainable Development of Traditional Peoples and Communities was drawn up with the main objective of promoting the sustainable development of these groups with an emphasis on recognizing, strengthening and guaranteeing their territorial, social, environmental, economic and cultural rights, respecting and valuing their identities, forms of organization and institutions.

FUNAI is the official indigenist body of the Brazilian state. Created by Law No. 5.371, of December 5, 1967, linked to the Ministry of Indigenous Peoples, it is the coordinator and main executor of the Federal Government's indigenous policy. Its institutional mission is to protect and promote the rights of indigenous peoples in Brazil. Funai is responsible for carrying out identification and delimitation studies, demarcation, land regularization and registration of lands traditionally occupied by indigenous peoples, as well as monitoring and inspecting indigenous lands. FUNAI also coordinates and implements policies to protect isolated and newly-contacted peoples. It also promotes policies aimed at the sustainable development of indigenous populations. In this field, FUNAI promotes ethnodevelopment, conservation and environmental recovery actions on indigenous lands, as well as controlling and mitigating possible environmental impacts resulting from external interference on indigenous lands.

As mentioned, FUNAI, Brazil's main indigenous defense agency, is linked to the Ministry of Indigenous Peoples, a ministry of Brazil's executive branch chaired by activist Sônia Guajajara, whose duties are to guarantee indigenous people access to education and health, demarcate indigenous lands and combat the genocide of indigenous people. It was recently created in response to the historical demands of the indigenous movement (being the first ministry created dedicated to indigenous peoples).



The priorities and structure of the Ministry have been drawn up in the Thematic Group on Indigenous Peoples created during the government transition after the 2022 presidential election. The Ministry of Indigenous Peoples is responsible for indigenous policy, the recognition, guarantee and promotion of the rights of indigenous peoples, the recognition of the demarcation, defense, exclusive usufruct and management of indigenous lands and territories, the well-being of indigenous peoples, the protection of isolated and recently contacted indigenous peoples, and also the implementation on national territory of international agreements and treaties, especially Convention No. 169 of the International Labor Organization, when related to indigenous peoples.



### 8.3 Annex - List of Endangered Flora Species in the State of Paraíba



#### 8.4 Annex - List of Endangered Fauna Species in the State of Paraíba





## 8.5 Annex - Component 1 Report: Developing resilient production systems



## 8.6 Annex - Component 2 Report: Strengthening Family Farming Capacities and Organizations and Knowledge Management

## 8.7 Annex - Table of archaeological sites registered by IPHAN in the state of Paraíba

TR Alto Sertão			
CNSA NO.	Site Name	Municipality	Category
PB00105	Sítio Pé de Serra	São José de Piranhas	History
PB00151	Pedra do Letreiro Farm 01	Bernardino Batista	Pre-colonial
PB00169	Pedra do Letreiro 02	Bernardino Batista	Pre-colonial
TR Borborema			
CNSA NO.	Site Name	Municipality	Category
PB00010	From Bravo	Boa Vista	-
PB00011	Pinga	Campina Grande	-
PB00021	Pai Mateus Funeral Shelter	Cabaceiras	Pre-colonial
PB00022	Caiçara 1	Cabaceiras	Pre-colonial
PB00023	Caiçara 2	Cabaceiras	Pre-colonial
PB00025	Roçado Stone House	Cabaceiras	Pre-colonial
PB00027	Furna do Caboclo 1	Cabaceiras	Pre-colonial
PB00028	Furna do Caboclo 2	Cabaceiras	Pre-colonial
PB00029	Furna do Caboclo 3	Cabaceiras	Pre-colonial
PB00031	Lagoa da Cunhã	Boa Vista	Pre-colonial
PB00032	Lagoa dos Mudos 1	Cabaceiras	Pre-colonial
PB00033	Lagoa dos Mudos 2	Cabaceiras	Pre-colonial
PB00034	Lajedo Grande 1	Cabaceiras	Pre-colonial
PB00035	Lajedo Grande 2	Cabaceiras	Pre-colonial
PB00036	Lajedo Grande 3	Cabaceiras	Pre-colonial
PB00038	Manoel de Souza	Cabaceiras	Pre-colonial
PB00039	Father Matthew	Cabaceiras	Pre-colonial
PB00042	Cataventos Rock	Cabaceiras	Pre-colonial
PB00045	Sítio das Mãozinhas	Cabaceiras	Pre-colonial
PB00047	Tank between mountains	Cabaceiras	Pre-colonial
PB00052	Parrot	Mastic trees	Pre-colonial
PB00053	High Stones	Mastic trees	Pre-colonial

PB00054	Uruçu	Mastic trees	Pre-colonial
PB00055	Painted Stone	Barra de São Miguel	Pre-colonial
PB00057	Amaragi	Lagoa Seca	Pre-colonial
PB00060	Catuama	Fagundes	Pre-colonial
PB00061	Orange tree	Fagundes	Pre-colonial
PB00063	São Braz Farm I	Olivedos	Pre-colonial
PB00064	São Braz II Farm	Olivedos	Pre-colonial
PB00065	Bodopitá	Burning	Pre-colonial
PB00066	Brown	Burning	Pre-colonial
PB00067	Sítio das Cruzes	Burning	Pre-colonial
PB00068	Gravatá	Burning	Pre-colonial
PB00069	Pedra Comprida	Burning	Pre-colonial
PB00070	Pedra do Touro	Burning	Pre-colonial
PB00122	Barra de Santana 1	Barra de Santana	Pre-colonial
PB00125	Burning 2	Burning	Pre-colonial
PB00126	Burning 1	Burning	Pre-colonial
PB00127	Caturité 2	Caturité	Pre-colonial
PB00128	Caturité 1	Caturité	Pre-colonial
PB00138	-	Burning	-
PB00139	-	Burning	-
PB00142	MORORÓ I	Barra de Santana	Pre-colonial
PB00143	MORORÓ II	Barra de Santana	Pre-colonial
PB00144	MORORÓ II	Barra de Santana	Pre-colonial
PB00145	MORORÓ IV	Barra de Santana	Pre-colonial
PB00146	MORORÓ V	Barra de Santana	Pre-colonial
PB00147	MORORÓ VI	Barra de Santana	Pre-colonial
PB00148	MORORÓ VII	Barra de Santana	Pre-colonial
PB00149	MORORÓ VIII	Barra de Santana	Pre-colonial
PB00150	MORORÓ IX	Barra de Santana	Pre-colonial
PB00154	Lajedo do Bravo 1	Boa Vista	Pre-colonial
PB00155	ECSC 20	Remígio	History
PB00170	Lajedo do Bravo 2	Boa Vista	Historical and Pre-Colonial

PB00172	Site MV8A	Lagoa Seca	History
PB00173	MV09 site	Lagoa Seca	History
PB00174	Sítio MV10	Areial	History
PB00175	MV11 site	Hope	Historical and Pre-Colonial
PB00187	ECSC 17	Lagoa Seca	Pre-colonial
PB00193	Loca Archaeological Site	Burning	Pre-colonial
PB00197	Itacoatiaras dos Macacos Archaeological Site	Burning	Pre-colonial
PB00199	Cangote do Urubu Stone	Cotton from Jandaíra	Pre-colonial
PB00200	Pedra da Dona Lourdes	Cotton from Jandaíra	Pre-colonial
<b>TR Brejo</b>			
CNSA NO.	Site Name	Municipality	Category
PB00167	Loca da Nega	Serra da Raiz	Pre-colonial
PB00177	MV21 site	Riachão	Historical and Pre-Colonial
PB00178	New Tank	Riachão	History
PB00181	Viola stone	Guarabira	Pre-colonial
PB00198	Blood Hand Stone	Riachão	Pre-colonial
PB00201	Lagoa do Caju Archaeological Site	Araçagi	Pre-colonial
<b>TR Cariri</b>			
CNSA NO.	Site Name	Municipality	Category
PB00001	Potion	Serra Branca	Pre-colonial
PB00002	Middle Wall of the World sign	São João do Cariri	-
PB00037	Sign	São João do Cariri	Pre-colonial
PB00044	Serrote da Jurema	São João do Cariri	Pre-colonial
PB00046	Tamburil	Serra Branca	Pre-colonial
PB00056	Catinga	Gurjão	Pre-colonial
PB00058	Caiçara	Congo	Pre-colonial
PB00059	Serra da Engabelada	Congo	Pre-colonial
PB00062	Pedra Grande	Gurjão	Pre-colonial
PB00071	Anthill	São João do Cariri	Pre-colonial
PB00072	Seas I	São João do Cariri	Pre-colonial
PB00073	Seas II	São João do Cariri	Pre-colonial

PB00074	Cotton	São José dos Cordeiros	Pre-colonial
PB00075	Tapera Farm	São José dos Cordeiros	Pre-colonial
PB00076	Waterfall	São José dos Cordeiros	Pre-colonial
PB00077	Sands	Serra Branca	Pre-colonial
PB00078	Capoeira	Serra Branca	Pre-colonial
PB00079	Cauaçu	Serra Branca	Pre-colonial
PB00080	Conceição I	Serra Branca	Pre-colonial
PB00081	Conceição II	Serra Branca	Pre-colonial
PB00082	Conceição III	Serra Branca	Pre-colonial
PB00083	Conceição IV	Serra Branca	Pre-colonial
PB00084	Macambira	Serra Branca	Pre-colonial
PB00085	Pé de Serra	Serra Branca	Pre-colonial
PB00086	Lajedo do Jatobá	Serra Branca	Pre-colonial
PB00087	Saco Farm	Serra Branca	Pre-colonial
PB00088	Balance sheet	Sumé	Pre-colonial
PB00089	Pedra Comprida Farm	Sumé	Pre-colonial
PB00090	Olho D'Água do Padre	Sumé	Pre-colonial
PB00091	Picoito	São João do Cariri	Pre-colonial
PB00092	Painted Stone	Serra Branca	Pre-colonial
PB00140	RED STONE 09	São João do Tigre	History
PB00141	Cavaco	São João do Tigre	-
PB00152	Laje das Oncinhas Farm 02	Monteiro	Pre-colonial
PB00163	Ribeira	Monteiro	Pre-colonial
<b>TR Curimataú</b>			
CNSA NO.	Site Name	Municipality	Category
PB00095	Slaughterhouse Tank	New Palmeira	Pre-colonial
PB00096	Pedra dos Índios	Pedra Lavrada	Pre-colonial
PB00097	Antônio Rosendo Waterfall	Picuí	Pre-colonial
PB00098	Pinturas Waterfall	Picuí	Pre-colonial
PB00099	Tubiba Rock	Picuí	Pre-colonial
PB00100	Miner's Rock	Picuí	Pre-colonial
PB00101	Pedra Lavrada	Picuí	-

TR Mata Norte			
CNSA NO.	Site Name	Municipality	Category
PB00113	PB 0017 LA/UFPE	Mataraca	Historical and Pre-Colonial
PB00114	PB 0018 LA/UFPE	Mataraca	History
PB00115	PB 0019 LA/UFPE	Mamanguape	History
PB00116	PB 0022 LA/UFPE	Mamanguape	History
PB00117	PB 0023 LA/UFPE	Mamanguape	Pre-colonial
PB00120	PB 0020	Mataraca	Historical and Pre-Colonial
PB00121	PB 0021	Mataraca	Pre-colonial
PB00132	Occurrence 10 - KM 218	Mamanguape	Pre-colonial
PB00133	Occurrence 11 - 231	Mamanguape	Pre-colonial
PB00134	Occurrence 12 - KM 243	Mamanguape	Pre-colonial
PB00135	Sítio Curimatá - KM 234	Mamanguape	Pre-colonial
PB00136	Sítio Engenho Central - KM's 283/284/285	Mamanguape	History
PB00137	Sítio Mamanguape I - KM 240	Mamanguape	Pre-colonial
PB00179	Ruins of São Miguel Arcanjo	Baía da Traição	History
PB00189	PB 0035 LA UFPE	Mamanguape	Pre-colonial
TR Mata Sul			
CNSA NO.	Site Name	Municipality	Category
PB00012	Varadouro - São Pedro	João Pessoa	History
PB00104	Former Paul Mill	João Pessoa	History
PB00107	PB 0011 LA/UFPE	Alhandra	History
PB00108	PB 0012 LA/UFPE	Alhandra	History
PB00109	PB 0013 LA/UFPE	Alhandra	History
PB00110	PB 0014 LA/UFPE	Santa Rita	Pre-colonial
PB00111	PB 0015 LA/UFPE	Santa Rita	History
PB00112	PB 0016 LA/UFPE	Santa Rita	History
PB00118	PB 0024 LA/UFPE	Alhandra	History
PB00119	PB 0025 LA/UFPE	Alhandra	History
PB00129	-	Santa Rita	-
PB00130	Sítio Mamanguape II - KM 264	Santa Rita	Pre-colonial

PB00131	Sítio Engenho Velho - KM's 281/282/283	Santa Rita	History
PB00161	Fazenda Fugida archaeological site Lot 46 (Site 08)	Pitimbu	Historical and Pre-Colonial
PB00162	Fazenda Fugida Archaeological Site lot 34 (Site 06)	Pitimbu	Historical and Pre-Colonial
PB00164	Caaporã Archaeological Site PB-044 (Site 02)	Pitimbu	Historical and Pre-Colonial
PB00165	Fazenda Souza Archaeological Site Lot 28 (Site 03)	Pitimbu	Historical and Pre-Colonial
PB00166	Fazenda Taquara Archaeological Site Lot 99 (Site 04)	Pitimbu	Historical and Pre-Colonial
PB00190	Archaeological site várzea do taquara site 05	Pitimbu	Historical and Pre-Colonial
PB00191	Almagre Historical Archaeological Site	Cabedelo	History
PB00194	Tabu Mill (Sítio 1)	Pitimbu	History
<b>TR Middle Hinterland</b>			
CNSA NO.	Site Name	Municipality	Category
PB00003	Poço do Brito	São Mamede	-
PB00004	Trenches	São Mamede	-
PB00005	Tapera	São Mamede	-
PB00006	Tapuio	São Mamede	-
PB00007	Water stone	São Mamede	-
PB00008	White stones	São Mamede	-
PB00013	Ships	Várzea	Pre-colonial
PB00014	Middle Passage	Saint Lucia	Pre-colonial
PB00015	Cacimba da Velha	Saint Lucia	Pre-colonial
PB00016	Bell Rock	Saint Lucia	Pre-colonial
PB00017	Tapuio	São José do Sabugi	Pre-colonial
PB00019	Chorão	Junco do Seridó	Pre-colonial
PB00020	Caudaloso Well	Passage	Pre-colonial
PB00024	Caraibeira	São Mamede	Pre-colonial
PB00026	Pedreira Convent	São Mamede	Pre-colonial
PB00030	Furnas	São Mamede	Pre-colonial
PB00040	Pedra Branca	São Mamede	Pre-colonial



PB00043	Pindurão	Várzea	Pre-colonial
PB00048	Trench 1	São Mamede	Pre-colonial
PB00049	Trench 2	São Mamede	Pre-colonial
PB00093	Várzea Alegre	São Mamede	Pre-colonial
PB00094	Viola	Várzea	Pre-colonial
PB00158	Pedra do Letreiro	Cacimba de Areia	Pre-colonial
TR Piemont da Borborema			
CNSA NO.	Site Name	Municipality	Category
PB00009	Pedra do Letreiro	Araruna	-
PB00195	Umari Archaeological Site	Banana trees	Pre-colonial
PB00196	Gruta dos Morcegos Archaeological Site	Banana trees	Pre-colonial
TR Maringá Valley			
CNSA NO.	Site Name	Municipality	Category
PB00171	Milk stick	Pombal	Pre-colonial
TR Paraíba Valley			
CNSA NO.	Site Name	Municipality	Category
PB00041	Pedra do Ingá	Ingá	Pre-colonial
PB00106	PB 0010 LA/UFPE	Stones of Fire	Pre-colonial
PB00123	Occurrence 13 - KM 318	Stones of Fire	History
PB00180	Painted stone I	Itatuba	Pre-colonial
PB00182	Stop stone I	Itatuba	Pre-colonial
PB00183	Stopping stone II	Itatuba	Pre-colonial
PB00184	Slabs	Itatuba	Pre-colonial
PB00185	Tower stone	Riachão do Bacamarte	Pre-colonial
PB00186	Shoemaker's well	Mogeiro	Pre-colonial
PB00188	MOON STONE	Ingá	Pre-colonial
TR Piranhas Valley			
CNSA NO.	Site Name	Municipality	Category
PB00050	Enchanted	San Francisco	Pre-colonial
PB00051	Serra Branca I	Vieirópolis	Pre-colonial
PB00102	Lagoon of Stars	Sousa	Pre-colonial



<b>PB00103</b>	Serrote do Letreiro	Sousa	-
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Source: IPHAN - National Register of Archaeological Sites (CNSA).

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.3 Secap Strategic Socio Cultural Analysis**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II

<p><b>STRATEGIC SOCIO-CULTURAL ANALYSIS DOCUMENT DRAFT</b></p>
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**June 2024**

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## CREDITS

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## SUMMARY

1	Introduction.....	4
1.1	Objectives.....	4
2	IDB and IFAD Safeguard Policy.....	5
3	Study Objectives.....	7
3.1	Methodology.....	7
3.2	Results and limitations of the study.....	8
4	Legal Framework.....	8
4.1	International Laws and Guidelines Relating to Traditional Peoples.....	9
4.2	National Laws and Guidelines.....	13
5	Sociocultural Baseline.....	19
5.1	Quilombola communities.....	27
5.2	Indigenous communities.....	36
5.3	Fishing communities.....	44
5.4	Gypsy communities.....	50
6	Vulnerability Analysis.....	58
6.1	Vulnerability on Human Capital.....	58
6.2	Vulnerability on Social Capital.....	59
6.3	Vulnerability to Physical Capital.....	60
6.4	Vulnerability to Natural Capital.....	60
6.5	Vulnerability Financial Capital.....	60
7	Project-Related Risks.....	61
7.1	Evaluation Methodology.....	61
7.2	Assessment of Potential Risks.....	62
8	Sociocultural Action Plan.....	68
8.1	Mitigation and Monitoring Measures.....	68
9	Conclusions and Recommendations.....	78
10	References.....	79
11	Annexes.....	83
11.1	Annex 1 - List of communities identified in the PROCASE II area of activity.....	84
11.2	Annex 2 - Consultation Plan for Traditional Communities.....	85
11.2.1	Stakeholder identification and analysis.....	86
11.2.2	Stakeholder engagement.....	87
11.2.3	Grievance redress mechanism (QRM).....	97
11.2.4	Monitoring and evaluation.....	99

## 1 INTRODUCTION

The State Government of Paraíba has requested the financing of a PROJECT through a specific investment loan (LON/ESP) to promote the sustainable development of rural areas in the state, **Projeto de Desenvolvimento Rural Sustentável da Paraíba - PROCASE II (PROJECT, henceforth)**, focusing on the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

The overall objective of the PROJECT is to contribute to reducing rural poverty levels, improving food and nutritional security and adapting the rural population to climate change.

The main specific objectives are:

- Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change;
- Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities;
- Improving the environmental conditions of rural communities and their surroundings.

The PROJECT is structured into the following components:

- **Component 1 - Resilient production to reduce rural poverty**, involving: Subcomponent 1.1 - Implementing biodiverse and resilient production systems; and Subcomponent 1.2 - Strengthening and diversifying commercialization.
- **Component 2 - Strengthening family farming capacities and organizations and knowledge management**, involving: Subcomponent 2.1 - **Developing the capacities of family farmers and rural community organizations**; Subcomponent 2.2 - **Strengthening family farming organizations for market access**; Subcomponent 2.3 – **Diversity, gender, youth, nutrition and food security**; **Subcomponent 2.4 - Land and environmental regularization**; and Subcomponent 2.5 - **Knowledge management and South-South and Triangular Cooperation**.
- **Project Management, Monitoring and Evaluation**: This will finance equipment, consultancy and other expenses necessary for: (i) the administration and management of the project; (ii) monitoring and evaluation activities; and, (iii) project audits.

### 1.1 Objectives

This Socio-Cultural Analysis (SCA) refers specifically to Components 1 and 2 of the PROCASE II project. The purpose of this study is to prepare tools for the identification and management of potential negative socio-environmental impacts and socio-environmental risks that may arise from the PROCASE II works on the traditional communities that will benefit from them.

The communities that may be eligible to receive the Project are a fairly extensive list, which is presented in preliminary form in the Annex. 11.1 of this document.

This document is based on the IDB's Environmental and Social Policy Framework (MPAS) and IFAD's Social, Environmental and Climate Assessment Procedures (SECAP), which are equivalent, except for IFAD's safeguard on climate change.

After analyzing the demand for studies to prepare PROCASE II, which is based on a "*framework approach*", in particular, evaluating the typology of communities that could benefit from the PROJECT, but without being able to count on a specific definition of a



sample universe, and considering the territorial extension to which the PROJECT will affect, it was decided to carry out an ASCE, following the example of the AASE and PGASE<sup>1</sup>, with a cross-sectional analysis of the ethnic groups in the PROCASE II area of operation, linking comments and information sometimes specific to certain communities in order to highlight the characteristics of the existing traditional populations. In this way, it was possible to identify possible impacts and the necessary mitigation measures for situations identified in the environment in which the subproject typologies established as part of the preparation of this PROJECT were inserted.

## 2 IDB AND IFAD SAFEGUARD POLICIES

The Safeguards Policies of the institutions (IDB and IFAD) establish stricter protections for people and groups in situations of vulnerability to the potential risks and impacts of projects. It specifies where the free, prior and informed consent of traditional peoples must be obtained, determines the protection of Afro-descendants, indigenous people and people with disabilities and requires the consideration of factors such as race and ethnicity, age and social status, in line with the most recent versions of the core international conventions and instruments of the UN and the International Labor Organization (ILO).

### **IDB's Environmental and Social Policy Framework (ESPF)**

With regard to indigenous peoples and traditional communities, the IDB's new Environmental and Social Policy Framework, in particular Environmental and Social Performance Standard 7 (PDAS 7) recognizes that Indigenous Peoples and traditional peoples recognized in national laws as distinct social and cultural peoples are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social and legal status limits their ability to defend their rights and interests in lands and natural and cultural resources and can restrict their ability to participate in and benefit from development that is in line with their worldview. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, invaded or degraded. Their languages, cultures, religions, spiritual beliefs and institutions may also be threatened. As a result, indigenous and traditional peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous peoples. This vulnerability may include loss of identity, culture and natural resource-based livelihoods, as well as exposure to impoverishment and disease.

According to PDAS 7 of the IDB's MPAS, the term "Indigenous Peoples" is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees: (i) Self-identification as members of a distinct indigenous cultural group and recognition of that identity by others; (ii) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources of those habitats and territories; (iii) Customary cultural, economic, social or political institutions separate from those of the dominant society or culture; and (iv) A distinct language or dialect, usually different from the official language or languages of the country or region in which they reside.

The applicability of PDAS 7 must be established during the process of identifying environmental and social risks and impacts. The implementation of the actions necessary to meet the requirements of this PDAS is managed through the borrower's Environmental and Social Management System (ESMS) and must follow the guidelines and directives defined in this document.

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<sup>1</sup> Strategic Environmental and Social Assessment and Strategic Environmental and Social Management Plan for the preparation of PROCASE II.

The main objectives of the Environmental and Social Performance Standard 7 (PDAS-7) are:

- Ensure that the development process promotes full respect for the human rights, collective rights, dignity, aspirations, culture and natural resource-based livelihoods of Indigenous and traditional Peoples;
- Anticipate and avoid adverse impacts of projects on Indigenous Peoples' communities (traditional communities), or when it is not possible to avoid, minimize and/or compensate for such impacts;
- Promote sustainable development benefits and opportunities for Indigenous Peoples (traditional communities) in a culturally appropriate way;
- Establish and maintain an ongoing relationship based on Consultation and Informed Participation (CPI) in a culturally appropriate manner with Indigenous and traditional Peoples affected by a project throughout its life cycle;
- Ensure the Free, Prior and Informed Consent (FPIC) of Indigenous Peoples and traditional communities affected by the project when the circumstances described in this PDAS are present;
- Respect and preserve the culture, knowledge and practices of indigenous and traditional populations).

The actions required of borrowers must comply with this specific PDAS 7 and others listed below, and with relevant national law, including principles/standards set out in treaties that form part of national law and are applicable by virtue of their ratification. These policies will guide this study:

- PDAS 1 Assessment and Management of Environmental and Social Risks and Impacts
- PDAS 7 Indigenous Peoples
- PDAS 9 Gender equality
- PDAS 10 Stakeholder engagement and information disclosure.

IFAD's Social, Environmental and Climate Change Assessment Procedures (SECAP)TheIFAD's SECAP in relation to indigenous peoples is based on the nine fundamental principles set out in its Policy for Action in relation to Indigenous Peoples:

- (i) recognize that cultural heritage and identity are assets;
- (ii) request free, prior and informed consent;
- (iii) contribute to community-driven development;
- (iv) promote equitable access to lands, territories and resources;
- (v) valuing the knowledge of indigenous peoples;
- (vi) strengthening the resilience of indigenous peoples' ecosystems (environmental and climate change issues);
- (vii) promote access to markets;
- (viii) promote empowerment, and
- (ix) promote gender equality.

The objectives of the IFAD Standard are:

- Support indigenous peoples in determining priorities and strategies for exercising their right to development;
- ensure that each project is designed in partnership with indigenous peoples and in full, effective and meaningful consultation with them, to obtain their free, prior and informed consent;
- ensure that indigenous peoples derive fair and equitable benefits and opportunities from project-supported activities in an inclusive and culturally appropriate manner, and
- recognize and respect the rights of indigenous peoples to their lands, territories, waters and other resources that they traditionally own, use or depend on.

### 3 STUDY OBJECTIVES

The aim of this study is to assist the borrower in preparing PROCASE II, especially with regard to Components 1 and 2, considering their implementation in traditional communities, by preparing analyses and documents that must be included in the Project's SGAS, as well as the appropriate management instruments for complying with the requirements established in the IDB's ESPF and IFAD's SECAP, for Indigenous and traditional peoples.

The content of this socio-cultural assessment, aimed at the ESMS, will include, among other things, a Strategic Environmental and Social Analysis (SEA), specifically: legal frameworks and safeguard policies that interact with the communities and the PROCASE II profile; community diagnosis, analysis of vulnerabilities and identification and assessment of impacts; guidelines for mitigation/compensation measures and a monitoring plan for the Strategic Environmental and Social Management Plan (PGASE). All the assessments were designed with a focus on analyzing the vulnerability to which the communities are subject when sanitation infrastructure is built and infrastructure or other actions related to the Productive Plans are implemented, as well as providing guidance and guidelines for dealing with such vulnerabilities in dialogue with the communities in the process of free, prior and informed consultation.

In this way, it is also part of this socio-cultural assessment to draw up relevant guidelines for the Consultation Plans, Stakeholder Engagement Matrix and Guidelines for the sub-projects for subsequent implementation by the borrower, and a guiding framework for engagement with indigenous and traditional communities.

#### 3.1 Methodology

This study used primary data collection, field visits and observations and unstructured interviews in the communities visited, and secondary data, consulted on scientific platforms and websites of governmental and non-governmental institutions, as well as PROCASE II reference documents, citing the sources when used.

In the office, the data was systematized using the sustainable livelihoods approach methodology<sup>2</sup>. This methodology makes it possible to analyze the vulnerability context of the typologies of traditional communities identified and proposes an approach to data collection and evaluation that links the analysis of vulnerability in sectors that are important for the sustainability and socio-cultural empowerment<sup>3</sup> of the communities to the insertion of the sub-projects into the environment.

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<sup>2</sup> Scoones (1998) and Ellis (1999)

<sup>3</sup> To the extent that information is available, human, social, physical, natural and financial capital, with the aim of mapping these five community assets and understanding each one in terms of availability, access and differentiated use.

In many cases, these communities are forced to spend and/or lose their assets in order to survive a given event; in other cases, they can use them strategically to maintain and even improve their livelihoods when changes occur.

### 3.2 Results and limitations of the study

This study was carried out during the PROCASE II preparation phase, when the documents that support the signing of the contract with the borrower were being drawn up. At the time this document was drawn up, the details of PROCASE II and its sub-projects, especially the location and specifics of the works and actions that make up Components 1 and 2, including which traditional communities will benefit from the project, had not yet been defined. Thus, only with the indication of the territory covered by PROCASE II were the field surveys carried out.

One of the main limitations of this study is that it was carried out in a short period of time in the field and although it addressed various issues in the socio-cultural and socio-environmental context of the communities in the area covered, they were not exhaustively surveyed. However, the surveys conducted will help point out guidelines and relevant issues for the systematic process that will have to be conducted by the borrower, with more time and dedication, during PROCASE II's operation phase. As such, this study provides a general understanding of the context experienced by the communities that make up the area covered by the project, organizing the analysis into typologies and patterns of traditional communities (indigenous, quilombola, fishing, shellfish gatherers and gypsies).

The opportunity to receive support and investment to improve production processes and quality of life, especially through projects that are convergent with the cultural traditions of the communities, brings new perspectives for families who often suffer from the difficulties offered by the environment, the pressure from markets to receive and accept products, and situations of violence and prejudice that have plagued native and traditional peoples for many years.

In this way, addressing the issue of improving production processes and sanitation is considered a form of open and participatory dialog between the PMU and the leaders and families of all the communities involved in this process in some way. One of the limitations imposed by the short time taken to carry out the survey meant that only a few interviews were carried out, making it all the more important to consider the consultation process to be carried out by the borrower, as presented in the Consultation Plan.

Despite this limitation, it was possible to gain access to a variety of information specific to traditional communities that was gathered through primary and secondary sources by the teams designing and developing the subproject typologies presented in PROCASE II Components 1 and 2.

## 4 LEGAL FRAMEWORK

Brazil's formal legal recognition of traditional peoples and communities in the Federal Constitution of 1988 increased the mobilization of these communities, which are still struggling to strengthen measures to implement the constitutional provisions over the decades. Added to the effects of these provisions is the constant effort of instruments drawn up by multilateral agencies such as: United Nations (UN), United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Labor Organization (ILO).

International Declarations and Conventions have played an important role in the Brazilian legal system in the face of recurring threats and setbacks to the rights of these communities. While Declarations serve as "legal principles" that guide instruments and actions, Conventions, because they are ratified Treaties, generate obligations, binding

countries in the international order and imposing sanctions in the event of non-compliance with the agreed standards.

In Brazil, there are no "tribal peoples" in the strict sense that there are in other countries, but there are distinct social groups that live in society and it is this distinctiveness that brings us closer to the notion of "tribal peoples". The meaning of "tribal" here should be considered "lato sensu", involving all social groups without distinction: indigenous peoples, quilombolas, rubber tappers, Brazil nut gatherers, coconut breakers, riverine communities, faxinalenses, fundo de pasto communities and other groups. All these international legal provisions do not define a priori who these "indigenous and tribal peoples" are, but only offer instruments for the subject to define themselves, such as "awareness of their identity".

If the social groups self-designated as traditional peoples and communities define themselves as such, they should be "protected" by national legislation, especially those aimed at protecting their rights in the various dimensions they cover, and by international conventions, treaties and declarations.

#### **4.1 International Laws and Guidelines Relating to Traditional Peoples**

The main national laws and international agreements relating to traditional peoples are presented below.

##### **UN Declaration on the Rights of Indigenous Peoples - UNDRIP (2007)**

Brazil's intention, as one of the signatories to the UNDRIP (2007), is to recognize indigenous peoples and traditional communities as a group distinct from the rest of its population and to create a legal framework to protect the rights of this group. The basis of this treaty focuses on interrelated areas:

- Indigenous peoples (traditional communities) are clearly a separate group from mainstream society with their own customs and beliefs. This includes collective and individual rights.
- The right to self-determination: indigenous peoples and (traditional communities) have the right to freely determine their political status and freely pursue their economic, social and cultural development.
- Free, prior and informed consent (FPIC). Allows indigenous peoples and traditional communities to give or withhold consent from a project that may affect them or their territories. Once they have given their consent, they can withdraw it at any stage. In addition, FPIC allows them to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated.

##### **OAS Declaration on the Rights of Indigenous Peoples**

The American Declaration on the Rights of Indigenous Peoples, approved by the General Assembly of the Organization of American States (OAS), is the first instrument in the history of the OAS to promote and protect the rights of indigenous peoples in the Americas. It was approved by acclamation by the Member States on June 15, 2016, in Santo Domingo, the capital of the Dominican Republic.

The member states of the OAS recall that the indigenous peoples of the Americas constitute an organized, differentiated and integral segment of their population and have the right to be part of the national identity of the countries, with a special role in strengthening state institutions and achieving national unity based on democratic principles. It also recalls that some of the democratic concepts and institutions enshrined in the constitutions of the American states have their origins in indigenous peoples'

institutions and that many of their current participatory systems of decision-making and authority contribute to the improvement of democracies in the Americas, and that it is necessary to develop national legal contexts to consolidate the multiculturalism of these societies.

The declaration raises issues involving the eradication of poverty and the right to development, respect for the cultural and ecological aspects of indigenous people, coexistence, respect and non-discrimination, the right to territory and survival, security and collective rights.

In Article II, the Declaration affirms states' recognition and respect for the multicultural and multilingual character of indigenous peoples, as an integral part of societies. The issue is related to the provisions of the Brazilian Constitution (Art. 209 § 2, 215 § 1, 231), as well as other infra-constitutional norms.

Article IX deals with the recognition of the legal personality of indigenous peoples, as well as their forms of organization, also supported by Articles 231 and 232 of the Federal Constitution.

The right of indigenous peoples to maintain and promote their own family systems is guaranteed by Article XVII, which also states that states shall respect and protect the different indigenous forms of family, as well as their forms of matrimonial union, filiation, descent and family name. These guarantees are related to Article 6 of the Indian Statute (Law 6.003/1973). Also in Article XVII, by establishing the right of indigenous children to enjoy their own culture, religion or to speak their own language, among others, the Declaration presents precepts that are compatible with the Statute of the Child and Adolescent (Law 8.096/1990).

With regard to indigenous peoples in voluntary isolation or initial contact, Article XXVI of the American Declaration guarantees their right to remain in this condition and to live freely in accordance with their cultures. The same provision establishes the duty of states to recognize, respect and protect the lands, territories, environment and cultures of these peoples, as already provided for in Brazil's indigenous policy.

### **ILO Convention concerning Indigenous and Tribal Peoples in Independent Countries No. 169**

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ILO Convention 169 regulates different aspects of indigenous peoples' rights at the international level, from politics, employment conditions, health, education and communication to the right to territory. In June 2002, the Brazilian government ratified the Convention through Legislative Decree No. 143 and in 2019 it consolidated its ratification through Decree No. 10,088 of November 5 in the form of its annexes, which provide for the promulgation of conventions and recommendations of the International Labor Organization - ILO ratified by the Federative Republic of Brazil and in force.

This Convention recognizes indigenous and tribal peoples as subjects of rights, with the fundamental criterion for defining this subject being the elements of self-identification. The ratification of Convention 169 not only reinforces instruments for redefining agrarian policy, but also favors the application of environmental and ethnic policies in Brazil. As this is the only treaty in the multilateral system that specifically and comprehensively addresses the rights of indigenous and tribal peoples, one of its main axes is the commitment signed by the adhering countries to guarantee the right to prior, free and informed consultation of indigenous peoples and traditional communities when taking administrative and legislative decisions that directly impact their way of life. In this sense, the treaty is an important instrument that gains normative force when it is internalized by the Federal Constitution, being above legislative decrees.

The Convention states in general terms in Article 4: "1) Special measures necessary to safeguard the persons, institutions, property, cultures and environment of these peoples shall be adopted. 2) These special measures shall not contravene the freely expressed will of these peoples. 3) The enjoyment, without discrimination, of the general rights of citizenship shall in no way be prejudiced by these special measures."

The Convention guides public management on "the procedure of establishing a dialogue with representatives of indigenous communities for decisions concerning the physical structure model for indigenous schools" and regulates the necessary application, and improvement in access to formal and informal education for indigenous peoples, highlighting participation and cooperation, determining their priority in global economic development plans for the regions where they live and others in accordance with the following provisions:

### ***PART I- GENERAL POLICY / Article 7***

1. The peoples concerned shall have the right to choose their own priorities with regard to the development process, insofar as it affects their lives, beliefs, institutions and spiritual well-being, as well as the lands they occupy or otherwise use, and to control, to the extent possible, their own economic, social and cultural development. In addition, these peoples shall participate in the formulation, implementation and evaluation of national and regional development plans and programs likely to affect them directly.

2. Improving the living and working conditions and the level of health and education of the peoples concerned, with their participation and cooperation, should be a priority in the overall economic development plans of the regions where they live. Special development projects for these regions should also be designed in such a way as to promote this improvement.

3. Governments should ensure that, whenever possible, studies are carried out among the peoples concerned in order to assess the social, spiritual, cultural and environmental impact that the planned development activities may have on them. The results of these studies should be considered as fundamental criteria for the implementation of the aforementioned activities.

### ***PART VI - EDUCATION AND THE MEDIA***

#### ***Article 27***

1. Education programs and services for the peoples concerned shall be developed and implemented in cooperation with them in order to respond to their particular needs, and shall encompass their history, their knowledge and skills, their value systems and all their other social, economic and cultural aspirations.

2. The competent authority shall ensure the training of members of these peoples and their participation in the formulation and execution of education programs, with a view to progressively transferring to these peoples the responsibility for carrying out these programs, where appropriate.

3. In addition, governments should recognize the right of these peoples to establish their own institutions and means of education, provided that such institutions meet the minimum standards established by the competent authority in consultation with these peoples. Appropriate resources should be made available to them for this purpose.

#### ***Article 30***

1. Governments should adopt measures, in accordance with the traditions and cultures of the peoples concerned, to make them aware of their rights and obligations, especially with regard to work and economic possibilities, education and health issues, social services and the rights derived from this Convention.

2. To this end, written translations and the use of mass media in the languages of these peoples should be used if necessary.

### **Unesco Convention for the Safeguarding of the Intangible Cultural Heritage**

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On October 17, 2003, during the 32nd General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Convention for the Safeguarding of the Intangible Cultural Heritage was approved. This Convention entered into force on April 20, 2006 and was ratified by Brazil in the same year. The 2003 Convention has several objectives:

- (a) safeguarding intangible cultural heritage;
- (b) respect for the intangible cultural heritage of communities, groups and individuals;
- (c) raising awareness at local, national and international level of the importance of intangible cultural heritage and its mutual appreciation;
- (d) international cooperation and assistance.

Claiming to be an instrument that promotes intangible cultural heritage, the main generator of cultural diversity and the guarantor of sustainable development, the 2003 Convention aims to fill a gap in the legal system for the international protection of cultural heritage, whose instruments, until now, did not consider intangible cultural heritage, but only tangible, movable and immovable cultural heritage, so that intangible cultural expressions could not be safeguarded through the international legal instruments that existed at the time.

According to the Convention, intangible cultural heritage is defined as "(...) the practices, representations, expressions, knowledge and skills - as well as the instruments, objects, artefacts and cultural spaces associated with them - which communities, groups and, where appropriate, individuals recognize as forming an integral part of their cultural heritage. This intangible cultural heritage, passed down from generation to generation, is constantly recreated by communities and groups according to their environment, their interaction with nature and their history, instilling in them a sense of identity and continuity, thus contributing to the promotion of respect for cultural diversity and human creativity" (Article 2).

It is therefore this intangible cultural heritage that the 2003 Convention aims to safeguard, providing, among other measures, for each State Party to draw up inventories of this heritage.

The Convention entered into force in Brazil on April 12, 2006, via Decree No. 5.753/06 and Legislative Decree No. 22/06 with the aim of protecting cultural and intangible heritage, promoting respect for the cultural and intangible heritage of the communities, groups and individuals that make up the societies of the States Parties, awareness in all spheres and without borders of the importance of the object of the international document, its recognition by all the nations involved and mutual international cooperation to safeguard it.

To facilitate the identification and limits of international legal protection, Article 2 of the document provides the following definitions:

*(1) "Intangible cultural heritage" means the practices, representations, expressions, knowledge and techniques - together with the instruments, objects, artefacts and cultural places associated with them - that communities, groups and, in some cases, individuals recognize as an integral part of their cultural heritage. This intangible cultural heritage, which is passed down from generation to generation,*



*is constantly recreated by communities and groups as a function of their environment, their interaction with nature and their history, generating a sense of identity and continuity and thus helping to promote respect for cultural diversity and human creativity. For the purposes of this Convention, only intangible cultural heritage that is compatible with existing international human rights instruments and with the imperatives of mutual respect between communities, groups and individuals, and of sustainable development, shall be taken into account.*

*2. Intangible cultural heritage", as defined in paragraph 1 above, manifests itself in particular in the following fields:*

*a) oral traditions and expressions, including language as a vehicle for the*

*intangible cultural heritage;*

*b) artistic expressions;*

*c) social practices, rituals and festive acts;*

*d) knowledge and practices related to nature and the universe;*

*e) traditional craft techniques.*

## **Escazu Agreement**

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This is a Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean, signed by the UN in Escazu (Costa Rica) in 2018.

The Escazú Agreement is a regional treaty signed by 24 Latin American and Caribbean nations on the rights of access to environmental information, public participation in environmental decision-making, environmental justice and a healthy and sustainable environment for current and future generations.

The Escazú Agreement strengthens the links between human rights and environmental protection by imposing requirements on member states in relation to the rights of environmental defenders. In addition, it aims to provide full public access to environmental information, environmental decision-making and legal protection and remedies relating to environmental issues. It also recognizes the right of present and future generations to a healthy environment and sustainable development.

## **4.2 National Laws and Guidelines**

### **Federal Constitution of 1988 (CF - 88)**

Considered a landmark in the conquest and guarantee of indigenous peoples' rights in Brazil, the 1988 Constitution established new milestones for relations between the state and indigenous peoples.

Expressed in a specific chapter of the Charter (Title VIII, "Da Ordem Social", Chapter VIII, "Dos Índios"), the constitutional rights of indigenous peoples are marked by at least two important conceptual innovations in relation to previous Constitutions and the so-called Indian Statute, Law 6.001 of 1973.

The first innovation is the abandonment of an assimilationist perspective, which saw indigenous people as a transitory social category, doomed to disappear. The second is that indigenous peoples' rights to their lands are defined as original rights. In other words, they predate the creation of the Brazilian state itself.

The text in force also raises the concept of Indigenous Lands to constitutional status, which is defined in paragraph 1 of article 231:

"The lands traditionally occupied by the Indians are those permanently inhabited by them, those used for their productive activities, those essential for the preservation of the environmental resources necessary for their well-being and those necessary for their physical and cultural reproduction, according to their uses, customs and traditions."

Constitutional precepts also guarantee indigenous peoples respect for their social organization, customs, languages, beliefs and traditions. Article 231 of the Constitution states that indigenous people in Brazil have the right to be different, i.e. to be Indians and to remain as such indefinitely.

The 1988 Constitution therefore recognized the right to cultural difference, the foundation of a multi-ethnic state, and the multicultural nature of the Brazilian nation, the basis for a fairer society and an effective democratic state based on the rule of law. In doing so, it enabled the conditions for transformations in state policies that today must ensure that inequality is overcome, including rights to health, education and food security, which can now only be traced back to this framework of cultural difference contemplated in the constitution. All of these are intrinsically linked to the demarcation and guarantee of traditionally occupied lands.

The Federal Constitution of 1988, which, in article 215, states that the "State shall guarantee the full exercise of cultural rights to all". And in article 216, I and II, it includes as distinctive signs of the identity of the various groups that make up Brazilian society, their "forms of expression" and their "ways of creating, doing and living";

With the promulgation of the Federal Constitution of 1988, the Brazilian government recognized the existence of the remaining quilombo communities and guaranteed them the right to land ownership, through article 68 of the Transitional Constitutional Provisions Act (ADCT): "The remaining quilombo communities that are occupying their land are recognized as definitive owners, and the state must issue them titles."

In addition to article 68, there are articles 3, 5, 215 and 216 that need to be taken into account when interpreting article 68. This is because they also serve as instruments in quilombola claims. Article 3 sets out as one of the objectives of the Republic the eradication of poverty and marginalization, the reduction of social and regional inequalities and the promotion of the good of all, without prejudice to origin, race, sex, color, age or any other form of discrimination. The other articles deal with the equality of all before the law, rights, access to and appreciation of the culture and cultural heritage of the groups that make up Brazilian society.

The current concept officially used by the Brazilian government to define what quilombo remnants are is the definition given by the Brazilian Anthropology Association (ABA) in 1994, which states that a quilombo is: "Any rural black community made up of descendants of enslaved people living off subsistence farming and where cultural manifestations have a strong link to the past."

Law No. 7.668, of 22/08/1988: authorizes the Executive Power to establish the Palmares Cultural Foundation, linked to the Ministry of Culture, with the purpose of promoting the preservation of cultural, social and economic values resulting from black influence in the formation of Brazilian society.

In Decree No. 4.887 of 2003, which regulates article 68 on the procedure for the identification, recognition, delimitation, demarcation and titling of lands occupied by

remnants of quilombo communities, the remnants are considered to be "ethnic-racial groups, according to criteria of self-attribution, with their own historical trajectory, endowed with specific territorial relations, with a presumption of black ancestry related to resistance to the historical oppression suffered" (BRASIL, 2003). It is up to the National Institute for Colonization and Agrarian Reform (INCRA) to title quilombola territories located on federal public land or on privately owned areas (Decree No. 4887/2003). In addition to INCRA, the Federal Patrimony Secretariat (SPU) is also responsible for issuing titles or Real Right of Use Concession Contracts (CCDRU) to quilombola communities located in areas under its management.

Federal policy for quilombos is linked to the Quilombola Brazil Program (PBQ), coordinated by the then Secretariat for Policies to Promote Racial Equality of the Presidency of the Republic (SEPPIR), created by the 1st Lula government in 2003. This program was launched in 2004 with the aim of consolidating the frameworks of state policy for quilombola areas, and as a result the Quilombola Social Agenda was instituted (Decree No. 6261/2007), which groups the actions of various ministries aimed at the communities into four main axes, namely: 1) access to land; 2) infrastructure and quality of life; 3) productive inclusion and local development; and 4) rights and citizenship. INCRA is only responsible for the first axis (access to land), while the other axes of quilombola policy are the responsibility of other bodies and ministries. It is also up to the states and municipalities to participate in this policy, in accordance with their legislation and specific attributions. SEPPIR was driven by the black movement, which has been in charge of the portfolio for the last 15 years.

Michel Temer's government has closed down the Ministry of Women, Racial Equality and Human Rights. With the status of a ministry: the Secretariat for Human Rights (SDH), SEPPIR and the Secretariat for Women's Policies (SPM) no longer exist. The secretariats became part of the structure of the Ministry of Justice. The end of SEPPIR practically ended the participation of the black community in the formulation of public policies. The extinction of SEPPIR under the Bolsonaro government was even considered, but it became part of the Ministry of Human Rights (MDH), but with much reduced resources it suffered a 69.5% budget cut. In 2023, Lula's third term recreates the Ministry of Racial Equality, under the command of Anielle Franco. The aim of the new ministry will be to work across other government portfolios, such as the Ministry of Justice, Human Rights, Health, Culture and Women. Policies aimed at the health of the black population are also high on the list of priorities, as well as the resumption of the Juventude Negra Viva plan - an initiative to reduce the vulnerability of black youth - and policies for quilombola communities in the different ministries.

### **Ministry of Indigenous Peoples and National Foundation for Indigenous Peoples (FUNAI) - Community Infrastructure Policy**

From 2019 to 2021, Jair Bolsonaro's government represented the biggest setback and violation of the rights of Indigenous Peoples since the Constitution of 88. The guidelines adopted by the government sought to challenge the original rights guaranteed by the Constitution and FUNAI, as the only indigenous body, was weakened in its capacities and competencies.

The volume of conflicts motivated by initiatives without consultation that were advancing in the Legislative Branch with the aim of withdrawing rights, as well as in the Judiciary, where the discussion of the temporal milestone thesis is ongoing, has generated legal instability and violence in the interior of Brazil. On the infra-legal front, FUNAI has issued measures that promote the delegitimization of the identity of indigenous peoples, such as the definition of new hetero-identification criteria that weaken the traditionality and culture of these peoples. In territorial management, FUNAI has been given the opportunity to certify irregular property claims on non-demarcated Indigenous Lands.

In 2023, after President Luis Inácio Lula da Silva won the elections, Decree No. 11.355, OF JANUARY 1, 2023 created the Ministry of Indigenous Peoples, promoting a state stance opposed to the previous government and a historic and political response to the demands of the national indigenous movement. Federal deputy Sônia Guajajara was appointed minister of the Ministry of Indigenous Peoples and took office on January 1, 2023. Because it is an unprecedented institution, the Ministry of Indigenous Peoples is in the process of being set up and should follow the organizational structure of other Brazilian ministries. According to Decree No. 11.355, the Ministry will have the function of recognizing, guaranteeing and promoting the rights of indigenous peoples; protecting isolated and recently contacted peoples; demarcating, defending and managing territories and Indigenous Lands; monitoring, inspecting and preventing conflicts in Indigenous Lands and promoting actions to remove invaders from these lands. The ministry will also include two important bodies that until then had been linked to the Ministry of Justice and Social Security: the National Foundation for Indigenous Peoples (FUNAI), the only official indigenous body of the Brazilian state, created by law 5.371, of December 5, 1967, and the National Council for Indigenous Policy (CNPI), created in 2015 by then President Dilma Rousseff to guarantee the participation of representatives of indigenous peoples in the formulation of public policies, which was abolished by the Jair Bolsonaro government. The Ministry created will be made up of three secretariats, as well as the Executive Secretariat and seven departments: - Secretariat for Indigenous Environmental and Territorial Rights, made up of the departments for Territorial Demarcation and Territorial Protection and for Isolated and Recently Contacted Indigenous Peoples; - Secretariat for Indigenous Environmental and Territorial Management, made up of the departments for Climate Justice and for Environmental and Territorial Management and the Promotion of Indigenous Well-Being; - Secretariat for the Articulation and Promotion of Indigenous Rights, made up of the departments for the Promotion of Indigenous Policy and for Indigenous Languages and Memories; - Department of Mediation and Conciliation of Indigenous Land Conflicts, which is not linked to any secretariat In interviews with the media, Sonia Guajajara points out that the Ministry of Indigenous Peoples will have to act in an intersectional way with other ministries and with the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama) and the Chico Mendes Institute for Biodiversity Conservation (ICMBio). One of the examples of the expectation of intersectional action is the competence that the Ministry of Indigenous Peoples will have in international agreements and treaties related to indigenous peoples, with the minister working in conjunction with the Ministry of Foreign Affairs. With regard to the Program under review here, FUNAI's competencies include establishing inter-institutional coordination aimed at guaranteeing differentiated access to social and citizenship rights for indigenous peoples, by monitoring policies aimed at social security and indigenous school education, as well as promoting and supporting traditional community educational processes and social participation and control.

Community infrastructure policy refers to the set of policies, programs, projects, actions and activities that serve as a basis for the socio-economic development of Brazil's indigenous populations, while guaranteeing their constitutional rights. These infrastructure policies, programs, projects, actions and activities offered by the Federal, State and/or Municipal Executive Branch must be duly presented, discussed and clarified with indigenous peoples, safeguarding their right of access and respect for social and cultural diversity.

Ordinance No. 666/PRES, of July 17, 2017, which approved the Internal Regulations of the National Indian Foundation and sets out its regimental attributions:

VI - monitor differentiated education actions and services for indigenous peoples;

The Coordinating Unit for the infrastructure policy is the Community Infrastructure Coordination (Coordenação Infraestrutura Comunitária -COIC), a sub-unit of the General

Coordination for the Promotion of Social Rights (Coordenação Geral de Promoção dos Direitos Sociais - CGPDS), part of FUNAI's Directorate for the Promotion of Sustainable Development (Diretoria de Promoção ao Desenvolvimento Sustentável - DPDS).

According to Article 163 of the Ordinance, the Community Infrastructure Coordination Office (COIC) is responsible for:

I - to coordinate, guide and support the decentralized units and partner institutions in the processes of valuing and strengthening the traditional use of techniques, technologies and raw materials for building indigenous community infrastructures;

II - to monitor, guide, subsidize and qualify community infrastructure policies, programs and actions, in intersectoral and interinstitutional coordination, with a view to expanding differentiated access for indigenous peoples;

III - to articulate, in cooperation with competent institutions, indigenous peoples' access to appropriate environmental sanitation technologies, with regard to the collection, storage and distribution of water for human consumption and sewage disposal;

IV - to promote, coordinate and implement, in conjunction with CGEtno, policies on access to water for consumption and production, within the scope of its powers; and

V - articulate, in cooperation with competent institutions, indigenous peoples' access to alternative technologies and projects for electricity, communication, housing and mobility. In DECREE No. 11.226, OF OCTOBER 7, 2022, the revision of the Statute in relation to the specific singular bodies reinforced the attributions of the Directorate for the Promotion of Sustainable Development and in its Section III; item VI reinforces its role of monitoring the actions of indigenous school education carried out by the States, the Federal District and the Municipalities, in conjunction with the Ministry of Education.

Likewise, especially when it comes to education, the collaboration and concurrent obligation of the federative entities (states and municipalities) is regimental in order to guarantee the exercise of this right, both with regard to the promotion, maintenance and development of education, as well as the costing of education, does not affront, on the contrary, it reinforces the federative pact.

In time, the linking of FUNAI to the Ministry of Indigenous Peoples may change regulations and the structure of assistance to various public policies aimed at indigenous peoples. It will be up to the borrower, when starting the Consultation Plan, to understand whether FUNAI's Community Infrastructure Coordination (Coordenação de Infraestrutura Comunitária - COIC) will still be the interlocutor in this process of dialog on the construction of school infrastructure on Indigenous Lands. This information will be included in the attached Consultation Plan.

**Decree No. 6.040 of February 7, 2007, the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT).**

The PNPCT's specific objective is to promote the aforementioned "sustainable development" with an emphasis on recognizing, strengthening and guaranteeing their territorial, social, environmental, economic and cultural rights. It also advocates respecting and valuing the identity of traditional peoples and communities, as well as their forms of organization and their different institutions. This policy is structured around four strategic axes: 1) Access to Traditional Territories and Natural Resources, 2) Infrastructure, 3) Social Inclusion and 4) Promotion and Sustainable Production.

Specifically with regard to the infrastructure axis and other related areas, Art. 3 states

III - to set up infrastructure suited to the socio-cultural realities and demands of traditional peoples and communities;

IV - guarantee the rights of traditional peoples and communities directly or indirectly affected by projects, works and undertakings;

V - to guarantee and value traditional forms of education and strengthen dialogic processes as a contribution to the development of each people and community, guaranteeing participation and social control in both formal and non-formal educational training processes;

X - guarantee access to public social policies and the participation of representatives of traditional peoples and communities in social control bodies;

XI - ensure that social inclusion programs and actions specifically target traditional peoples and communities;

XII - to implement and strengthen programs and actions aimed at gender relations in traditional peoples and communities, ensuring women's vision and participation in government actions, valuing the historical importance of women and their ethical and social leadership;

XVII - to support and guarantee productive inclusion with the promotion of sustainable technologies, respecting the social organization system of traditional peoples and communities, valuing local natural resources and traditional practices, knowledge and technologies.

### **Legal Framework of the Federal Public Prosecutor's Office (MPF)**

The thematic chamber on indigenous populations and traditional communities (6th Coordination and Review Chamber) deals specifically with issues related to groups that share a traditional way of life that is distinct from the majority national society, such as indigenous peoples, quilombolas, extractive communities, riverside communities and gypsies. The main challenge for prosecutors working on these issues is to ensure the plurality of the Brazilian state from an ethnic and cultural perspective, as determined by the Brazilian Constitution. Statements by the 6th Chamber (CCR) of the MPF

- Statement of the 6th CCR No. 19, of 05/12/2014: The MPF, among other legitimate parties, is empowered to act judicially and extrajudicially in cases involving the rights of quilombolas and other traditional communities, with the federal courts having jurisdiction. This attribution is based on article 6, item VII, paragraph "c", and article 5, item III, paragraph "c", of Complementary Law no. 75/1993, on the fact that the protection of such interests corresponds to the protection and promotion of national cultural heritage (articles 215 and 216 of the Constitution);
- Statement by the 6th CCR No. 22, of 05/12/2014: In cases of territorial overlap between traditional communities and/or conservation units, it is necessary to carry out an anthropological study to contextualize the socio-cultural dynamics;
- Statement of the 6th CCR No. 25, of 05/12/2014: The territorial rights of indigenous peoples, quilombolas and other traditional communities have a constitutional basis (art. 215, art. 216 and art. 231 of CF 1988; art. 68 ADCT/CF) and a conventional one (ILO Convention No. 169). In general terms, the presence of these traditional peoples and communities has contributed to environmental protection. In cases of possible collision, the categories of Law No. 9.985 cannot override these territorial rights, and there is a need for harmonization between the rights at stake. In the process of resolving these conflicts, communities must be guaranteed free, informed and equal participation. Article 42 of Law No. 9.985 is unconstitutional insofar as it allows for the removal of traditional communities, and also contravenes international norms of supra-legal hierarchy;

- Statement of the 6th CCR No. 26, of 05/12/2014: The sustainable use of natural resources by traditional peoples and communities is guaranteed by the Federal Constitution (arts. 215 and 216) and ILO Convention No. 169 (art. 14, I), both inside and outside their territories;
- Statement of the 6th CCR No. 27, of 05/12/2014: The territorial rights of quilombola peoples and other traditional peoples and communities enjoy the same hierarchy as the rights of indigenous peoples, as both enjoy constitutional stature.

## 5 SOCIOCULTURAL BASELINE

This chapter highlights the general context of rural territories in terms of the presence and dynamics of traditional communities, with an emphasis on more detailed information about some of the communities surveyed in the PROCASE II area.

The aim of this systematization is to establish in general terms the nature of the community's mechanisms and highlight their vulnerabilities in order to reduce possible impacts on their way of life in the various phases of the sub-projects provided for in Components 1 and 2 of PROCASE II.

It is important to understand that correctly assessing a possible socio-environmental change that impacts on the territory used, or more narrowly on a community, is only possible when the specific ways in which the community imposes its logic on it are taken into account, because to do otherwise would be to reduce the scope of territorial relations to housing and production activities (GALLOIS, 2004), which would be a mistake from the perspective of understanding the resources (material and immaterial) that they use to reproduce their way of life.

The following are general themes from the baseline that contextualize the infrastructure normally available to traditional communities in the area covered by the Project.

### Overview of the PROCASE II project area

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According to Cadastro Único data from March 2024 (MDS), there are 191,000 families in rural Paraíba classified as being in poverty or extreme poverty (CadÚnico bands 1 and 2). Considering that there are 251,125 households in the rural area of the state, according to IBGE 2010, it can be said that 76% of rural families are in a situation of poverty and extreme poverty.

Looking at the 2010 data, where 59% of households were in a situation of poverty or extreme poverty, it can be said that the rural population of Paraíba has become poorer. Among the possible causes are those related to more severe periods of drought, the COVID-19 pandemic and the reduction in social inclusion programs. This is consistent with Brazil's return to the Hunger Map, according to the United Nations.

In the state, only 36% of the population is food secure, while the rest are classified as mild, moderate and severe food insecure (II VIGISAN, 2021).

The HDI in 146 municipalities is considered low (70%), medium in 62 (29%) and high in 2 (1%). According to IBGE 2010, around 28% of the population has some kind of disability (visual, hearing, motor or mental).

According to the 2017 Agricultural Census, there were 163,218 agricultural establishments in the state. Of these, 125,489 (76.9%) were family farms, while 37,729 (23.1%) were non-family or patronal. Approximately 12% of family units belong to Agrarian Reform settlers. Family farming occupies 42% of the state's agricultural area and is responsible for 47.8% of the total value of agricultural production, which is the second highest proportion in the Northeast and the sixth highest nationally. In the Mata region, 20.16% of the area is occupied by family farms, while it reaches 50.75% in the Sertão Paraibano.

Agricultural production is the main economic activity of the vast majority of the rural population in general and, in particular, of family farming. The 2017 Agricultural Census highlights the following productions for their contributions to the value of production: i) poultry, cattle, goats and sheep account for 92% of the value of livestock; ii) of permanent crops, bananas, passion fruit, coconut and tangerines are the main productions in terms of value, and iii) pineapple, corn, cassava and sugar cane are the most important temporary crops. Family farming in Paraíba faces very severe and challenging conditions, especially in the semi-arid region, which include low income, low productivity in farming activities, difficulties in accessing water for human consumption and production, and high risk related to climatic events. In order to increase the production, productivity and income of family farming, it is necessary to resolve obstacles related to the lack of access to financing to make the necessary investments, technical assistance and rural extension that supports the learning of new technologies, difficulty in accessing markets and inserting producers into value chains, which in turn is related to the weakness of rural organizations. According to the 2017 Agricultural Census, only 11.7% of agricultural establishments have access to water for irrigation. In addition to the low productivity of agricultural activities that depend on the availability of water, there is the use of unsuitable production techniques. For example, 32% of Family Farming Units (UAF) use pesticides, and 39% do not adopt any conservation practices (IBGE 2017). In the case of mechanization, for every 130 farmers, 1 has the support of a tractor, seed drill, etc. (IBGE 2017). Less than 1% of the family farms establishments applied lime or another soil pH corrector (IBGE, 2017). 67.4% of family farms establishments have implemented soil preparation systems.

The data from the 2017 Census shows that the majority (53%) of the producers responsible for the establishments are over 55 years old. Less than 10% are under the age of 35. These figures follow a national trend of a shrinking percentage of young people in rural areas, while the rural population is getting older. This situation highlights the challenges of providing opportunities and prospects for young people and, at the same time, conditions for the older population to maintain an agricultural activity and quality of life. This data, when added to the data on very low mechanization (see data below), can create obstacles to achieving greater productivity.

***Specific difficulties for vulnerable groups (women, young people, LGBT people and residents of traditional communities)***

Data from the latest Agricultural Census of 2017 (IBGE) shows gaps in relation to vulnerable groups:

Of all the family farms in Paraíba, 76.0% are run by men and only 24.0% by women. Among family farms, 64.0% are run by people who say they are black or brown, 11.3% by young people under 35 and 0.9% by indigenous people.

In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.12 hectares, those run by men have an average of 12.86 hectares. Of the family farms in the project area that have access to water for irrigation, 6.7% are run by women, while 13% are run by men.

Among female family farmers, 4,486 received technical assistance and extension services (ATER) (14.9% of the total), while 16,637 male family farmers (or 17.4% of the total) received ATER.

In the Unified Registry, there are 6,328 indigenous families registered, 73.1% of whom live in poverty or extreme poverty, and there are 4,295 quilombola families registered, 67.9% of whom live in poverty or extreme poverty.



Considering the families of artisanal fishermen, 80.7% of them are in poverty or extreme poverty. This is a gap of 12.4% in relation to the poverty/extreme poverty situation of all registered rural families.

Finally, among riverine families, 72.6% are in poverty or extreme poverty, a gap of 6.5% compared to rural families in the project area.

### ***Basic Sanitation***

Article 3 of Law no. 14.026/2020 considers Basic Sanitation to be a set of public services, infrastructures and operational facilities for: i) drinking water supply, consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the public supply of drinking water, from collection to building connections and their measuring instruments ; ii) sanitary sewage (collection, transportation, treatment and adequate final disposal of sanitary sewage) and iii) urban cleaning and solid waste management (collection, transportation, transshipment, treatment and environmentally appropriate final disposal of household solid waste).

With regard to drinking water supply in the state, the Water and Sanitation Institute reports that in 2019, the rural service rate reached 24.16 % (in Brazil, the rate is 30.77%), through the implementation of systems with a distribution network and simplified chlorine disinfection treatment, guaranteeing the potability of the water. In other situations, fountain-type systems are implemented, without a distribution network, with chlorine disinfection treatment. Finally, when there is no possibility of implementing one of the above solutions, the construction of cisterns for human consumption becomes the only alternative.

As for the sanitary sewage situation, the rural service rate in Paraíba is 18.82% (Instituto Água e Saneamento, 2020), significantly below the national average of 42.54%. It's worth mentioning that in the Litoral micro-region this percentage is 1.04%, showing the great precariousness of this region of the state. Most of the sewage is covered by septic tanks and/or drains, but the treatment units have no control over the disposal of sewage effluent, either on the ground or in water bodies, making it yet another polluter of the environment and contributing to the factors that increase climate change. In addition, some of these septic tanks are of the black tank type, where the sewage is dumped directly under the ground. In these areas it is common to find sewage running out into the open and houses without toilets.

This set of vulnerabilities, coupled with climate change, puts the region's production systems in crisis and in a vicious circle, in which the processes of social and environmental degradation fuel the impoverishment of rural families and increased migration to urban areas.

### ***Family farming organizations and their weaknesses***

Very often, tackling the problems posed by the vulnerability of Paraíba's rural population is very difficult at the individual or family level. Generally, actions of this kind require a capacity for joint or collective action. One of the issues that reinforces the processes of unsustainability mentioned above, which accentuate vulnerabilities, concerns local organizations.

Traditional rural communities are characterized by the existence of a system of social institutions that organize local social life. These mechanisms - such as kinship networks and traditional mechanisms of reciprocity - enabled various types of collective action to take place, covering issues such as the management of common resources, holding community festivals, organizing religious events, etc. However, nowadays these structures don't work well in all communities, and in many cases there is an 'erosion' of traditions. This has led to a weakening of traditional social structures. On the other hand, reality has presented new demands for community organization, mainly related to the

actions of other social actors with whom families/communities establish relations. This situation has stimulated the creation of new forms of organization, generally more formalized, which may take on responsibility for old practices, but are essentially created to take on new functions. Among these new forms of organization, community associations stand out first and foremost.

There are currently many community associations in rural Paraíba. However, it must be acknowledged that they have shortcomings. One of the barriers that reinforce the status quo of unsustainability involves the role of the 'community association' as an effective means of representation and, above all, of organizing collective action at local level. But, as various studies have shown, the creation of associations alone is not enough. It has been found that it is very difficult for these associations to play their potential positive role in the processes of promoting more resilient development spontaneously. Previous experience of various IFAD-supported rural development projects has shown that the role of representing all families vis-à-vis government agencies has posed major challenges for community associations, insofar as these new relationships require them to perform tasks that are entirely unknown to them. In the case of associations assisted by development projects, one such task is that of managing community 'projects'.

On the other hand, in the case of rural organizations (usually in the form of cooperatives) created for the purpose of carrying out activities that seek to promote access to markets (such as packaging, processing and marketing local products), they have also encountered many difficulties in establishing themselves in this role. These organizations have significant shortcomings in terms of capacity on issues such as i) administration and finance (including access to sources of financing for working capital), ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people, among other weaknesses. They also often have significant limitations from the point of view of production infrastructure, which does not always allow for product diversification, compliance with health and environmental legislation, the use of renewable energy sources in their processes or adequate waste treatment. This set of factors ends up limiting the ability of these organizations to function, as well as their own sustainability, including economic sustainability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, middlemen predominate.

The situation outlined here indicates that most of the existing local organizations - especially community associations and family farmers' cooperatives - will need support, especially in terms of capacity building, if they are to play an active and effective role in implementing the various sustainable development initiatives they are called upon to carry out.

On the other hand, the organizations mentioned above only group together and represent a fraction of Paraíba's Family Farmers, and there is still a significant part of this population that is not yet organized. Data from the 2017 Agricultural Census indicates that only 48% of farmers are members of some kind of organization (association, union, movement, etc.) Considering only the members of cooperatives, this proportion drops to just 3.7%.

### **Youth**

Brazil's Youth Statute (2013) defines young people as those between the ages of 15 and 29. In the Project area, there are 893,666 young people. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

In Paraíba, among young people aged 15 to 29, approximately 35.1% were neither studying nor working in 2021, according to the Synthesis of Social Indicators 2022. Young women of African descent have a higher percentage out of school and the job market. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, and young women are the majority in this situation. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department.

As a consequence of the lack of continued education and formal work opportunities for young rural people, there is a process of migration to urban centers, mainly of young women with more schooling, which causes the rural population to age (the largest group of migrants is between 16 and 35 years old) and the proportion and number of women to decrease. The fact that young women are the ones who leave the countryside the most is related not only to the lack of opportunities, but also to their refusal to take on the same roles played by their mothers and grandmothers in the family production unit. In the case of young women, the invisibility and devaluation of the workforce, in caring for children and household chores, and in family farming, are also among the factors that stimulate the desire of younger women to leave the countryside and will therefore be addressed during the project's Gender Training sessions. Comparing the 2006 Agricultural Census and the 2017 Census, the young rural population under the age of 25 fell by 49.7%.

Among the factors that influence staying in rural areas are access to financial resources, education/training suited to the characteristics of rural areas, appreciation of rural ways of life, and the availability of services and conditions that can offer the possibility of success in agricultural production. However, in rural Paraíba, young people who decide to stay in the countryside have limited access to and control over resources, inputs, goods and technologies. The indicators for access to land and credit confirm this.

In the project area, only 9.9% of family farms are run by young people under the age of 35, indicating low access to land. When they get married, few of them are able to acquire a new property, and what often happens is that the family property is divided into smaller plots for the children, which further reduces the productive potential and profitability of agricultural activities. It should be noted that there are gender tensions in inheritance patterns, which disadvantage young rural women.

Access to credit is very limited in the Project area (see paragraph on the subject, above). Although data on access to credit is not available disaggregated by generation, it can be inferred that access to credit by young people is even more limited. The PRONAF Youth program, which was created to facilitate young rural people's access to credit, creating conditions to enable rural succession processes in Family Farming, still has a very small number of contracts signed in relation to the proportion of the young rural population. Among the causes of this low level of access is misinformation, the lack of institutions for training young farmers, the difficult bureaucratic requirements that restrict the signing of credit agreements, and the fact that bank agents often assume that young people's inexperience in managing resources will lead them to default.

However, access to technical knowledge is higher among young people under 35 than the average among family farmers in the project area. The quantitative evidence available from the 2017 Agricultural Census indicates that, among young family farm managers (under 35), 18.5% received technical assistance compared to 16.8% of all family farmer managers. Despite the higher percentage of access, it can still be said that access to TA among young people is limited. Breaking it down by gender, access to TA was 18.1% among young women and 18.6% among young men, so there was a small access gap of 0.1% between young male and female managers.

During the field visits carried out during the PROCASE II design mission, an additional growing problem faced by rural youth was identified - vulnerability to violence associated with drug trafficking.

### ***People of African descent and Traditional Peoples and Communities (PCTs):***

Indigenous peoples and quilombola communities are particularly vulnerable due to the historical dynamics of exclusion, high dependence on natural resources, marginalization of their ways of life, exclusion from formulating and accessing public policies and poor access to services, including health, education, sanitation, infrastructure and technical advisory services. In Paraíba, the Indigenous Lands (TI) are located in the coastal region. The Potiguara, with a population of approximately 19,000, are concentrated in three TIs (CARDOSO; GUIMARÃES, 2012) located in three municipalities in the Mata Norte region. In the Mata Sul region there is a population of approximately 750 Tabajara indigenous people, but there are still no Indigenous Lands in this region. On the other hand, the 2022 Demographic Census recorded a population of 16,584 quilombola inhabitants in 6,127 households in the entire state of Paraíba. These population figures include all the inhabitants recognized as quilombolas - both those who live and those who don't live in officially delimited Quilombola Territories. In Paraíba there are 47 quilombola communities with recognized certificates of self-definition. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have officially demarcated territory and none have land titles. There are also traditional gypsy populations, artisanal fishermen and shellfish gatherers in the state.

This population is impacted by the combined effects of various forms of discrimination, including gender, race and socio-economic conditions. Root causes of this exclusion are the marginalization of traditional ways of life and structural racism. Afro-descendant and PCT populations face even greater obstacles than family farmers in participating in decisions that affect their territories and in fully realizing their rights, with significant gaps in inclusion in terms of poverty, food insecurity, access to education, TA and land.

In 2023, 67.9% of quilombolas and 73.1% of indigenous people were in poverty or extreme poverty, an average higher than the average percentage of poverty in Paraíba (53.9%). In 2022, 33 million Brazilians were hungry (severe food insecurity) and food insecurity was more prevalent among people of African descent (reaching 6 out of every 10 households whose heads of household identify themselves as black or brown), with women of African descent being the most vulnerable. In terms of education, among the population of white family farmers in the project area, illiteracy reached 39.9% of those responsible for PA establishments, while among those of African descent, it reached 48.1%. With regard to access to Technical Assistance (TA), among white family farmers, 7,694 accessed TA (17.7%), and among Afro-descendants, 12,961 or 16.1% of the total. The gap between white and Afro-descendant family farmers in access to TA is 1.6%. Furthermore, among white family farmers, 77.7% have title deeds, among indigenous farmers, only 44.6% and among Afro-descendants, 70.3%. It should be noted that none of the quilombola communities in Paraíba have land titles.

To help close the various gaps in the inclusion of Afro-descendants and PCTs identified, the project will have specific actions dealing with diversity issues and will prioritize the Afro-descendant and PCT population in the actions of all its components, such as access to TA, land and environmental regularization, access to water and sanitation infrastructure and productive investments. In addition, through diversity training meetings, as well as cultural recovery activities in the communities benefiting from the project, the valorization and dissemination of traditional knowledge, practices and ways of life in production, food and natural resource management will be promoted, as well as issues related to racism.

## ***Nutrition and Food Safety***

**Food Insecurity:** According to the II VIGISAN, food insecurity (FI) in 2021/2022 affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it reached 68% of households, where 12.1 million people are going hungry, i.e. at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly hard hit. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of FI were observed in the families of family farmers who were still unable to return to pre-pandemic conditions, especially those who were unable to fully re-establish their production and marketed quantities. The most recent survey by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger).

**Nutrition.** Despite the process of nutritional transition, with increased access to food, the state of Paraíba follows the national trend and the rest of the Northeast region and faces a double burden of malnutrition, marked by both malnutrition and an increase in the prevalence of overweight. Among adults in Paraíba, 62.5% are overweight (35.5% overweight and 27.0% obese). Growth retardation affects 4.9% of children under 5, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8%.

The situation in Paraíba is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to have socio-economic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% in the rest of Brazil.

The main root causes of food and nutritional insecurity in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and the low levels of food and nutritional education. It is worth highlighting the direct correlation between food and nutritional insecurity and poverty rates (69.9% of family farmers registered in the Single Registry (Cadastro Unico/CadUnico) in the project area live in poverty or extreme poverty) and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality of water sources). Access to quality water and sanitation plays a fundamental role in combating different forms of malnutrition. Only 39.4% of households in the project area have access to a public sewage system and 63.2% are connected to a public water supply system.

To tackle the causes of malnutrition and food insecurity, PROCASE II will support agro-ecological gardens, the valorization of Non-Conventional Food Plants (NCFPs) and support for access to water. Among the most common PANCs in the state are the cactaceae, which include species such as Mandacaru, Quipá, Xique-xique, Palmatória, Facheiro and Coroa-de-frade. These plants are characterized by the presence of thorns and slimy stems, which allow them to survive dry climates and high temperatures. This will aim to increase the availability of food for the most vulnerable families, increase the availability of water for human consumption and thus improve their food and nutritional security, while also limiting the diseases responsible for the malabsorption of micronutrients. The project will also have a cross-cutting sub-component, in which a Nutrition and Food Security Plan will be drawn up and implemented, focusing on exchanges and training. These actions will enable adults and young people to learn about good food practices, culinary practices and gastronomic culture, and will respond to the needs of families and target groups in terms of processing and promoting their

products, particularly those from family farming. All of these practices will be integrated into the design and implementation of the Resilient Investment Plans, thus seeking effective implementation and results in terms of food and nutritional sovereignty.

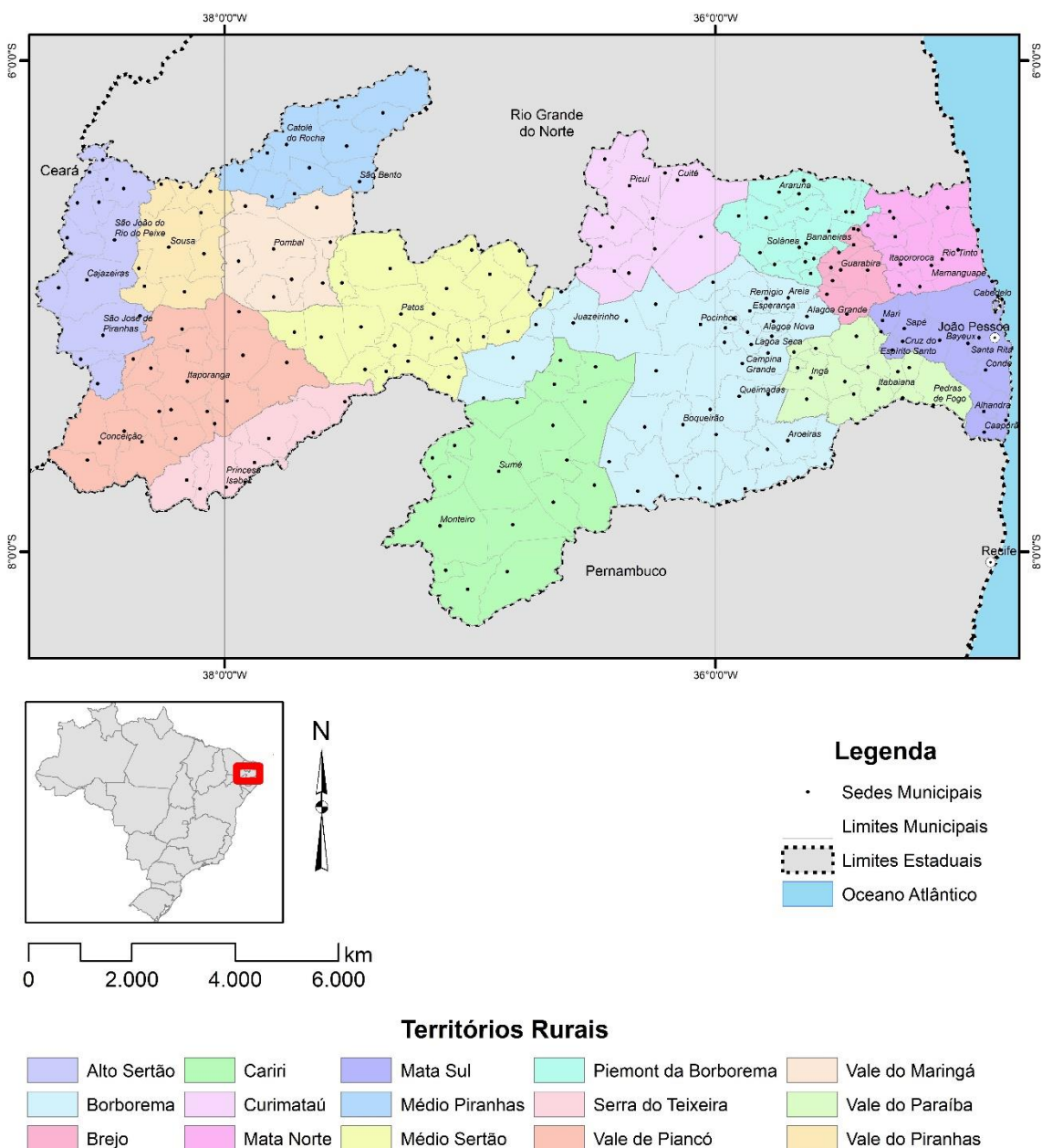
### **Area of coverage**

The project will cover the entire state of Paraíba, involving its 223 municipalities (see figure below), which are distributed between the Caatinga (194) and Atlantic Forest (29) biomes. The Agricultural Census (IBGE 2017) shows a total of 163,218 agricultural establishments, 76.88% of which are family farms (UAF), from which the project will select its beneficiaries.

The project will seek to serve approximately 60,000 families as direct beneficiaries, establishing a preferential focus on the following profiles: women, young people, persons with disabilities, Traditional Peoples and Communities (PCT), indigenous peoples, fishing communities and gypsies. In any case, specific criteria will be defined for the prioritization and selection of communities to be benefited, involving issues such as cultural traditionality, the need for access to basic sanitation, the rate of families registered with CadÚnico, families who have not benefited from other similar projects, the level of representation of gender, youth and persons with disabilities, the level of environmental degradation and the lack of ATER service.

The following map shows Procasa II's area of operation.

**Figure 1 - Area covered by the Project**



Source: IBGE, 2015 - elaboration: Consultoria.

### 5.1 Quilombola communities

In Paraíba, according to the State Coordination of Black and Quilombola Communities of Paraíba - CECNEQ/PB, there are currently 49 self-recognized quilombola communities, of which only 3 are not certified by the Palmares Cultural Foundation. The quilombola communities are spread over 28 municipalities in the state: João Pessoa, Conde, Areia, Alagoa Grande, Ingá, Riachão do Bacamarte, Serra Redonda, Mogeiro/Gurinhém, Dona Inês, Nova Palmeira / Picuí, Boa Vista, São João do Tigre, Serra Branca, Camalaú, Santa Luzia, Várzea, São José de Princesa, Tavares, Livramento, Manaíra, Cacimbas, Catolé do Rocha, Bento, Cajazeirinhas, Coremas, Pombal, Diamante, Triunfo (CECNEQ/PB, 2023).

The survey carried out by the IBGE in the latest Demographic Census (2022) reveals that there are 16,765 quilombola residents in Paraíba. According to the survey, the

municipalities in Paraíba with the highest number of quilombola residents are Conde (3,008), João Pessoa (2,260), Cacimbas (1,698), Santa Luzia (1,325) and Alagoa Grande (946). In total, 51 municipalities in the state have a quilombola population.

If we analyze the ratio between the number of quilombolas and the population of each municipality, we can see that the highest rates are found in the municipalities of Cacimbas (23.5%), Conde (10.9%), Diamante (9.4%), Santa Luzia (8.9%), Riachão do Bacamarte (8.8%) and Dona Inês (7.8%). In the state capital, João Pessoa, this proportion is only 0.3%.

In Paraíba, the process of titling quilombola land takes a long time. Currently, only five quilombola communities have a concession contract for the real right of collective use of the territory, which guarantees collective possession, but not definitive titling as provided for by law. Some communities, such as Matão in Gurinhém and Pedra D'Água in Ingá, only have partial possession of the territory. Others, such as Engenho do Bonfim in Areia, Grilo in Riachão do Bacamarte and Caiana dos Crioulos in Alagoa Grande, have a concession contract for the real right of collective use of the territory. It is estimated that there are around 4,000 quilombola families in Paraíba, according to data from CECNEQ-PB (CECNEQ/PB, 2023).

Quilombola communities in Paraíba are predominantly located in rural areas, although they also exist in urban areas. Geographically, quilombos are mainly concentrated in the Sertão mesoregion of Paraíba, which is divided into two microregions, Alto and Médio Sertão, where 27 quilombola communities can be found. This is followed by Western and Eastern Cariri, with 9 communities, followed by Agreste, Brejo and Curimataú, with another 9 quilombola communities. Finally, the micro-region with the fewest communities is the coast, with only 4 quilombos, totaling 49 quilombola communities in the entire state (CECNEQ/PB, 2023).

The following table gives a brief description of the quilombola communities located in Paraíba, by Rural Territory.



**Table 1 - Quilombola Communities in Paraíba by Rural Territory**

TR Alto Sertão					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Triunfo	The forty	65 families	Urban Quilombo. No Process	Certified	Small businesses
Cachoeira dos Índios	Cipó Farm	40 families	Awaiting certification from Palmares	-	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses
TR Borborema					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Alagoa Grande	Caiana dos Crioulos	150 families	Demarcated	Certified	Family farming, fruit growing, small and large animal husbandry, small businesses
Sand	New World	40 families	In the final process of demarcation	Certified	Family farming, small and large animal husbandry
	Bonfim Mill	28 families	Demarcated	Certified	Family-based agriculture, horticulture with agroecological and organic production, small animal husbandry
Boa Vista	Santa Rosa	95 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of crockery and medicinal plants
Livramento	Sussuarana	101 Families	Not checked in yet	Certified	Family farming, small and large animal husbandry
	Vila Teimosa				
	Summer sand				
TR Cariri					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Camalaú	Roça Velha/Rua Preta	-	-	Certified	-
São João do Tigre	Cacimba Nova	85 families	In the process of being demarcated	Certified	Family-based agriculture, raising small, medium and large animals. Income production

Serra Branca	Lightweight	60 families	Not checked in yet	Certified	Family farming, raising small and medium-sized animals. Crockery production
	Corner	45 families	Not checked in yet	Certified	Family farming, raising small and medium-sized animals. Production of jam, sweets, spices, clay or earthenware dishes, rag dolls
	Roça Velha	126 families	In the process of being demarcated	Certified	Family farming, small and large animal husbandry
<b>TR Curimataú</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Nova Palmeira	Serra do Abreu	27 families	In the initial demarcation process	Certified	Family farming, umbu extraction, small, medium and large animal husbandry. Production of jam, sweets, spices, crockery
<b>TR Mata Sul</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Contagem	Gurugi	200 families	In the process of being demarcated	Certified	Family-based agriculture, mangaba extraction, fruit growing, fishing and small businesses. Handicrafts made from natural oils, clay dishes and vines. Raising small, medium and large animals
	Ipiranga	202 families	In the process of being demarcated	Certified	Family farming, fishing and small businesses. Handicrafts made from natural oils, bio-jewelry with seeds and plant fibers
	Mituaçu	350 families	Without the demarcation process	Certified	Family farming, fruit-growing, fishing and small businesses. Liana handicrafts. Raising small, medium and large animals
João Pessoa	Paratibe	175 families	Territory awaiting finalization of the process, with titling	Certified	Family farming, fishing and small businesses

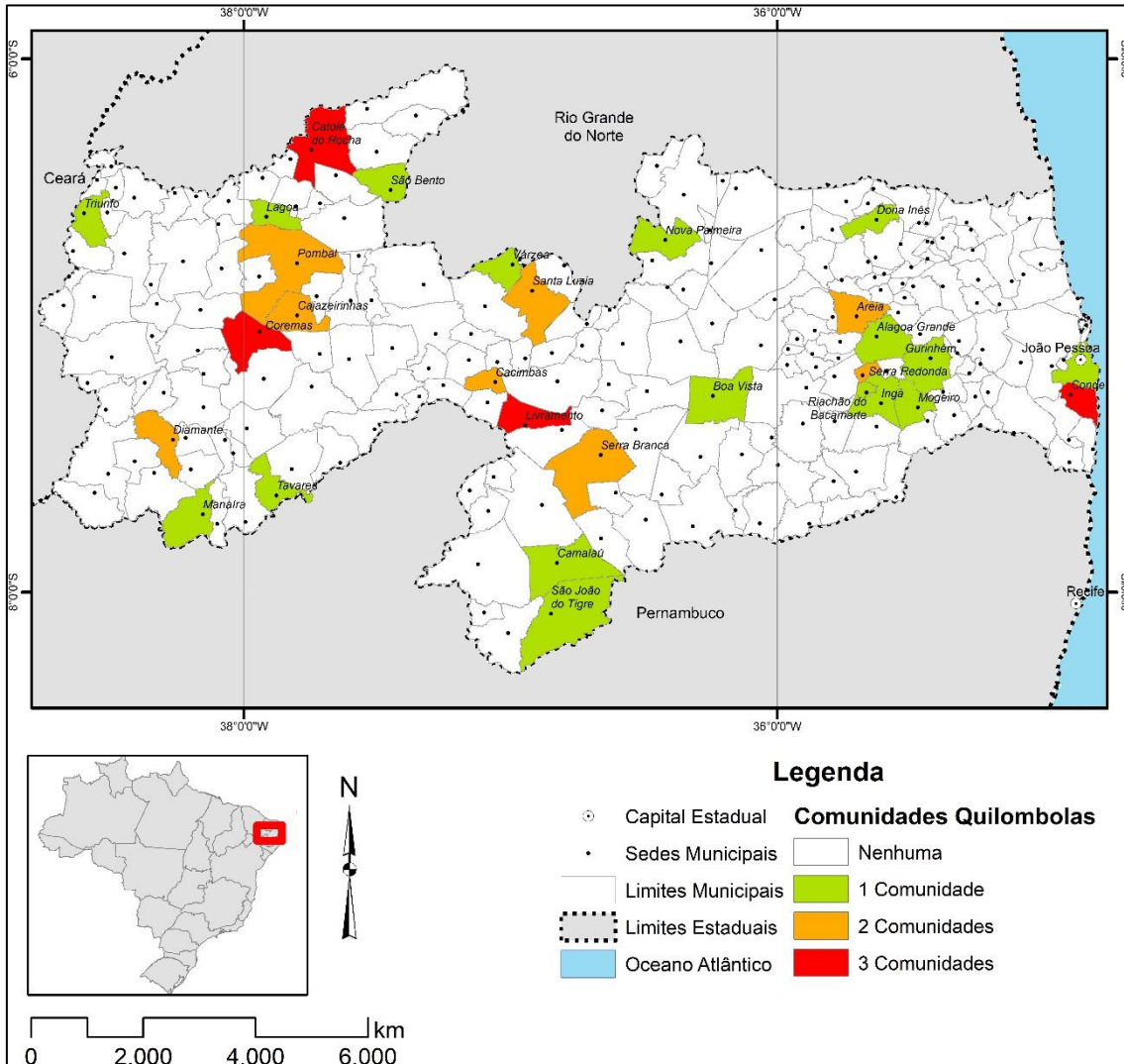
TR Middle Piranhas					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Catolé do Rocha	Lagoa Rasa	40 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Small swiddens. There are craftswomen
	Milk stick	65 families	No Process	Certified	Small businesses. Productive backyards
	São Pedro dos Migueis	32 families	No Process	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
São Bento	Terra Nova	111 families	No trial	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses. There are craftswomen
	Disputes	20 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. There are craftswomen
TR Middle Hinterland					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Cacimbas	Ugly Mountain	252 families	No demarcation process	Certified	Family-based agriculture, raising small and large animals. Production Crockery, Cloth dolls, Sisal fiber handicrafts
	Chã / Aracati I and II	101 families	-	Certified	-
Saint Lucia	Urban carving	150 families	No demarcation process	Certified	Production Crockery and small businesses
	Rural butchery	22 families	No demarcation process	Certified	Family-based agriculture, small, medium and large animal husbandry. There are craftswomen
Várzea	Pitombeira	75 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of hats, straw bags, rugs, rag dolls and dishcloths
TR Piemont da Borborema					

Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Dona Inês	Girl's Cross	152 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Fabric and wood crafts
<b>TR Serra do Teixeira</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Manaíra	Fonseca	150 families	In the process of being titled	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
Tavares	Domingos Ferreira	132 families	No demarcation process	Certified	Family farming, small and large animal husbandry
São José de Princesa	Livramento	32 families	In the process of being demarcated	Certified	Family farming, fruit-growing and small, medium and large animal husbandry
<b>TR Vale de Piancó</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Coremas	Santa Tereza	175 families	Urban Quilombo. DNOCS land. Concession process	Certified	Small businesses
	Mother of water	105 families	DNOCS land. Concession process	Certified	Family farming, fishing and small businesses
	Barriers	75 families	DNOCS land. Concession process	Certified	Family farming, fishing and small businesses
Diamond	Barra dos Oitis	200 families	In the process of being demarcated	Certified	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses
	Dead Cow	100 families	In the process of being titled	Certified	Family-based agriculture, raising small and medium-sized animals. Small swiddens
Pedra Branca	Angico Well	25 families	Awaiting certification from Palmares	-	Family-based agriculture, raising small and medium-sized animals. Production with productive backyards. Small businesses. There are craftswomen
<b>TR Maringá Valley</b>					

Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Cajazeirinhas	Vines	24 families	In the process of being demarcated	Certified	Clay pieces, cakes, snacks, fabric painting, crochet and embroidery
	Umburaninha	40 families	Not checked in yet	Certified	Family-based agriculture, raising small and medium-sized animals. Small swiddens
Pombal	The Ruffians	135 families	No trial	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen and ceramic production
	The Daniels	89 families	Urban Quilombo No Process	Certified	Family-based agriculture, small and medium-sized animal husbandry. There are craftswomen
	The Barbosas	47 families	Urban Quilombo, No Process	Certified	Small businesses
<b>TR Paraíba Valley</b>					
Municipality	Community	No. of families	Territorial situation	Current Stage FCP Process	Main economic activities
Gurinhém / Mogeiro	Matão	45 families	In the final demarcation process. Awaiting possession of the last area	Certified	Family-based agriculture, horticulture with agro-ecological and organic production, fishing and small businesses. Raising small, medium and large animals. Various handicrafts
Ingá / Serra Redonda	Water Stone	108 families	Demarcated in a small area	Certified	Family farming, raising small and large animals. Production of labyrinth crafts
Riachão do Bacamarte	Cricket	104 families	Demarcated	Certified	Family farming, fruit-growing, small and large animal husbandry. Handicraft production
Serra Redonda	Caiana dos Matias	50 families	In the process of being demarcated	Certified	Family farming, raising small and large animals. Production of jams, jellies, liqueurs and spices

Source: FCP - Certificates issued to Remaining Quilombo Communities (CRQs). Published in the DOU of 22/08/2022. CECNEQ/PB, 2023.

**Figure 2 - Quilombola communities in Paraíba**



Source: Technical team, 2024.

In the TR Vale do Maringá, in the municipality of Pombal, there is the "Os Rufino" quilombola community, which, among other economic activities, stands out for its production of handicraft pottery. Speaking to representatives of the community, they say that they take paint from angico and aroeira trees to paint ceramics, and that traditional handicrafts are a very old activity. In 2013, they began to leverage and improve their handicrafts, with men and women working proportionally. They sell their handicrafts in João Pessoa, at the Tambaú public center, in Soledade, in Pombal, at the solidarity economy house, and in Catolé do Rocha. They also produce beans, corn, rice, coriander and spring onions and keep chickens, pigs, dairy cattle and sheep.

There is a cycling event in June, held in the community itself, which is very popular, with the 3rd edition being held this year, 2024. This event helps generate income for the community.

Among the community's concerns, they say that when it floods, they have problems with access, being stranded and, for example, restricting children from going to school.

They use firewood from jurema and marmeleiro trees, but only use wood from dead or fallen trees. Soapstone, sand, oil, sandpaper, a fine sieve and clay are all inputs in the

production of their handicrafts. They reuse all the waste generated in the production of their handicrafts, redoing the sandpaper and reusing broken pieces in the process. They wear PPE, such as goggles to protect against possible accidents with the grinding machine, and a mask to protect against dust inhalation.

In the rainy season, the clay takes a long time to dry and they lack the structure to dry it properly. The source of the clay is on the mesa, in the highlands near the community, and you have to walk between 600 meters and 1 km to reach it.

With regard to their health, they mentioned rheumatism, arthrosis and wear and tear on their joints. They were told by a health worker that this could be due to genetic factors. Anemia, diabetes and high blood pressure are other ailments mentioned.

**Photo 1 - View of the main access to the "Os Rufino" Quilombo, in the municipality of Pombal**



Source: Technical team, 2024.

**Photo 2 - Handicrafts produced in the "Os Rufino" Quilombola Community**



Source: Technical team, 2024.

## 5.2 Indigenous communities

According to information from FUNAI, Brazil's indigenous reserves occupy 13.8% of the country's territory, covering 1,170,579.17 square kilometers distributed over 566 recognized indigenous lands. The only states without demarcated indigenous areas are Rio Grande do Norte and Piauí.

According to the latest IBGE Demographic Census (2022), there are currently 30,140 indigenous people living in Paraíba, of whom 19,044 live on indigenous lands and 11,096 outside them.

As for the indigenous population, Paraíba is home to two peoples: the Potiguar and the Tabajara.

The Tabajara people are located on the south coast of Paraíba, in the municipalities of Conde, Pitimbu, Alhandra and the outlying districts of João Pessoa. Currently, it is estimated that there are around 1,500 Tabajara indigenous people in Paraíba. Their original language is Tupi, which is in the process of being re-appropriated, but like most indigenous groups in the Northeast, they speak Portuguese. The Tabajara have four villages in the municipalities of Conde and João Pessoa: Barra de Gramame Village, Nova Conquista Taquara Village, Severo Bernardo Village and Vitória Village. Their lands have not yet been identified and delimited, however, between 2009 and 2010, an anthropologically based study was carried out, which brought together elements of a historical, sociological, land, ethnographic and environmental nature on the claimed area, for the ethnic characterization of the Tabajaras of the South Coast of Paraíba (PARAÍBA, 2020).



The Tabajara emerged in the 21st century as part of a process of reclaiming their identity and traditional territory, at the Sítio dos Caboclos, in the former Sesmaria da Jacoca, in the municipality of Conde. The name Tabajara is translated in ancient Tupi as: *taba* = village + *jara* - from *yára* = lord, owner, the one who dominates, so the Tabajara call themselves "Lords of the Village." (TABAJARAPB, 2024).

The Potiguara people, for their part, are located on the northern coast of Paraíba, in 32 villages situated in three municipalities in the coastal region: Baía da Traição, Marcação and Rio Tinto. With a population of approximately 19,000 indigenous people, including inhabitants of the villages and the towns of Baía da Traição, Marcação and Rio Tinto, the Potiguara are concentrated in an area of the northern coast of Paraíba situated between the Camaratuba and Mamanguape rivers. An unaccounted number of people also live in other cities such as Mamanguape, João Pessoa and even in Rio de Janeiro or Rio Grande do Norte. The villages together make up three contiguous Indigenous Lands (TIs), totaling 33,757 hectares. The Potiguara TI has a population of 8,109 people, the Jacaré de São Domingos TI has 449 people and the Potiguara de Monte Mór TI has 4,447 people (FUNAI, 2012).

The territory is located over the area of the municipalities of Baía da Traição, Rio Tinto and Marcação. The PB-41 highway crosses the Monte-Mor and Potiguara Indigenous Lands, connecting Rio Tinto and Baía da Traição. Other dirt roads cut through the indigenous territory, connecting the villages to each other and to urban centers. Most of the villages have a school, health center and flour houses, as well as churches, including the iconic church of São Miguel, in the village of the same name, and Nossa Senhora dos Prazeres, in Monte-Mor (FUNAI, 2012).

The Potiguara belong to the Tupi linguistic family, currently speaking Portuguese and seeking to revive Tupi through indigenous school education. Like other peoples of the Northeast, they have an extensive history of interaction with non-indigenous society (FUNAI, 2012).

The Potiguaras are possibly the only indigenous people in Brazil who still live in the same place since the arrival of the colonizers 500 years ago. Historical records and documents from the state of Paraíba highlight the continued presence of the Potiguara on the coast of Paraíba, especially in Baía da Traição, since the first years after colonization. The Potiguara resisted attempts to conquer their territory by fighting bravely and through various forms of resistance and indigenization of elements of western, white culture (FUNAI, 2012).

The basis of the Potiguara economy is agriculture and fishing. Historical records show that their ancestors had advanced agriculture and an abundance of food. In recent times, however, the situation has changed drastically. The advance of the invasion of indigenous lands, the degradation of the environment, the economic and social devaluation of agricultural activity and the consequent degradation of the soil have made farming a difficult task. The main tension in this field is between traditional agriculture (the *roça*) and sugar cane cultivation, which compete for the same area, but follow different and often conflicting logics (FUNAI, 2012).

Between the house and the farm, the Potiguaras grow medicinal plants, vegetables, fruit trees and coconut palms, as well as ornamental plants and other plants of spiritual value (for example, to protect the house from the evil). The backyards are also home to native plant species that were kept in the area when the site was opened up. The production of fruit and coconut trees can be destined for family consumption or for sale, as is the case with most coconut sites (FUNAI, 2012).

The cultivation system practiced by the Potiguara is commonly known as "roça de coivara". The fields are "opened" in the arisco and paū. Some villages have little or no arable land available for planting, either because they are located close to the sea or because sugarcane monoculture competes for the land (or both). Other villages, further inland, grow plenty of swiddens (even though sugar cane is present). The villages where the most swiddens are planted are Tracoeira, Santa Rita and Laranjeiras along the Sinimbu River; Estiva Velha on the banks of the Estiva River; and the retaken area of Três Rios. Camurupim, on the other hand, located near the Sinimbu river, has no area to plant and the families live mainly from fishing, shellfish gathering and carcinoculture (FUNAI, 2012).

The Potiguara fish in the mangroves, rivers, estuaries, sea and tide all year round, using a variety of fishing techniques. With an in-depth knowledge of ecosystems and the life of aquatic organisms, these fishermen are able to locate them and choose the most suitable techniques for catching them. The organisms caught include fish, shrimp, crabs, lobsters, shellfish and octopus. Most of the fish is for the family's own consumption and, depending on the commercial value of the species caught, it is sold, exchanged and donated to relatives and friends (FUNAI, 2012).

Raising small and large animals is also an important source of food and financial resources for many families. Among the animals raised (chickens, goats, cattle, horses and bees), chickens, bees and cattle stand out for their social and economic importance (FUNAI, 2012).

With regard to religious traditions, Catimbó-Jurema stands out as a religious manifestation that traces its origins back to ancient indigenous groups that inhabited northeastern Brazil. As a cult, it is assimilated as a tradition of knowledge that proceeds from the articulation of an experience through an "initiation". The sacred spaces are directly associated with the religious practices of the renowned Mestra Juremeira, who, even though she is no longer alive, marks a space that still concentrates the memory of the juremeiros and still holds many affective memories (GOMES, 2021).

Catimbó-Jurema is a hybrid cult, originating from the contacts between indigenous, European and African spiritualities that took place on Brazilian soil from the 16th century onwards.

Jurema (*Acacia jurema Mart.*) is one of the many species of acacia. Several species of Acacia native to northeastern Brazil have the popular name of Jurema. The Indians of northeastern Brazil considered the "Acacia jurema" (Jurema, Jerema, Calumbi) to be their sacred tree, around which the tradition known today as "sacred Jurema" developed.

Jurema has the following definitions: thorny tree, hallucinogenic or bewitching drink made from the bark, roots or fruits of Jurema and used in ritual; forest where ancestral spirits live<sup>4</sup>. Jurema, whose name characterizes the religiosity in question, represents a ritualistic drink that is attributed entheogenic properties<sup>5</sup> (GOMES, 2021).

However, according to Silva (2017, p. 22. In: GOMES, 2021) Jurema is also the name of a goddess or mystical entity revered by this cult. According to Oliveira (2011, p. 1,097) "the jurema itself still represents and materializes a goddess, since, for most indigenous

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<sup>4</sup> Jurema. In: DICIO, Online Dictionary of Portuguese. Porto: 7Graus, 2020. Available at: <<https://www.dicio.com.br/jurema/>>. Accessed on January 31, 2020; Jurema In. Brazilian Dictionary of the Portuguese Language>. Available at: <<https://michaelis.uol.com.br/moderno-portugues/busca/portugues-brasileiro/jurema/>>. Accessed on January 31, 2020.

<sup>5</sup> Type of substance that alters consciousness

peoples of the Northeast, the supreme deity of existence would be a woman (Mãe Tamain)".

The drink that gives this religious universe its name is made from black jurema, whose origins go back to pajelança and Toré. According to Câmara (2005, p. 662 - 663. In: GOMES, 2021), Pajelança is an action of the Amazonian sorcerer where he seeks to "achieve traditional therapeutic formulas" by contacting "enchanted spirits" who were represented as both men and animals. Toré is presented as a variant of catimbó, a ceremony in which the caboclos or the enchanted, at the behest of the "mestre", come down to teach remedies, as in a candomblé of caboclos, important elements that sustain the indigenous structure of the sacred.

Some Catimbó-Jurema entities move between Jurema and Umbanda, such as Exu and Pombagira. Caboclos, on the other hand, are of indigenous origin and are generally associated with healing through phytolatr, due to their knowledge of herbs and healing plants, as well as benedictions. In addition to Caboclos and Mestres, there are also entities from other religious forms, such as Catholic saints; entities from Umbanda and Xangô such as Exu, Pombagira and Preto-velho; as well as generic references to "God" as a supreme deity who is almost always welcomed, but who does not manifest (GOMES, 2021).

The main rites are called Juremação and Tombo de Jurema. Juremação consists of a kind of rite of preparation in which the disciple receives more knowledge than that which is considered natural or from birth. In this rite, the science or seed of Jurema is given and inserted into the body of the juremeiro (BRANDÃO; RIOS, 2011, p. 172. In: GOMES, 2021).

**Photo 3 - Young Potiguara Indians from the 3 Rios Village**



Source: Technical team, 2024.

Photo 4 - View of the entrance to the Potiguara Toré Forte Indigenous Village



Source: Technical team, 2024.

**Photo 5 - Handicrafts made by Potiguaras Indigenous women artisans in Toré Forte Village**



Source: Technical team, 2024.

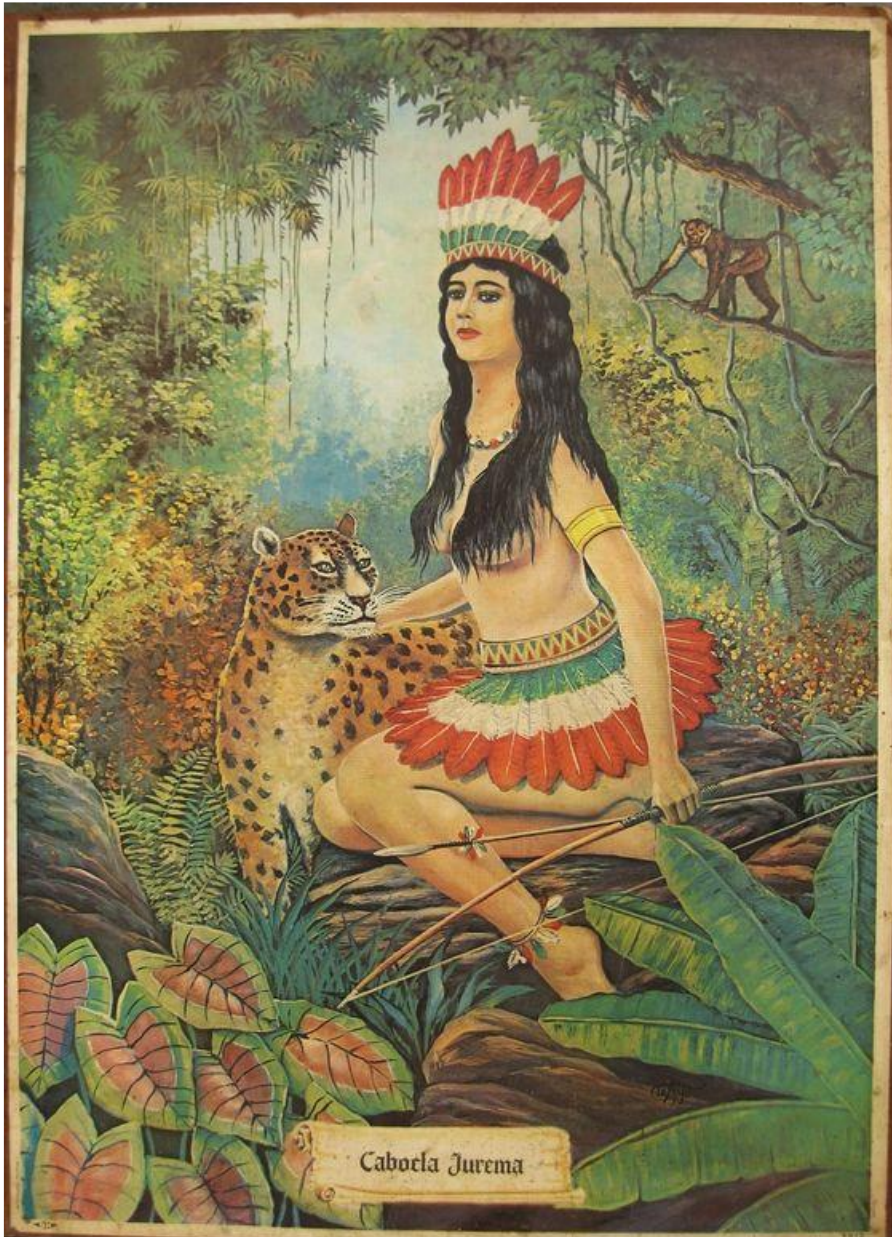
**Photo 6 - Jurema bush**



Source: Agefran Costa (2011)<sup>6</sup>.

<sup>6</sup> Photo of Jurema - Mimosa Hostilis. Available at: <http://www.naturezabela.com.br/2011/05/jurema-mimosa-hostilis.html>. Accessed June 2024

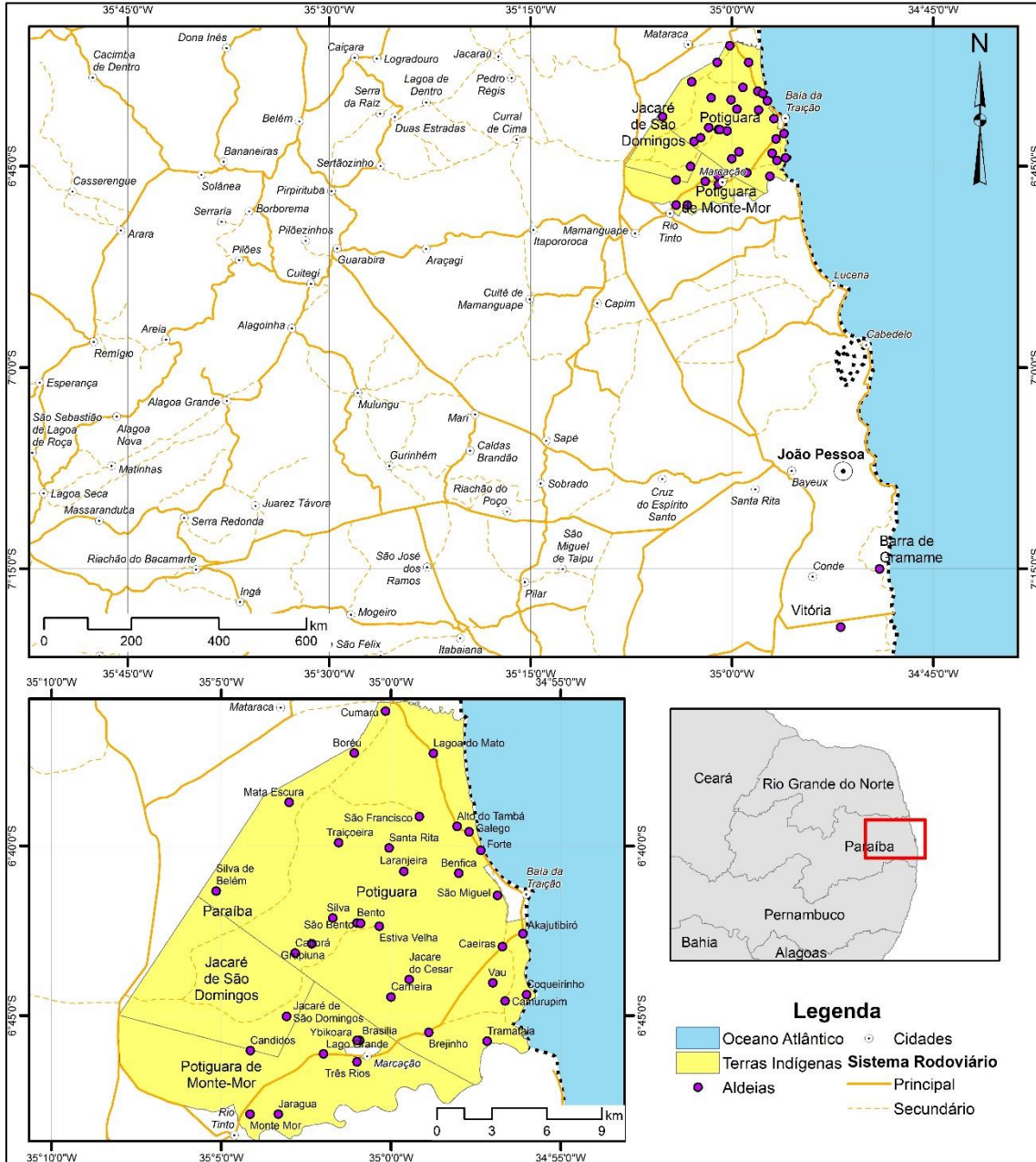
Photo 7 - Old painting depicting Cabocla Jurema



Fonte: <https://at.pinterest.com/pin/184084703497640144/>. Accessed June 2024

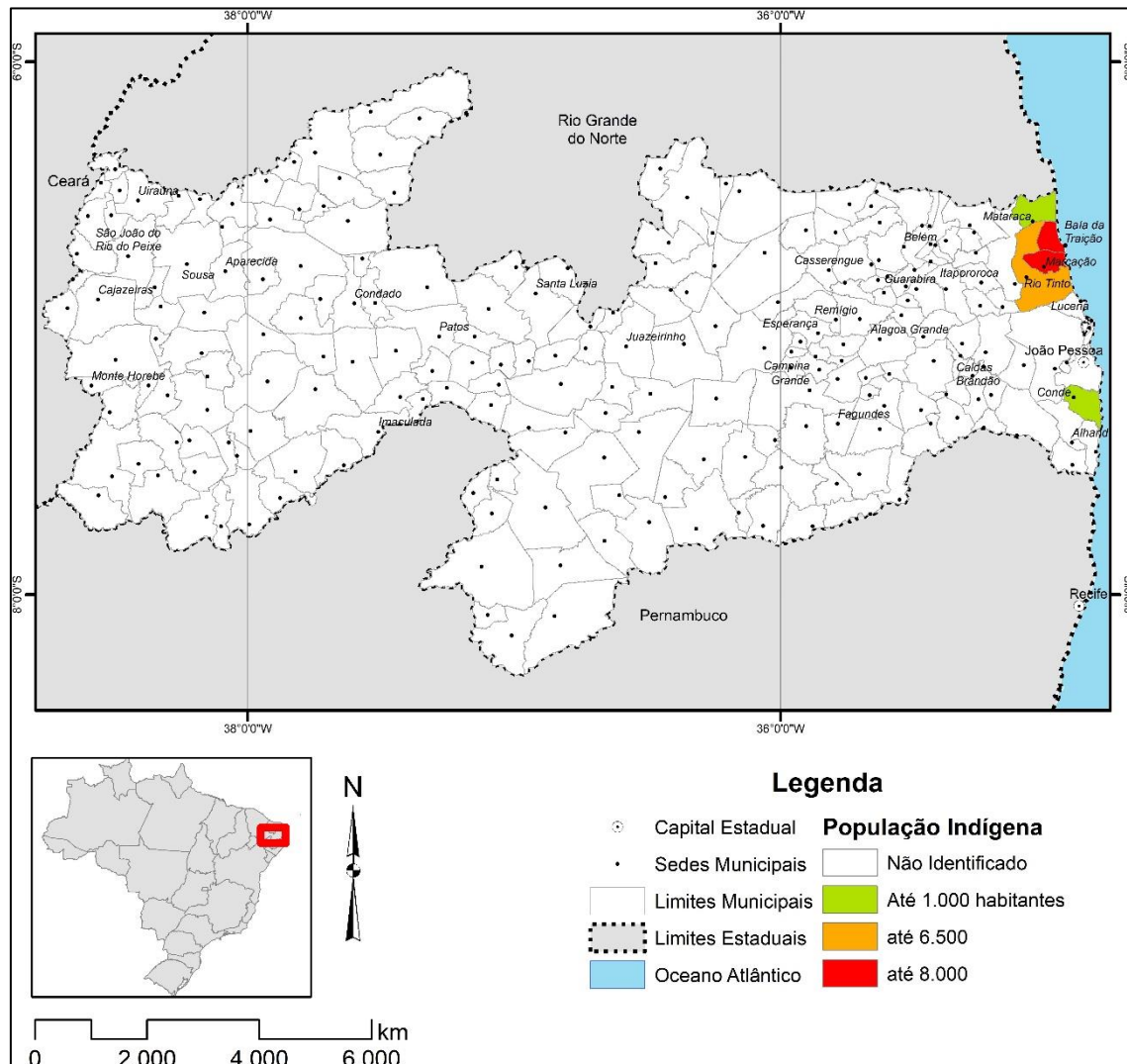
The following figures show the location of indigenous lands and villages in Paraíba and their population.

**Figure 3 - Indigenous Lands in Paraíba**



Source: Technical Team, 2024.

**Figure 4 - Indigenous population in Paraíba**



Source: Technical Team, 2024.

### 5.3 Fishing communities

Traditional fishing is carried out individually or as part of a family system, for commercial or consumption purposes, where the fishermen themselves create and use the artifacts and their craft, and may or may not be assisted by small boats. It is an activity with a major social and economic impact in Brazil due to the volume of people involved and the extent of the territory they occupy, between river basins and the coast. The Ministry of Fisheries and Aquaculture (MPA) licenses the profession of fisherman, as well as promoting actions linked to the infrastructure and marketing of fish. Fishermen and fisherwomen registered with the colonies are entitled to receive unemployment insurance in the months when fishing for certain species is prohibited, as well as easy credit to buy diesel fuel for their boats. The MPA also promotes, in partnership with other institutions, training programs for fishermen and incentive actions (DE LIMA, 2016).

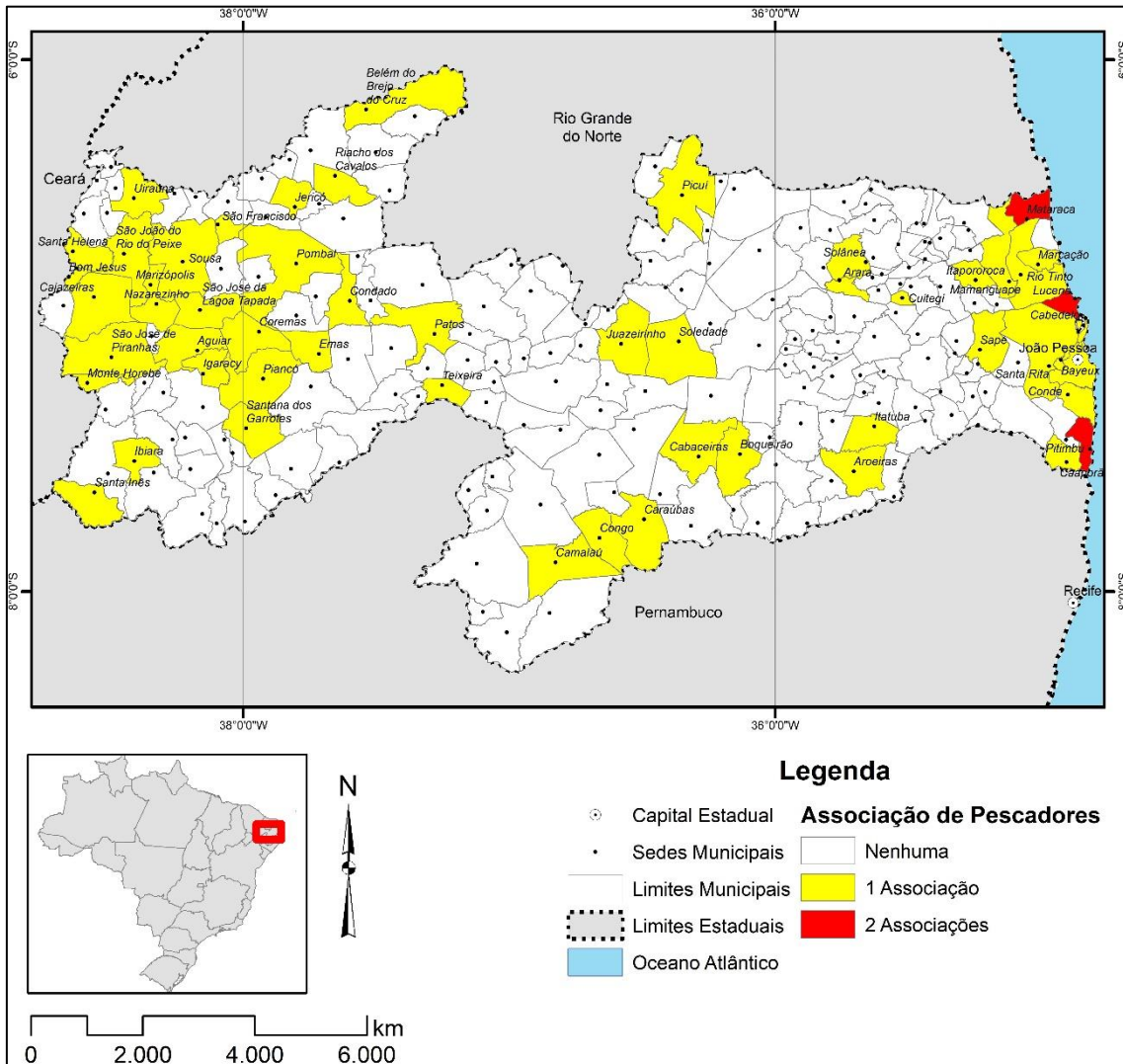
In 2009, the MPA registered just over 800,000 fishermen involved in the activity. However, considering the case of Pernambuco, where only half of the fishermen are registered, it is assumed that the real number is much higher. According to Vasconcellos et al (2014), approximately 2 million people are involved in fishing, and half of the fish



produced in Brazil comes from artisanal fishing. However, there are discrepancies in the data, since according to IBAMA (2008), the production of artisanal fishing corresponds to 65% of the national total and, according to calculations by the Movement of Fishermen and Fisherwomen of Brazil, it reaches 70% (DE LIMA, 2016).

In Paraíba, according to data collected by PROCASE, there are a total of 57 fishing communities/associations/colonies, spread over 54 municipalities in the state, as can be seen in the figure below.

**Figure 5 - Fishermen's associations in Paraíba**



Source: Technical Team, 2024.

Located on the south coast of Paraíba, in the metropolitan region of João Pessoa, the community of Acaú is an extractive reserve called RESEX Acaú-Goiana, situated in the municipality of Pitimbu. According to the local inhabitants, Pitimbu has indigenous origins and means "eye of water of smoke", since it was the territory of the Tabajara and Potiguar peoples (GOMES, 2016).

The Acaú community makes its living mainly from extractive activities, with fishing resources guaranteeing their self-sufficiency. Created on September 26, 2007, the Resex Acaú-Goiana is one of the 320 federal Conservation Units managed by the Chico

Mendes Institute (ICMBio). Its aim is to protect the livelihoods, guarantee the use and conserve the renewable natural resources traditionally used by the extractivist population of the communities of Acaú, Tejucupapo, Povoação de São Lourenço, Carne de Vaca and Baldo do Rio, located in the municipalities of Caaporã (PB), Pitimbú (PB) and Goiana (PE) (GOMES, 2016).

In Acaú, as in the other traditional communities of the Acaú-Goiana RESEX, the main extractive activities are related to artisanal fishing. Fish, shellfish and other molluscs, crustaceans such as crab, crab, lobster and shrimp, are the most commonly caught fish. Production has several destinations, but most of the shellfish harvesting is still for personal consumption, and the activity is mostly carried out by women, who have been organizing themselves through the Acaú Shellfish Growers Association (AMA) (GOMES, 2016).

The Association of Shellfish gatherers (AMA) was founded in 1997 and currently has 200 members, but has already reached 600 participants. They are women of Afro-indigenous descent, most of whom are shellfish gatherers and shellfish artisans. Local artisans use solid shellfish waste to make their handicrafts.

According to information from the AMA, it was the shellfish gatherers who asked for the RESEX to be created and the leaders took part in its Management Plan, with community councillors taking part in its management. The shellfish gatherers pay 15 reais a month to be part of the association and only benefit from health insurance. The shellfish gatherers' children have no interest in the trade because they see no opportunity for growth.

The shellfish gatherers leave home at 5am, and they still have their home activities to attend to before leaving for work. The AMA has no infrastructure for logistics and seafood storage (refrigerator or collective freezer). The shellfish gatherers also point to the lack of the simplest equipment and utensils to carry out their work, such as long blouses, sunscreen or a wheelbarrow to carry equipment, material and products.

On average, shellfish gatherers harvest around 5 kg of shellfish a day per person. Some of them use a long-handled cudgel, which is forbidden by law at first, but makes it easier to catch shellfish without having to crouch down to avoid health problems. Each shellfish gatherer produces around 3.5 kg a day.

Shellfish shells are used for handicrafts, but there is still a lot left over, generating a significant amount of waste. The shellfish gatherers are thinking of a project to use the shell to encase building bricks, and some have already used it in their own homes to make flooring instead of gravel.

To make their crafts, they use materials such as cotton string, leftover shells from the beach, glue, wire, fish scales and so on. They make bottles with shells, crafts with coconut, figures with shellfish shells, etc.

These shellfish gatherers don't sell their products to the public sector because they can't meet the required criteria, such as vacuum packaging.

**Photo 8 - Site of the AMA (Association of Shellfish gatherers of Acaú), in the municipality of Pitimbu**



*Source: Technical Team, 2024.*

**Photo 9 - Handicrafts produced at AMA**



Source: Technical Team, 2024.

The technical team also visited the municipality of Soledade the Z-27 Fishermen's Colony, which currently has almost 300 fishermen. The Colony offers technical assistance, closed season insurance, processing, sickness and maternity benefits, support for programs to buy houses, land and registration with the PAA. It has a processing shed and a processing area under construction, but it doesn't yet have the machinery. It will soon have a cold room for storage.

Information from the association reveals that it has no concerns about industrial fishing in the region, since fishermen don't face competition from this type of production. Their main complaints are the lack of permanent technical support; the lack of transportation for fishing and transportation for the products; and the lack of new technologies to bring younger people closer to the trade.

The fish they catch include tilapia, curimatã, tucunaré, piau, branquinha and traíra. During the dry season, the women catch piaba with a clay pot. Normally, the fisherman cuts off the fish's head and cleans it, leaving the waste in the weir itself. He then removes the hide and prepares the fillet. Some of the products sold by the association are fillets, boneless fish, breaded fish, hamburgers, sausages and flour.

The closed season for piau, curimatã and branquinha fish species lasts about three months, from December to February. Fishing with trawling equipment and tarrafa is forbidden and associated fishermen use nets with 9 cm mesh for larger fish, 1 cm for shrimp, and 1.5 cm for piabeira. Some people hunt fish with harpoons and "shotguns" as a sport, which is also prohibited by law, using the big dam to catch larger fish.

It was pointed out by a representative of the association that sometimes fishermen stay in the lagoon for an extra day because they haven't caught enough fish and extend their

stay to try to increase production, running the risk of losing part of what has already been caught due to a lack of suitable storage equipment.

In situations where the reservoir dries up, the fishermen go to another nearby state, for example Rio Grande do Norte, in search of other sources. The association sells to the PAA and the fishermen also sell at the open market on their own.

The Colony's fishermen point out incidences of skin and lung cancer, diabetes and motorcycle accidents on the way to work. Drowning also occurs, but not as often. Finally, fishermen may have an accident when they step on something in the weir.

**Photo 10 - View of the Z-27 Fishermen's Colony site in the municipality of Soledade**



Source: Technical Team, 2024.

**Photo 11 - Fishing nets from the Z-27 fishing colony**



Source: Technical Team, 2024.

#### **5.4 Gypsy communities**

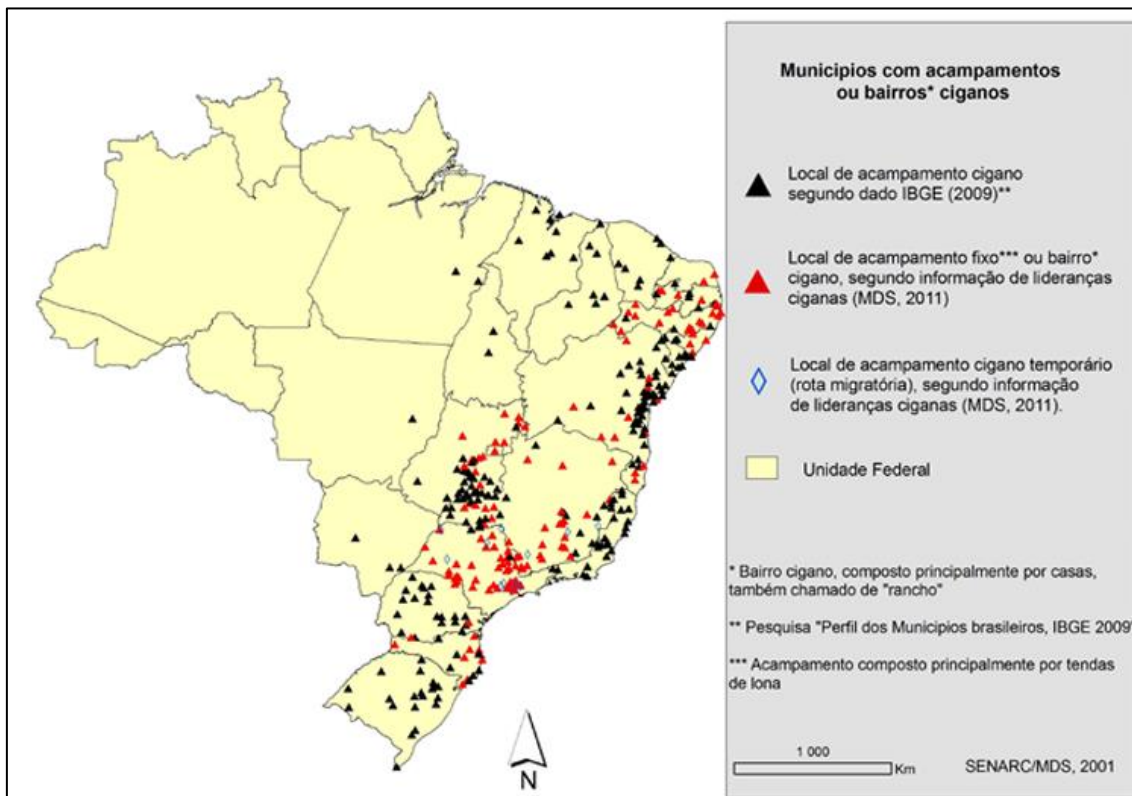
To this day, the origins of the Gypsy Peoples continue to be the subject of research. The predominant theory today states that they have their roots in India and that, around a thousand years ago, they began their dispersal around the world (BRASIL, 2013).

In Brazil, the first official record of the arrival of gypsies dates back to 1574: a decree by the Portuguese government deported the gypsy João Torres and his wife Angelina to Brazilian lands for five years. The country is home to at least three distinct Roma ethnic groups: Calon, Rom and Sinti, each with their own languages, cultures and traditions (BRASIL, 2013).

The Brazilian Rom belong mainly to the Kalderash, Machwaia and Rudari sub-groups, which have their origins in Romania; the Horahané, from Turkey and Greece, and the Lovara. In addition to these, there are the Calons, who have a strong presence in Brazil and throughout the country, and have their roots in Spain and Portugal. The Sinti mainly arrived in Brazil after World War I and II, coming from Germany and France (BRASIL, 2013).

There is still little official information available on the Roma population. According to the IBGE's Municipal Basic Information Survey (MUNIC), in 2011 there were 291 Roma encampments in 21 Brazilian states. The highest concentration of camps was in the states of Bahia (53), Minas Gerais (58) and Goiás (38). Municipalities with between 20 and 50 thousand inhabitants have the highest concentration of camps. In terms of the total Roma population, it is estimated that there are more than half a million in Brazil (BRASIL, 2013).

**Figure 6 - Map of Roma Communities, by municipality - Brazil, 2011**



Source: Secretariat for Policies to Promote Racial Equality - SEPPIR. Guide to Public Policies for Gypsy Peoples, 2013.

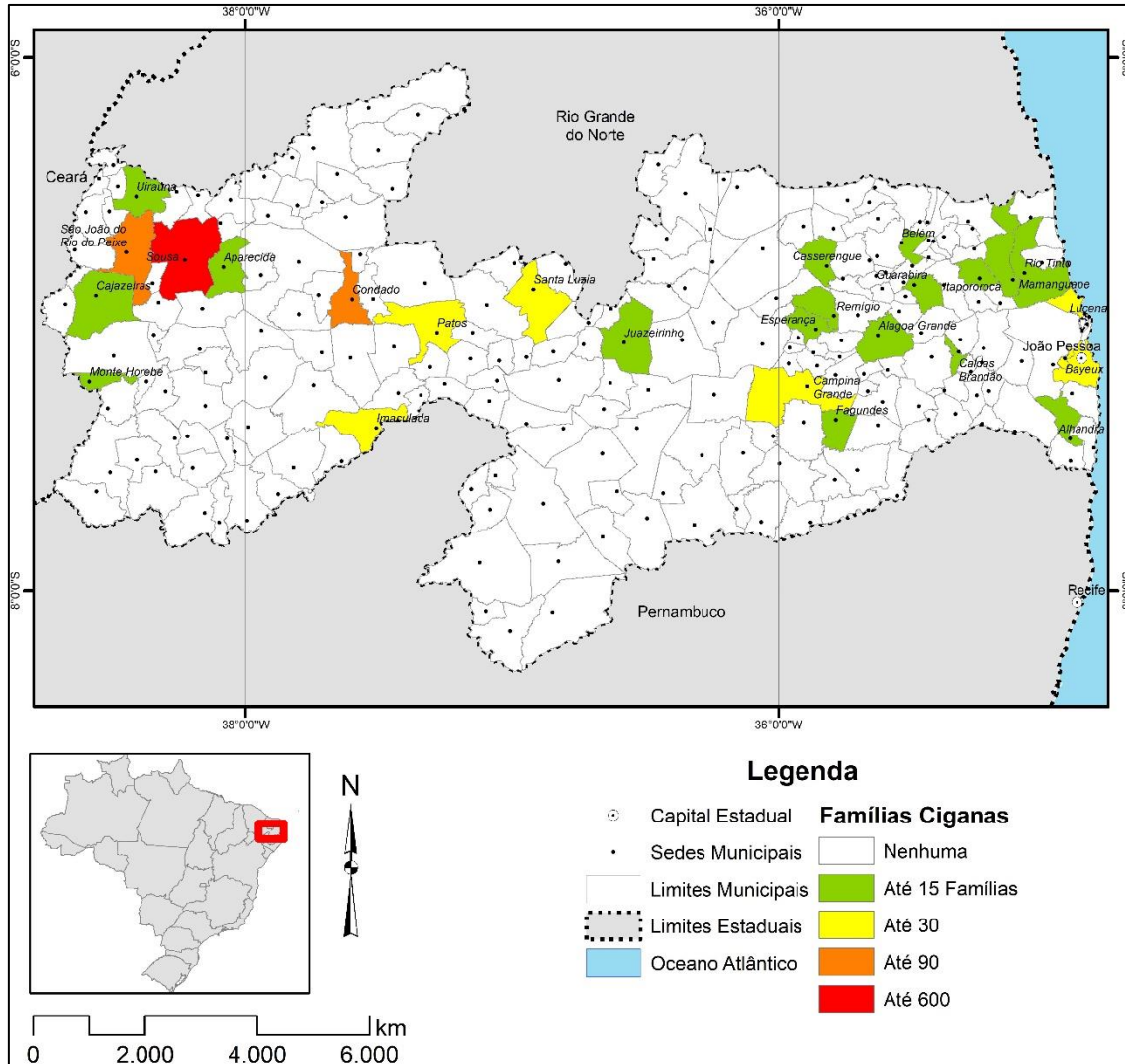
Gypsies are considered "traditional peoples and communities", as defined in Decree 6.040/2007 article 3, because they are: "Culturally differentiated groups who recognize themselves as such, who have their own forms of social organization, who occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition" (GOVERNMENT OF THE STATE OF PARAÍBA, 2022).

According to researchers of Roma culture, these people have suffered discrimination in various countries for centuries, calling "attitudes, acts or policies contrary to Roma interests and rights" anti-Gypsyism. (MOONEN, 2011 p. 6. In: GOVERNO DO ESTADO DA PARAÍBA, 2022). This is the main factor that explains the nomadic lifestyle and the use of agraphic dialects as a form of protection for these people. Given this context, historical records about the Roma people are not precise, making it difficult to systematize profiles and more in-depth characteristics about them; and thus interfering with the population's access to their rights as citizens and the construction of adequate public policies.

Approximately 1,500 gypsies live in Paraíba, and more than 95% of them are concentrated in the state's Sertão region, mainly in Sousa, which is home to the largest gypsy community in Brazil. Grouped together in communities on the outskirts of the cities, the Roma of the Calon ethnic group face a lack of infrastructure, basic sanitation and sewage disposal. In addition, they deal with high levels of unemployment, which are exacerbated by the prejudice they face (PARAÍBA, 2020).

The figure below shows the number of gypsy families and their location in different municipalities in Paraíba.

**Figure 7 - Gypsy Families in Paraíba**

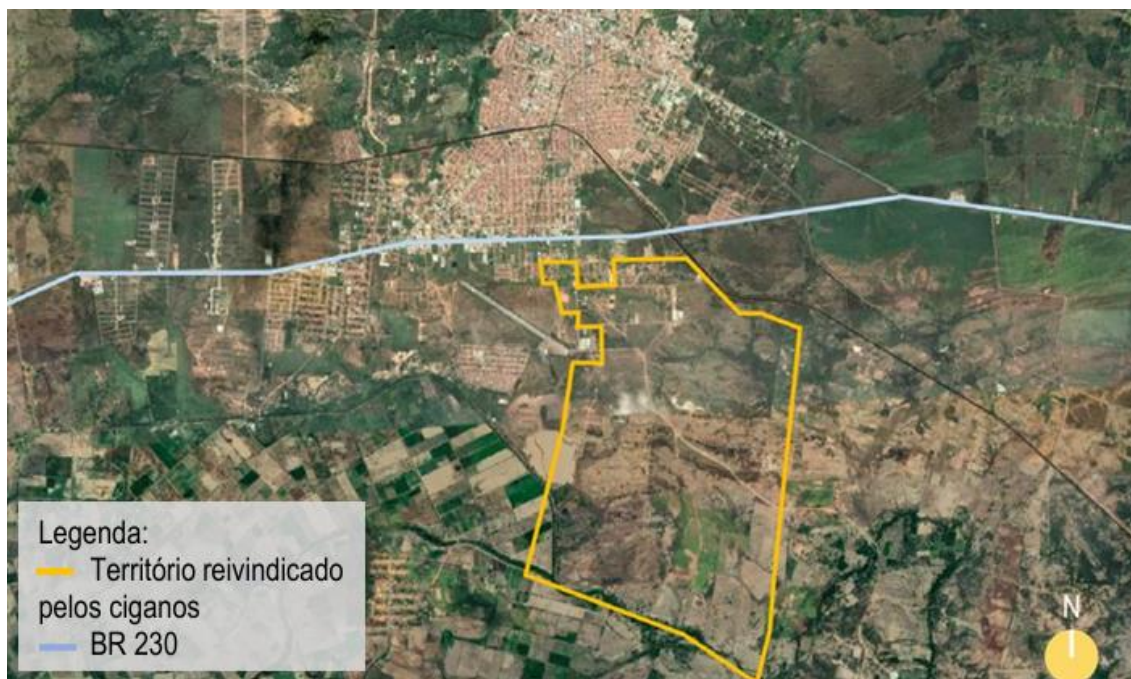


Source: Technical Team, 2024.

The gypsies of Sousa/PB have settled on land flanked by the BR 230 highway, 3 kilometers from the city center. They claim an area of 7.008 km<sup>2</sup>, with a perimeter of 12.786 km, in the areas bordering the urban core, as can be seen in the figure below (MANGUEIRA; CAMPOS, 2023).



**Figure 8 - Territory claimed by the gypsies in contrast to the urban center of Sousa/PB**



Source: Paraíba Calon, gypsy "sim sinhô": Analysis of the production of urban space in a traditional community in the municipality of Sousa (PB) during forty years of sedentarization, 2023.

The group led by Pedro Maia was the first to settle in the territory, choosing a higher area than those around it. Years later, Vicente and Eládio's groups settled in a lower area, giving rise to the communities known as Rancho de Baixo and Rancho de Cima. These ranches are separated from each other by about 1 kilometer, with a mediation zone known as "Várzea das Almas", a mixed area made up of gypsies and non gypsies. Despite these two nomenclatures, the community is divided into four, named after the leaders who once headed each community. They are: Manoel Valério Correia, Otavio Maia, Vicente Vidal de Negreiros and Pedro Benício Maia. According to data collected by the State People's Housing Company (CEHAP) in 2020, 1,845 people live in this gypsy community, spread over 522 families (MANGUEIRA; CAMPOS, 2023).

There is no sewage system in the community, and sewage is left out in the open without any treatment, contributing to the appearance of water-borne diseases. There is an artesian well in the Pedro Maia community, but it is not enough to supply all the local gypsies. Therefore, the gypsies don't have easy access to drinking water either (MANGUEIRA; CAMPOS, 2023).

Several families in the community are characterized by being below the poverty line, highlighting the difficulties faced by the Roma population of Sousa due to their social, political and environmental vulnerability. Despite all the problems they suffer, especially in relation to precarious housing, the Roma of Sousa aim to remain and legally occupy the territory, as well as finding formal and specialized jobs in the city (MANGUEIRA; CAMPOS, 2023).

According to data from the Socioeconomic Survey of the Gypsy Population of Sousa (GOVERNMENT OF THE STATE OF PARAÍBA, 2022), before settling in the city, these people traditionally had as their main source of income the trade of consumer goods (industrialized products) and the breeding and transport of animals. Both took place between towns in the hinterland of Paraíba, Pernambuco and Rio Grande do Norte,

supplying different communities. It was mainly the men who were responsible for earning money, while the women were responsible for the daily care of the family, and the income from palmistry and taromancy served as a supplement to the family income.

With the development of trade flows and the number of establishments in the regions where they used to sell their goods, the traditional gypsy street trade gradually became less profitable, affecting their subsistence conditions and nomadic way of life. "In view of this, sedentarization in the vicinity of a larger city became the only way out for many gypsies. In other words, in our opinion, it wasn't sedentarization that caused proletarianization, but it was proletarianization, it was impoverishment that forced the gypsies of Sousa to accept a sedentary life." Along with the change in the way of living, women's responsibility for the financial support of the family also changed, where their traditional knowledge, not only of reading hands and cards, but also of caring for the home and family, became financially important.

Sousa's gypsy population has been settled in the same area for 40 years, with more than half of the population born in the city. Since 1980, the population has been growing and today occupies an area that extends into the Jardim Sorrilândia urban neighborhood, named by the population as Rancho de Baixo and Rancho de Cima. The area has a number of public facilities: a health center, a Social Assistance Reference Center (CRAS), a kindergarten, an elementary school, a high school and an EJA school, and a federal high school and technical institute, all of which facilitate access for the population. Despite the length of time the territory has been occupied, the population still lacks adequate urban infrastructure: the streets are dirt and unlit, solid waste is not properly disposed of and is only collected once a week by the town hall, the entire territory is not connected to the sanitary sewage network and the water supply is intermittent.

It is worth noting that handicrafts appear as a source of income in only 9 family nuclei in the community in Sousa, while when asked about traditional gypsy cultural practices, the activity appears in 100 nuclei. This data shows that, although it may result in money or consumer goods for the other families who declared that the practice was present in the family nucleus, handicrafts have not gained prominence as an alternative source of work and income in the community, either because the activity has remained fundamentally a cultural manifestation or because of the lack of economic prospects, due to the absence of public incentive policies.

Still on the subject of activities and occupations reported as a source of income, it is pertinent to point out that none of the people interviewed by the Socioeconomic Survey (GOVERNMENT OF THE STATE OF PARAÍBA, 2022) reported practicing palmistry and fortune-telling, although 24% of family nuclei reported practicing them when asked about traditional aspects of gypsy culture.

Regarding the traditional cultural aspects of the Roma population, the Chibe - Calon language is the most widely practiced, followed by dance and handicrafts.

As for religion, almost all Roma families said they followed some form of religion, the most common being Catholicism, followed by Protestantism.

It's worth noting that most of the Roma families' homes are currently made of masonry, but there are still many rammed earth buildings and canvas structures.

**Figure 9 - Taipa gypsy house in the municipality of Sousa.**



Source: GOVERNMENT OF THE STATE OF PARAÍBA, 2022

**Figure 10 - Gypsy canvas structure for housing in the municipality of Sousa.**



Source: GOVERNMENT OF THE STATE OF PARAÍBA, 2022

**Figure 11 - Gypsy structure with a roof and no walls for housing in the municipality of Sousa.**



Source: GOVERNMENT OF THE STATE OF PARAÍBA, 2022

Discrimination is a factor that has a decisive impact on the difficulties in the development and socio-economic sustainability of the Roma population in Sousa. It occurs in various sectors of daily life, most frequently in health care, followed by the workplace and access to work. Despite this, the families show resilience to the adverse conditions, taking pride in their traditional culture, staying in the territory, creating solutions for storing water, adhering to formalizations to receive social subsistence benefits, enrolling children in schools without significant cultural representation, establishing dialogue with non-Roma, mainly through their community leaders and the public sector (GOVERNMENT OF THE STATE OF PARAÍBA, 2022).

The result of the Paraíba Government's Socioeconomic Survey (2022) recommends the following aspects for strengthening inclusion and care for the Roma people:

- Valuing the culture and identity of the Roma people;
- Regularization of the territory;
- Urbanization of the neighborhood with structures that dialogue with gypsy cultural practices;
- Building new housing for the growing population;
- Replacing rammed earth houses and renovating homes that pose a risk to the population;
- Access to water and energy for the entire population of the ranches;

- Inclusion of all children in school and actions to reduce the dropout rate of young people in basic education;
- Increasing the participation of the adult population in Youth and Adult Education and other vocational courses;
- Actions to combat unemployment;
- Active search for vacancies with Roma profiles;
- Guidance for young people and adults looking for work, training and building a curriculum;
- Ethnic quotas in municipal public notices;
- Participation of Roma representatives in public management and services;
- Actions to combat racism;
- Permanent training and sensitization of the public service network on human rights and racial literacy.

## 6 VULNERABILITY ANALYSIS

This section describes the vulnerability analysis to which the communities in the project area are subject. The content on socio-cultural livelihoods described above supports the identification of the levels of vulnerability to which they are exposed.

In this assessment, vulnerability is understood to be a condition determined by physical, social, economic and environmental factors or processes that increase the community's susceptibility to the positive or negative impacts of the Project.

### 6.1 Vulnerability on Human Capital

Socio-environmental conflicts related to the contamination of the territory's natural resources and the constant advance of unsustainable land exploitation have led traditional communities to constantly reflect on the use and availability of resources for future generations. The gardens or agricultural areas for the community have a fundamental value not only in terms of subsistence, but also in terms of the reproduction of knowledge and know-how passed down for generations.

Today, agriculture occupies a significant part of the territory, which is often accompanied by sustainable agroforestry systems, thus avoiding the opening up of new areas and supporting the increase of native vegetation, allowing knowledge associated with traditional land management and the social organization of work to be reproduced to some extent. Another issue is the areas of forest, the so-called forest reserves, which they are trying to preserve even with the already restricted areas of farmland. These small areas are essential for the conservation of important ecosystem services for the communities, such as the availability of water and by-products like piassava straws for the production of handicrafts and household items, and knowledge of medicinal herbs taken from the wild.

Currently, various products related to agriculture and artifacts are marketed by the communities, but some of them stand out as the cornerstones of production, such as cotton, vegetables and cassava.

The loss and degradation of these resources in the communities highlights a vulnerability aimed at the reproduction of knowledge that is central to cultural identity and survival. In

general, it can be concluded that land is not just a natural resource, but a socio-cultural resource, comprising collectively created and historically located environmental knowledge and identities, which are used to establish and maintain their territory and identity.

Some communities have been going through a process of strengthening their cultural traditions and reaffirming their ethnic identity, especially those that have managed to position themselves in the market for the production of agro-ecological products and handicrafts. However, it is true that other communities are struggling to expand their development, either due to the lack of technical assistance and knowledge, or the lack of infrastructure to support a better quality of life and production.

In addition, the history of the communities, as well as their present day, is marked by violent conflicts, discrimination and prejudice, as well as territorial vulnerability reflected in the fragility of the lack of formalization and protection of land use rights.

Maintaining the rituals and encouraging young people and children to take part in these spaces strengthens the importance of the old leaders and their wealth of knowledge about the territory and resources, which stands up to the various challenges of exodus and cultural abandonment suffered as a result of contact with white people, the city and the technological resources and opportunities in the urban environment that reach the community and weaken the group's cohesion.

The lack of basic infrastructure resources, especially sewage treatment, resources for quality water supply and road infrastructure for transporting production and access to basic systems such as health and education, favor the potentialization of vulnerability over human capital.

## 6.2 Vulnerability on Social Capital

Territory for traditional communities is a social space marked by land and kinship, considering that their values, support network and cultural practices are built through forms of organization based on solidarity and reciprocity. When families are unable to maintain their bonds and alliances through the cultural practices that unite them, this support network is weakened and makes them exposed to risks and significant levels of social disintegration.

Racism and its effects on the distribution of resources are structural elements of social inequality in Brazil. The persistence of racial differentiation in access to public services, in the acquisition of skills and in social position reveals the consequences of the systematic operation of mechanisms for the production and reproduction of inequalities in various fields of social life (IPEA, 2011). It can be seen in the territory that people still suffer stigma and discrimination due to their ethnic and racial identity and the titling of their territories, given the land conflicts in the region.

Currently, communities have local social organizations (associations, cooperatives) as one of the only channels for defending rights and opportunities, enabling dialogue between partners and access to benefits and markets. However, due to the current fragility of social ties and alliance relationships, it is possible to foresee conflicts and lack of adherence to social organizations.

Many traditional communities in the area covered by the project experience processes of ethnic discrimination and marginalization. In particular aspects of social organization, despite the various legal prerogatives that protect them, are still constantly challenged and questioned by non-indigenous society.

### 6.3 Vulnerability on Physical Capital

The vulnerability of this asset is related to the quality and current state of conservation of the supporting infrastructure and the opportunities for access to the basic services that a community needs for its full development.

In general, the access roads to the traditional communities are in a precarious state of repair, with places that are impassable on certain days when there is heavy rainfall.

The water distribution system is very diverse and, despite the availability of water in the Atlantic Forest region, access to quality water is often scarce. There is a lack of treatment and water sources are often of poor quality for human consumption, with risks of pollutants from pesticide application. On the other hand, the semi-arid region (Caatinga) has a very limited supply of water services, especially during the dry season when drought damages production.

Electricity is supplied through public systems provided by distribution companies, with minimal structure for the communities.

In general, the main vulnerability of physical capital assets is the instability and poor quality of the services offered, especially water supply, the lack of adequate sewage systems and the precariousness of the road system.

### 6.4 Vulnerability on Natural Capital

The main vulnerability of this asset is related to environmental dynamics, especially during periods of drought, which have been influenced by the effects of climate change and natural phenomena such as El Niño. Despite the great variations suffered, the risk of forest fires and the lack of water, several projects and experiments (academic or public) have been identified that aim to achieve proper ecosystem management in order to achieve adequate resilience, such as the implementation of agroforestry systems (SAFs) that provide raw materials throughout the year, creole seed banks, etc.

In general, the territories are diverse in terms of anthropization, including areas with a greater or lesser degree of deforestation. However, it should be noted that activities outside the territories of traditional communities often put pressure on the ecosystem as a whole, influencing the quality of the resources present.

The pressure on natural resources suffered throughout the region where the communities are located causes impacts related to the reduction of tree species and gene flow, the chasing away of fauna, the loss of habitats and the contamination of the natural environment. It should be borne in mind that PROCASE II has objectives and focuses on combating these processes and increasing the positive results on the regeneration of forest areas.

### 6.5 Vulnerability Financial Capital

The vulnerability of this asset is related to the few sources of monetary resources in the face of the growing vulnerability to social breakdown faced by local communities.

Many traditional families have a subsistence economy, or make use of the resources used in production for their food, with planting and other assets offered by natural capital as part of their food source, as well as monetary resources from the sale of agricultural products and, in some cases, processed manioc, beans, mangaba and also livestock (cattle and goats). There is also the use of external sources of financial resources,



essentially from social programs (Bolsa Família, for example), pensions and salaries from public positions.

The vulnerability of this asset is related to difficulties in accessing the market to sell production and challenges related to maintaining quality production (availability of technical resources, climatic events, pest control, etc).

Thus, it must be considered that families are dependent on resources from other assets, especially Natural Capital, and any negative impact that affects existing resources in the village and territory could put the community in a situation of food insecurity that they are currently able to supply with agricultural activities. It should also be noted that financial vulnerability affects the ability to be converted into other types of capital, such as new skills and knowledge, access to digital media (internet), and/or other channels of access to health, for example, reflecting dependence on the resources and structure offered by the state.

## 7 PROJECT-RELATED RISKS

Risk is understood as the foreseen or unforeseen events that could affect the community and/or the resources and processes on which it depends, as well as the risks that the project will fail to achieve its objectives. Risks can be both negative and positive and are evidenced in terms of the consequences of the events (impact) and their significance for the recipient.

These poorly dimensioned social risks have a high chance of causing rights violations and conflicts in the future, and the consequences are significant changes in the community's way of life, as well as financial and reputational costs for the institutions involved.

This section will first describe the methodology used to assess the risks attributed to PROCASE II, followed by a matrix of the potential risks identified and their attributes, and then an objective description of each one, thus integrating the content covered in this report.

### 7.1 Evaluation Methodology

For each potential risk, the attributes described were determined based on qualitative indicators, namely: i) nature, ii) timing iii) probability and iv) magnitude, as shown in the following table. The final result of the risk assessment is given by its significance, which is the result of the probability x magnitude ratio, as shown in the following table.

**Table 2 - Attributes of the risks related to program implementation**

Attribute	Description	Category
<b>Nature</b>	how the risk affects the recipient.	Negative Positive
<b>Timing</b>	Characterization of social risk in relation to the construction phase	Planning Installation Operation
<b>Probability</b>	Characterization of the risk in relation to the possibility of occurrence, taking into account the vulnerability to which the community is exposed and the pressure that the work may put on it.	Unlikely Likely Right Small

Attribute	Description	Category
Magnitude	Amount of capital (means of subsistence) affected by the risk.	Small Moderate Review

**Table 3 - Significance Matrix of the risks related to the execution of the Project**

Probability of Occurrence	Magnitude		
	Small	Moderate	Review
Unlikely	Low	Low	Average
Likely	Low	Average	High
Right	Average	High	High

## 7.2 Assessment of Potential Risks

A total of 11 potential risks were identified, 10 of which were negative and one positive. Most of them are expected to occur during the project implementation phase.

In this context, it is worth stating that the planned works, especially those that do not require the removal of vegetation, have risks that, from a strictly environmental point of view, are considered to be of little relevance when good safety and environmental management practices are taken into account. However, from a social point of view, the event takes on greater significance, given that families have no alternative access to quality infrastructure services, and are already experiencing a certain fragility in terms of social and human capital. Even though the risks of impacts are moderate in magnitude, they could compromise the community safety net and cause conflicts over relevant socio-cultural aspects of territoriality, the basis of physical and socio-cultural sustenance, which resulted in medium and high significance for most of the risks identified. Once the safeguard prerogatives have been complied with and an adequate consultation process has been carried out in conjunction with the mitigating measures, which must be discussed in a participatory manner with the community so that they play a leading role in monitoring them, all the social risks, even if unlikely, can still occur, but with low significance.

**Table 4 - Project execution risk assessment matrix**

ID	Risk	Nature	Temporality	Probability	Magnitude	Significance
1	Enhancing the degree of community participation and consultation	Positive	Planning, Installation and Operation	Likely	Moderate	Average
2	Risk of non-compliance with safeguards related to the cultural suitability of the sub-project	Negative	Planning	Likely	Small	Average
3	Risk of introducing diseases	Negative	Installation	Unlikely	Moderate	Low
4	Risk of accidents in communities and access roads	Negative	Installation	Likely	Moderate	Average
5	Risk of internal governance conflicts between communities	Negative	Planning, Installation and Operation	Likely	Small	Low
6	Risk of harassment of women and children and of GBV *Affects women and children unequally	Negative	Installation	Likely	Moderate	Average
7	Risk of harassment of young people through the introduction of alcohol and drugs *Affects women and children unequally	Negative	Installation	Likely	Moderate	Average
8	Risk of harassment for the sale of natural capital assets	Negative	Installation	Likely	Moderate	Average
9	Risk of shortages or interruption of essential services (energy and water supply)	Negative	Installation	Likely	Moderate	Average
10	Risk of nuisance related to noise emissions, dust and traffic of strangers in the communities and near the planned construction site	Negative	Installation	Right	Moderate	High
11	Risk of using natural capital for structures (wood, sand, gravel)	Negative	Installation	Likely	Moderate	Average

## **1. Increase the level of community participation and consultation**

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This risk was considered positive and is related to the initiatives that the PMU complies with, with the prerogatives of law, in particular consultations and participatory planning practices, considering the need to implement systems of Consultation and Informed Participation (CPI) and Free, Prior and Informed Consent (FPIC) in relation to activities that may affect the traditional community's way of life and its territory.

This risk is of a positive nature, given that the application of safeguards positively affects the lives of traditional communities, as well as acting on the borrower's learning; expected to occur at all stages of the work; of probable occurrence; of moderate magnitude as it affects three capitals (human, social and physical) and of medium significance.

In a second scenario, considering the implementation of the FPIC process, in addition to the monitoring of all aspects of the project, this risk then takes on the category of certain occurrence and raises its significance to high.

It is also essential to consult and seek authorization from FUNAI for situations involving indigenous communities.

## **2. Risk of non-compliance with safeguards related to the cultural suitability of the Project**

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This risk is associated with a total failure to comply with the safeguards regarding open dialog about possible adjustments to PROCASE II, especially its sub-projects, to meet their cultural specificities, while safeguarding their identity expectations. The design of the sub-projects must therefore be avoided if they follow a constructive and structural pattern exclusively set by the state government, which in no way maintains identity and dialog with the traditions in which it is inserted. A project that doesn't take into account local cultural characteristics; on the contrary, it retains the identity of its developer, marking the landscape and the routine of the communities. This can result in structures that are underused, scrapped and disconnected from the community's social context, especially those that have specific identities.

This risk is negative in nature, as it includes non-compliance with safeguard policies; it is possible during the planning stage; it is certain to occur; it is small in magnitude because it affects two capitals (human and social); and it is of medium significance. However, in a second scenario considering the systematic and effective conduct of the consultation process, this risk remains negative, but takes on the category of unlikely occurrence and downgrades its significance to the low category.

## **3. Risk of introducing diseases**

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Considering the current health situation in the country, the region and the communities in the project area, there may be a risk of disease transmission through the circulation of workers in the communities. The risk was considered to be of a negative nature, possible during the installation phase, but unlikely to occur, with moderate magnitude as it affects three capitals (Human, Social and Physical) and low significance.

Some actions could reduce this risk, such as hiring labor from the community, and drawing up a health safety protocol with a vaccination requirement for workers coming from outside the territory. In any case, it is recommended that during the consultations with the communities chosen to benefit from the Project, during the planning phase, this dialog advances and these and other measures are discussed and adopted.

In a second scenario, even if the measures are adopted effectively, the risk remains the same, because even if the chance is reduced, it cannot be guaranteed that no disease will be introduced into the community by the arrival of outsiders.

#### **4. Risk of accidents in communities and access roads**

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This risk is associated with possible accidents on access roads due to the traffic of vehicles and machinery, as well as the use of machinery and equipment that poses an operational risk. A significant proportion of journeys are made on foot, by bicycle or motorcycle, including children. This is aggravated by the increase in dust emissions from vehicles, which can impair visibility in traffic. In addition, there is a risk of accidents in construction site areas, given their proximity to both homes and social facilities (schools, for example), which implies the possible flow and access of people from the community to the construction site, especially if it is not well isolated and signposted.

This risk was classified as negative in nature, expected to occur during the installation phase, considered probable, of moderate magnitude as it affects three capitals (Human, Social and Physical) and of medium significance.

Therefore, during the consultation and planning phase of the work, it is recommended that the safety standards and legislation of civil engineering and vehicle traffic be considered and discussed in order to minimize this risk. In a second scenario, if the measures adopted are carried out, this risk will continue to be classified as negative, but of unlikely occurrence and moderate magnitude, downgrading the significance to the low category.

#### **5. Risk of internal governance conflicts between communities**

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This risk is associated with non-compliance with the consultation plan, especially in relation to stakeholder engagement. Issues related to social organizations representing more than one community should be discussed with all the communities involved.

In this context, the importance of social organizations in strategies for political strengthening and social cohesion is emphasized. If there is conflict between families, in disregard of the lack of listening to members and stakeholders, this cohesion can be undermined and affect the legitimacy of the institutions' governance, hurting the cohesion strategies of the communities in the territory.

This risk was considered to be of a negative nature, starting at the planning stage, of a small magnitude because it affects two capitals (human and social) and of low significance. If the guidelines of the Consultation Plan are complied with with respect to the internal governance of the territory, this risk is considered unlikely to occur.

#### **6. Risk of harassment of women and children and gender-based violence (GBV)**

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This risk is associated with the transit of workers from outside the community, which has the potential to affect men, women and children in different ways, with women and children being more susceptible and vulnerable to these situations.

Many women in the project's area of activity have expressed insecurity due to the stigma they have suffered over many years, under the objectification and submission imposed by men in society. According to data from the Patrícia Galvão Institute, violence based on gender discrimination, such as sexual harassment in its broadest sense, is exacerbated when one considers the multiple inequalities that combine in Brazil and that affect black, peripheral, indigenous, rural women, children and people with disabilities in

different ways. The data shows that these segments are more vulnerable both to becoming targets of violence and to having their rights violated by the state, through direct action or omission. The dossier also warns that police authorities record an average of 180 rapes a day in Brazil, with the majority of victims being women (82%), black (51%) and girls under 13 (54%). Women are also the main victims of harassment and sexual harassment (rude approaches, offenses and inappropriate proposals that embarrass, humiliate and frighten).

In addition, observations and reports collected in the field suggest an increase in gender-based violence (GBV) as a result of the increase in women's income and financial independence, often fostered by associations, cooperatives, etc.

This risk was considered to be negative in nature, expected to occur during the implementation stage of the works, of probable occurrence, moderate in magnitude as it affects three capitals (human, social and physical) and of medium significance. Consideration is given to the possibility of people from the communities being hired, reducing the risk, or the possibility of external workers being housed outside the communities' territory, in nearby villages, for example. Such measures would favor a safer situation at night and on weekends. In addition, a complaints mechanism is suggested, which should be discussed so that it is culturally appropriate, so that women and adolescents can make their complaints without identifying themselves, and this can be remedied immediately. Once these measures have been applied, discussed openly with the women of the communities, together with the code of conduct for workers, the risk is considered unlikely to occur and the significance is reduced to the low category.

## **7. Risk of harassment of young people through the introduction of alcohol and drugs**

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This risk is associated with the traffic of outside workers in the community and is due to the curiosity of young people, who end up being harassed into consuming drinks or illicit drugs brought in by workers. This impact also ends up affecting women unequally due to their overload in caring for the family, since they are responsible for domestic support in the community.

Children and adolescents will be on the move on a daily basis in the vicinity of the construction site and project implementation areas, and the vulnerability of the health system coupled with the difficulties of access mean that it is difficult to guarantee some basic rights, disguised as prejudice and racism, causing the community to be abandoned and forgotten, especially in relation to resources aimed at prevention and care measures. There is stigma and discrimination in the region because of their ethnic identity and land rights, and this has had repercussions on the lives of young people, such as the difficulty of getting a job and expectations of income and personal development.

This risk was considered to be negative in nature, expected to occur during the installation stage, likely to occur, moderate in magnitude because it affects three capitals (human, social and physical) and resulted in a medium significance. Thought was given to the possibility of workers who are not part of the community being housed outside the territory, which would create a situation of greater security in relation to the risk. Once the measures have been applied, discussed openly with the community members and associated with the code of conduct for workers, this risk is now considered unlikely to occur, lowering the significance category to low.

## **8. Risk of harassment for the sale of natural capital assets**

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This risk is related to the history of harassment of community residents by outsiders for the illegal sale of natural capital assets, such as wildlife trade, hunting or logging.

In this context, this risk was classified as negative in nature, expected to occur during the implementation phase of the works, of probable occurrence, moderate in magnitude as it affects three capitals (human, social and natural) and of medium significance.

Therefore, during the consultation and planning phase of the project, it is recommended that measures aimed at raising awareness among residents be considered and discussed, but above all awareness among workers and companies, especially with regard to current legislation and international safeguards. In a second scenario, if the measures adopted are effective, this risk remains classified as negative, but of unlikely occurrence and moderate magnitude, downgrading the significance to the low category.

## **9. Risk of shortages or interruption of essential services (energy and water supply)**

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This risk is associated with a lack of water for use by the community, especially homes close to the area where the infrastructure to be built is to be installed, both because of the increase in demand during the project implementation stage and because of the need for temporary cuts in the supply of essential services for the proper implementation of the infrastructure. This issue basically affects energy and water supply systems and can also interfere with roads, making access to buildings and structures difficult or impossible, for example.

As such, this risk was classified as negative in nature, expected to occur during the installation phase of the project, of probable occurrence, moderate in magnitude as it affects four capitals (human, social, natural and physical) and of medium significance.

Therefore, during the consultation and planning phase, it is recommended that measures aimed at the actual availability of basic services and warning or alert systems be considered and discussed, as well as the prevention and restoration of services in the event of an interruption.

In a second scenario, if the suggested measures are effectively adopted, this risk will continue to be classified as negative, but of unlikely occurrence and moderate magnitude, reducing the significance to low.

## **10. Risk of nuisance related to noise emissions, dust and the circulation of strangers in the communities and near the planned construction site.**

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This risk refers to the increase in various and frequent nuisances that will occur during the installation phase of the work (Social Technologies) for all community members and, in particular, for beneficiary families who are closest to the site where the project's infrastructure will be installed.

This risk was classified as negative in nature, expected to occur during the installation phase of the Social Technology, of certain occurrence, moderate in magnitude as it affects three capitals (human, social and physical) and high in significance.

For this risk, even if it is discussed in the consultation plan during the planning phase, it is unlikely that any measure will have such a mitigating effect that there will be a reduction in the likelihood of its occurrence. In other words, during the construction phase, it is inseparable that there will be a high level of noise emissions, suspension of particulate matter or movement of different people through the community. A calendar of days and

times can be recommended, not allowing work on weekends or at times of greater sensitivity, for example. Worker training courses or greater control of the flow of trucks and heavy machinery could also be considered. Actions related to physical barriers that can reduce the impact and frequent adjustment and maintenance of machinery and equipment also help to reduce the magnitude of this situation.

It is also worth mentioning the implementation of a workers' code of conduct (a measure provided for in the project's ESMP), which applies to these cases.

However, in a second scenario, there is unlikely to be an effective measure to neutralize the attributes of this risk, which is continuously negative in nature, expected to occur during the installation phase of the work, of certain occurrence, moderate magnitude and high significance.

### **11. Risk of using natural capital on site (wood, sand, gravel)**

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This risk refers to the possibility of raw materials from the traditional community's territory being used in the work itself, in particular wood and sand for the construction of buildings and infrastructure. It is not uncommon to observe this practice in many traditional communities in Brazil under the argument that it would either be a quid pro quo from the beneficiaries, or as a way of making the works cheaper and more viable. This risk was classified as negative in nature, expected to occur during the installation phase, likely to occur, moderate in magnitude as it affects three capitals (human, social and natural) and of medium significance.

Therefore, during the consultation and planning phase of the project, it is recommended to consider and discuss measures aimed at dialoguing with the community and the contractor about the terms of conduct regarding this practice, as well as inspection measures and mechanisms and channels for complaints. On the other hand, these issues should be addressed with the workers on site during the Daily Safety Dialogue (DDS) or similar activities.

In a second scenario, if the measures defined and adopted are effective, this risk, although still classified as negative, is unlikely to occur and has a moderate magnitude, downgrading the significance category to low.

## **8 SOCIO-CULTURAL ACTION PLAN**

The following is the socio-cultural action plan aimed at controlling, minimizing and neutralizing the anticipated risks.

### **8.1 Mitigation and Monitoring Measures**

Overall, most risks are related to impacts on activities that are essential to the community's subsistence and the reproduction of its cultural values which can affect its way of life on a daily basis, in the relationship established with the territory. These risks have a medium significance. The risks are also related to the vulnerabilities already experienced, which add to the potential for affecting existing resources. In this way, measures to mitigate the chances of risks occurring must be carried out from the planning stage to the delivery of the work, in a dialogue systematized by the Consultation Plan to identify problems, discuss solutions and monitor actions.

When the risks were assessed before the measures were implemented, they were mostly of medium significance. However, the reassessment after the implementation of the measures indicated low significance for almost all the risks, with the exception of two: boosting the degree of community participation and consultation, which is positive in





nature; and the risk of noise nuisance, which is irreversible but is only expected to occur during the construction work, as shown in the following table.

**Table 5 - Matrix of risk mitigation measures related to project execution**

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
1. Increase the level of community participation and consultation	<p>1. Carry out a timely process of ongoing consultation prior to each stage of the work, recording the decisions aligned with the measures and carrying out monitoring at the time the community deems most appropriate.</p> <p>2. Consult with and seek authorization from FUNAI for situations involving Indigenous Communities.</p>	Certain	<p>High</p> <p>Due to the constant dialogues, complaints are captured early on and remain at the local level, generating positive results</p>
2. Risk of non-compliance with safeguards related to the cultural appropriateness of the architectural project	<p>1. implement the ongoing Consultation Plan, which is initiated with adequate time, prior to the construction planning stage, stimulating reflections and negotiations on cultural adaptations to the Program</p>	Unlikely	<p>Low</p> <p>Due to the constant dialogues, complaints are captured early on and remain at the local level, generating positive results.</p>

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
3. Risk of introducing diseases	<p>1. Ideally of hiring labor from the community;</p> <p>2. Requirement of a Health Protocol for external workers (up-to-date proof of vaccination, with a complete vaccination schedule for Covid-19 and other transmissible diseases, accompanied by a medical certificate that they do not have a contagious disease);</p> <p>3. Discourage outside workers from using the village health center.</p>	Unlikely	<p>Low</p> <p>Due to constant dialog, suggestions are negotiated at the outset and are likely to generate positive results for the parties in respect of safeguards</p>

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
4. Risk of accidents in communities and access roads	<p>1) Appropriate social measures discussed with the community in the Consultation Plan to isolate the area and prevent the movement of people around the construction site;</p> <p>2. Visual and audible signal warnings prior to the movement of machinery on access roads within the community close to the school;</p> <p>3. Compliance with safety standards imposed by regulations and legislation for managing vehicle traffic in places where people are present.</p> <p>4. Implementation of the Program for Environmental and Social Control of Construction Works provided for in the PGASE</p>	Unlikely	<p>Low</p> <p>Due to constant dialog, suggestions are negotiated at the outset and are likely to generate positive results for the parties in respect of safeguards</p>
5. Risk of internal governance conflicts between communities	<p>1. stakeholder engagement with the displacement of representatives of the other communities under the borrower's responsibility during the consultation stages.</p>	Unlikely	<p>Low</p> <p>Consultation with stakeholders offers an important source of validation for decisions, improves the quality of measures and allows people to understand their rights and responsibilities in relation to the Program.</p>

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
<p>6. Risk of harassment of women and children and GBV *Affects women and children unequally</p>	<p>1) Avoid housing workers within the community, providing a place to stay in the surrounding agrovillages with daily transportation during work shifts;</p> <p>2. Draw up a code of conduct and train, with the help of the borrower, the contractor and the workers on their socio-cultural specificities, warning of penalties for non-compliance.</p> <p>3. Implement the Labor Management Program provided for in the PGASE, which includes the application of a Code of Conduct</p> <p>4. Promote training on the subject of GBV and encourage organizations representing women and the LGBTQIA+ population.</p>	<p>Unlikely</p>	<p>Low</p> <p>Due to the constant dialogues, grievances are voiced during the Program and have a chance of avoiding penalties and impacts in respect of safeguards.</p>
<p>7. Risk of harassment of young people through the introduction of alcohol and drugs *Affects women and children unequally</p>	<p>1) Avoid housing workers within the community, providing a place to stay in the surrounding agrovillages with daily transportation during work shifts;</p> <p>2. Draw up a code of conduct and train, with the help of the borrower, the contractor and the workers on their socio-cultural specificities, warning of penalties for non-compliance.</p>	<p>Unlikely</p>	<p>Low</p> <p>Due to the constant dialogues, complaints are voiced during the Program and have a chance of avoiding penalties and impacts in respect of safeguards</p>

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
8. Risk of harassment for the sale of natural capital assets	<p>1. Avoid housing workers inside the community, making it possible for them to stay in the surrounding villages with daily transportation during work shifts;</p> <p>2. Draw up a code of conduct and train, with the help of the borrower, the contractor and the workers on their socio-cultural specificities, warning of penalties for non-compliance;</p> <p>3. Train external workers, especially with regard to current legislation and international safeguards.</p> <p>4. Implement the Labor Management Plan set out in the PGASE</p>	Unlikely	<p>Low</p> <p>Due to the constant dialogues, complaints are voiced during the Program and have a chance of avoiding penalties and impacts in respect of safeguards.</p>
9. Risk of shortages or interruption of essential services (energy and water supply)	<p>1. Dialogue about the work schedule, avoiding activity at weekends and at night;</p> <p>2. Training workers about the surroundings, and better control of the flow of trucks and heavy machinery.</p> <p>3. Implementation of the Environmental and Social Control Program for Construction Works, as provided for in the PGASE</p>	Certain	<p>High</p> <p>Due to prior dialogues and the identification of vulnerabilities, suggestions are negotiated at the outset and are likely to generate positive results for the parties in respect of safeguards</p>

Risk identified	Suggested measurement	Suggested post-measure	
		Probability	Significance
10. Risk of nuisance related to noise emissions, dust and the circulation of strangers in the communities and near the planned construction site.	<ol style="list-style-type: none"> <li>1. Whenever possible, the installation of physical barriers and the adjustment/maintenance of motorized equipment.</li> <li>2. Drawing up a calendar with days and times of work agreed with the community.</li> <li>3. Consultation with the community for participatory planning in order to collaborate on solutions and reduce risks and impacts.</li> <li>4. Locational study of the subproject, taking into account sensitive receptors in order to minimize nuisance situations.</li> <li>5. Noise monitoring before and during the construction phase</li> <li>6. implementation of a code of conduct for workers</li> </ol>	Certain	<p style="text-align: center;">High</p> <p>In this case, it is unlikely that there will be any effective measure to completely neutralize the attributes of this risk, but measures should be applied to reduce it as much as possible.</p>
11. Risk of using natural capital in projects and structures	<ol style="list-style-type: none"> <li>1. Prohibition on the use of any natural resource in Quilombola territory. This prohibition extends to soil, sand, gravel and wood.</li> <li>2. Address these issues with site workers during Daily Safety Dialogues (DDS) or similar activities.</li> </ol>	Unlikely	<p style="text-align: center;">Low</p> <p>Stakeholder consultation offers an important source of validation for decisions, improves the quality of measures and allows people, including the borrower, to understand their rights and responsibilities in relation to the Program.</p>





It is important to bear in mind that the measures suggested here have not been discussed systematically with the stakeholders and are only recommendations and/or guidelines based on the reflection made on the available data and field approaches. Therefore, all the risks considered here should be discussed again with the community and stakeholders in the implementation of PROCASE II, who may identify other risks, and if this is the case, new planning and mitigation measures should be implemented in the updated versions of the documents, taking into account the planning, installation and operation stages of the work.

The specific issues of each traditional community chosen to benefit from PROCASE II must be studied in depth:

- 1. Ensure that the community receives culturally appropriate social and structural benefits, including, where possible, the long-term sustainability of essential resources. This action plan is based on the socio-cultural vulnerabilities identified and must be fully in line with the IDB and IFAD Safeguards Policies, including: Implementing the measures in accordance with the dialogues and decisions established in the consultation process, which must be carried out prior to all stages of the work, including grievance assessment stages;
- 2. Implement socio-culturally appropriate and sustainable measures;
- 3. Respect traditional knowledge, cultural heritage, natural heritage, social capital and systems specific to quilombola communities in terms of social, economic and spiritual systems;
- 4. Adapt the project, keeping in mind the specifics of guaranteeing the delivery of work, services and other activities to facilitate access to benefits, including fair treatment in the possibility of contracting any service or labor and, whenever possible, appropriate procedures and criteria and training programs for this guarantee;
- 5. Draw up complementary measures and/or activities through a process of good faith negotiation with the community and prior dialog in the consultation process;
- 6. Where risks are unavoidable, the borrower will minimize these impacts in a culturally appropriate manner, commensurate with the nature and scale of such impacts and the vulnerability of the community;
- 7. Where alternatives have been explored and adverse impacts are unavoidable, the actions proposed by the borrower must be developed in a participatory manner with the affected community and require specialized and exclusive professional capacity on the part of the borrower;
- 8. The opportunities identified in the mitigation measures should aim to address the goals and preferences of the community, including improving their standard of living in a socially appropriate manner, and promoting the long-term sustainability of the natural resources on which they depend and which may have a direct bearing on the projects, in particular water supply, water reuse, sewage and energy structures;
- 9. The borrower is recommended to adopt contractual penalties for the contractor in the event of non-compliance with the requirements of the IDB and IFAD Safeguards Policies, and the guidelines established in the PROCASE II PGASE document, and the decisions defined in the consultation process, i.e. in the event of significant non-compliance;

With regard to monitoring the measures, the participatory activities for monitoring the measures defined in the consultation process and in the implementation of the Resilient

Investment Plans (RIPs) and Business Plans (BPs) must be defined together with the beneficiaries and the community. To this end, during the execution of the Consultation Plan, the possibility should be identified for community representatives and/or other people defined by the community to monitor the measures in a culturally appropriate way, using facilitating mechanisms that the beneficiaries find appropriate, as well as identifying deadlines and community indicators for evaluating the measures throughout the process.

Monitoring actions should include:

- Monitor and measure the effectiveness of the borrower management program and compliance with any legal obligations, related regulatory requirements and decisions aligned in the Consultation Plan;
- Record community information and indicators to monitor performance and establish relevant operational controls with the association;
- Plan regular and appropriate evaluations of the effectiveness of the measures, based on the collection and analysis of relevant data and the evaluation of community indicators in a participatory manner.

## 9 CONCLUSIONS AND RECOMMENDATIONS

Traditional communities belong to the most vulnerable socio-cultural populations. The rights prerogatives related to them should be included in Components 1 and 2 of the Project, starting with the implementation of the ongoing Consultation Plan, and this is an opportunity for mutual learning.

From the perspective of its dimensions and the strictly environmental risks, the project is perfectly feasible, subject to considerations related to the implementation of mitigating measures aimed at the vulnerable conditions of the community, women, children and adolescents who circulate widely in the construction area. This also includes the correct environmental and social management of the project, in line with the reflections discussed during the pre-consultation stage carried out by this technical team and described in this document.

In terms of the social dimension, the risks identified can be mitigated to reduce their impacts and effects, always taking into account the decisions that will be aligned in the Consultation Plan and guided by the assessment in question. In particular, it is important that the borrower redoubles its organizational efforts to make it possible to house workers outside the traditional community, which would be a very appropriate measure to safeguard the most relevant aspects of the assessment.

Finally, it is suggested that the measures proposed here should also be systematically discussed with the communities in the consultation process and recorded for monitoring, and should be incorporated into the corresponding Strategic Environmental and Social Management Plan (PGASE) for project preparation.

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## 11 ANNEXES



## 11.1 Annex 1 - List of communities identified in the area of operation of PROCASE II



## 11.2 Annex 2 - Consultation Plan for Traditional Communities

This Consultation Plan is part of the Socio-Cultural Assessment (CSA) prepared for a loan requested by the Paraíba State Government through a specific investment loan (LON/ESP) to promote the sustainable development of rural areas in the state, the Paraíba Sustainable Rural Development Project - PROCASE II (PROJECT), focusing on the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

The aim is to meet the requirements of Components 1 and 2 of PROCASE II, to be implemented in the traditional communities in the project area, which will be defined in the future. As such, this document is part of the assessment prepared and must be implemented in line with the issues raised.

Transparent and meaningful consultation with the main stakeholders is an indispensable element of both the prior, well-founded decision-making process and good project governance. In Brazil, the consultation process related to the planning, approval and implementation of projects that may affect indigenous peoples and traditional communities is a legal requirement. In addition, the IDB and IFAD, as international financial institutions, have adopted policies and procedures to incorporate stakeholder consultation, especially when it comes to indigenous peoples and traditional communities, which must be complied with, monitored and recorded as an important part of the formal contract documents with the borrower, as indicated in the IDB's Environmental and Social Performance Standard 7 (PDAS 7) and IFAD's Standard 4.

Consultation with stakeholders is the responsibility of the borrower. Financial institutions have the responsibility of ensuring that the borrower maintains compliance with the relevant policies and requirements throughout the Project cycle, as well as complementary functions to those of the borrower, which are: explaining, advising, assisting and verifying.

The main objectives and benefits of implementing the Stakeholder Consultation Plan include:

- It records the views and perceptions of the people affected by the Project and offers a way of taking their opinions and concerns into account as contributions to improving the planning and implementation of the Project, avoiding or reducing its adverse impacts and increasing the benefits;
- Enable the parties involved to understand their rights and responsibilities in relation to the project;
- Transparency and stakeholder participation contribute to increasing trust, acceptance of the project and local ownership, which are essential for the sustainability of projects and their development results, in this case in education services.

In this context, it is worth noting that the borrower is often concerned that the consultation process may delay the planning and implementation of the project, pointing to increased costs, highlighting pre-existing tensions and/or generating expectations that are disproportionate to the project's organizational capacity. These concerns are valid, but avoiding participatory interaction with stakeholders does not eliminate these problems. On the contrary, it tends to exacerbate them and foment suspicions that lead to conflicts, legalizations and even paralysis of the project. The IDB and IFAD consider that good stakeholder consultation is not simply a requirement, but also adds real value to the

Project and contributes to a fairer society that respects different ways of life. As a general contribution to the consultation process, we suggest:

- Ensure that the preparation and consultation process with stakeholders begins as early as possible in the project cycle and is not limited to half-day decision-making meetings. Stakeholder consultation requires participation, which requires adequate time for listening and negotiation. If the process starts too late, there won't be enough time to carry out the consultations efficiently, which essentially implies the legitimate consideration of the opinions and concerns of traditional communities linked to project-related decisions, planning and implementation. The timing of consultations and the entire process need to be carefully mapped out and the timeline must coincide with disclosure requirements, approval and other project milestones. A frequent mistake is to view consultation as a separate item and unrelated to other elements of project planning, such as cultural adaptations to the architectural design, for example, and to consider it merely an informational procedure;
- Delays and costs can be reduced by being clear about requirements and good practices and ensuring that the community and borrower responsible for consultation have the necessary skills and resources to manage the process. Delays are often caused by poor planning or implementation of the consultation process, where a lack of skills or insufficient listening to environmental or socio-cultural considerations in the decision-making process can lead to costly mistakes;
- The principle of proportionality should guide the degree of effort put into the consultation process. In the case of PROCASE II, defined as category B, the risk is moderate and must include a two-way dialog with the affected stakeholders and not simply the dissemination of information. As described in the CSA, in addition to the mandatory Environmental and Social Management Programs for the works component and production plans, in view of the legal aspects, regulations and safeguard policies of the IDB and IFAD, the analysis of the typologies of traditional communities indicates guidelines for specific measures, given the socio-cultural and socio-environmental specificities and prerogatives of the communities' rights, which must be respected and discussed in the decision-making process with the communities.

Finally, this document is intended to be a guide for implementing the Consultation Plan with the traditional communities benefiting from PROCASE II, and highlights the main information that should be considered for the borrower's planning and the steps that should be followed for its implementation. It is hoped that this will include important items that cannot be missed and that are part of the mandatory requirements for an effective process.

### **11.2.1 Stakeholder identification and analysis**

Identifying stakeholders requires a basic understanding of the nature of the project and the local context. One of the main objectives of the stakeholder analysis is to clearly identify those who may be negatively affected by the risks/impacts of the Project or unfairly excluded from its benefits. People, groups, organizations, federal entities, key persons, etc., the preliminary assessment indicates who the stakeholders are that should be engaged in the Consultation Plan. The Consultation Plan is a living instrument that will have to be updated to reflect the characteristics and participation strategies of the Stakeholders affected or involved by the project in its different phases.

### 11.2.2 Stakeholder engagement

The general objective of engaging the communities of the territory in the proposed Project is to guarantee the acceptance and effective inclusion of the groups that make up the community, as well as their participation, interest and rights related to the execution of the Project and those that will be affected positively or negatively by the impacts and measures. The main objective of this plan is to present a strategy for engaging community members in the project's consultation process.

Engagement can be thought of in terms of project stages, which can generally be Planning, Installation and Operation. Each of these stages can be subdivided into different activities of information exchange, dialog, reflection and decision-making processes, following a previously discussed timetable and equipped with written and visual records.

In addition to this general objective, the engagement aims to fulfill specific objectives, which are listed below:

- a) Transparency: When stakeholders know what is expected of them at each stage of the Consultation Plan, they will have more confidence in the Project to be carried out (legitimacy). As the infrastructure project is still in the pre-design phase, it is important to provide adequate information and sufficient time at each stage, capturing contributions and complaints. In general, the planning stage may require more time when it comes to choosing and evaluating the construction site and the actions of the projects and plans.
- b) Capacity building. Stakeholder engagement must increase the capacity to ensure that families can participate, especially young people and women. To this end, at each stage it is important to highlight the didactic content of the activity, making it clear that the aim is for everyone to fully understand it.
- c) Responsibility. Involve the community in all stages of the project to improve ownership and co-responsibility, especially at decision-making moments. It should be noted that decisions can be reviewed, especially with regard to measures, and these should be re-evaluated throughout the process. But when they are related to structural processes, their definitive nature should be made clear and more time for reflection should be proposed, if appropriate.
- d) Free, prior and informed consent. This consent will be given by actively involving community representatives in the planning, design, implementation and operation of the project, and can be translated into a document that reflects the agreement reached between the interested parties.

#### **Engagement Design: Principles and Approach**

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A well-designed stakeholder engagement plan adheres to several principles that should be aligned with all those responsible for and involved in the Project and the borrower's consultation process with indigenous peoples and traditional communities. These principles derive from relevant national and international laws and standards, the IDB's PDAS 7 and IFAD's Standard 4, and the current situation of the community's territory. The principles are discussed below.

#### **Principle 1: Respect the socio-cultural characteristics of traditional communities**

The territory of traditional communities usually has its own governance and a way of life dependent on the natural resources available in their territory, which are the socio-

cultural basis of their way of life. Due to the process at hand, consider the entire structure of the social organization (association, cooperative, etc.), and families who want to participate in the process, as stakeholders. It is also important to remember that many communities maintain alliance and kinship relationships among their members, which are fundamental for group cohesion in the territory.

This includes: (i) the people/groups chosen to take part in the process. This is an important issue to align at the start of the process, so that people or groups are always present and can make legitimate decisions. It is necessary to discuss the activities already carried out by this person and the availability of their presence; (ii) the time needed for decision-making. Decisions without adherence can be harmful and putting pressure on the group can lead to conflict, which is a risk for the project. We recommend highlighting the possibility of discussing a deadline for feedback at these more critical moments and providing more information, written and visual, on the subject for internal discussion; and (iii) the process by which decisions are made.

Free, Prior and Informed Consent (FPIC) must be applied as a formal instrument that favors respect for culture and tradition, and must be applied in accordance with ILO-169.

Specifically in the case of indigenous communities, FUNAI must be consulted and authorized, in addition to Free, Prior and Informed Consent (FPIC).

**Principle 2: Consider measures (e.g. transport logistics) to ensure stakeholders participation in consultations**

An extra effort should be made and resources and/or means put in place to guarantee the presence of grassroots groups, board members, women and young people at meetings during the consultation process. When a prior schedule of activities is drawn up with those involved, it should be guaranteed that they will be present, including the guarantee of travel and if possible a communication channel should be identified. The consultation process and the Project, given its operation, should not discriminate against communities/groups of stakeholders due to the difficulty of articulation and travel. These groups are affected by the work and also by the operation of the infrastructure and production plans, and have questions that need to be heard and incorporated into the consultation and decision-making process.

**Principle 3: Consider age and gender aspects**

The implementation of infrastructure, especially during its deployment stage, will affect men, women and young people in different ways, especially because they have different insecurities and vulnerabilities. It will also affect young and old in different ways because they have different ideas about possible measures for risks, which is valuable in the mitigation process. The Project, as described in the socio-cultural assessment, should consider the differences in participation related to: (i) the insecurities of men and women of different ages; and (ii) the role they wish to play in the management and monitoring of measures, particularly when it comes to issues related to the risk of possible sexual harassment of women and children.

**Principle 4: Recognize the rights and knowledge of traditional families**

The borrower, at all stages of the consultation and implementation process in the territory, must be aware of and guarantee the fundamental rights of the communities, in particular the right to question, ensuring that the information passed on is adequate and accessible, and to express an opinion, based on their self-determination. Because of this

right, the project and the measures must be discussed while respecting the governance of the community and its concepts of economic, social and cultural development.

**Principle 5: Create a mutual learning process**

Those directly involved in the consultation process and in the activities of Components 1 and 2 must make an effort to understand the concerns and risks to which communities are subjected by the movement of machinery and external workers during their time within the community. Often external references tend to minimize the problems listed and sometimes community members may feel insecure about pointing out problems where the borrower does not see them, which reflects the community's insecurity about the possibility that the project will not be implemented.

This issue should be given the utmost attention. Often the community, because they need the service so much, end up not participating in the process of reflecting on possible problems. The people involved should encourage such reflection and reinforce that the Consultation Plan is not intended to validate the realization of the work or production plan, but rather to allow it to be done in the best possible way while respecting the community's way of life and insecurities. Listening to and learning from each other will be fundamental in the project and mutual learning encourages a process of continuous evaluation and *feedback*. This returns to the borrower in the success of the project, and in the management of the service offered after implementation.

**Principle 7: Ensure transparency and communication of results**

The consultation process and information about the work must be clear and accessible to all interested parties. Stakeholders must be continually informed about the purpose of this process and what is expected of them. This is relevant when meetings are planned with a long time between them. At each meeting, they should be informed of the objective, review the steps taken, the results achieved, the current step and the objectives of that meeting. Encouraging agreements and reinforcing them, making food and transportation available and providing an evaluation process at the end of each meeting, where everyone can express what they thought of the meeting and what they understand about the process, are recommended practices. These evaluations will be indicative of the overall process, to understand the degree of understanding and the issues that need to be reinforced or revised. This means not just the one component that the *stakeholder* is engaged in, for example, but also all the other components of the project.

**Principle 8: Build on existing systems**

The project must build on existing social structures to engage stakeholders. The grassroots groups in each community are respected internally and articulate themselves for various activities and make up a network together with other community members. These individuals can be key to informing, facilitating discussions and stimulating stakeholder input. These groups/individuals should be identified at consultation meetings and should be strategically accessed to promote engagement in certain situations.

**Principle 9: Provide opportunities for complaints and grievances - Grievance Redress Mechanism (GRM)**

The Project must create opportunities for communities, taking into account their gender and age aspects, to make complaints and denunciations, anonymous or not, and it must be effective, culturally appropriate and have a specific space reserved for the borrower

to respond to complaints and denunciations. Many complaints require redress and/or specific and immediate measures and these must be effective in respect of the safeguards and the process of participation and trust that is being encouraged. Complaints such as harassment of women are sensitive issues, shrouded in insecurity and discrimination. Similarly, complaints related to worker misconduct and excessive noise, for example, are generally not made for fear that the project will be canceled.

To this end, the borrower will implement an accessible, sufficient and culturally appropriate Grievance Redress Mechanism, to be monitored by the borrower, in order to guarantee timely attendance and response. The use of complaint and grievance mechanisms should be encouraged and it should be emphasized that this mechanism is not intended to stop the work, but to allow it to be carried out with respect for the communities' way of life and insecurities. Project teams need to be prepared to listen to people's complaints without getting defensive, without raising doubts and giving appropriate feedback.

The Grievance Redress Mechanism (GRM) at the site level is a formal and important part of environmental and social risk prevention and management and should be designed with the community, being one of the activities of the Consultation Plan scheduled for the planning stage.

In this regard, it is essential to let community members (stakeholders) know that if something has not been answered or resolved properly, they can go to the defense institutions to file a complaint. This transparency in the dialog provides security and promotes a bond of trust in the project.

### **Approach and level of participation**

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The starting point for the effort to engage the parties in the consultation process is the planning phase of the proposed work or production plan. This stage involves important issues related to the alignment of the purpose of the Consultation Plan, the form of stakeholder participation, a timetable that is appropriate to the reality of the community, dialogue about the project, the choice and evaluation of the construction site and measures that interfere with the planning of the work, such as worker accommodation, measures to isolate the area using adequate communication etc. This is usually the stage that lasts the longest, but community engagement will take place at all stages of the project (pre-planning, planning, construction, operation) until the school structure is fully operational.

It should be noted that if the borrower's schedule involves a project definition stage prior to planning, this should also be considered a consultation stage, especially if it includes negotiations on the project and the choice of site. Participation should be contemplated at different levels, and should take place at each and every stage, along a continuum:

- a) The first level is information sharing and allows stakeholders to get to know the project and stay informed about the planned stages, the expected timetable for the work, the number of people involved, etc. This action involves one-way information transfer: from the project to the stakeholders. This gives community members the opportunity to talk internally and in an informed way about the project, as they are asking questions of the borrower in order to process information and contribute, in the next stages, to reflections on risks and measures. The provision of information will take into account varied communication strategies and dissemination materials that are suitable for Stakeholder access, and dissemination must take place beforehand, in sufficient time for Stakeholders to be able to grasp the central themes of the Project.

- b) The second level includes consultation. Consultations are decision-making moments that will be foreseen in the various phases of each stage. In these stages, the borrower, on the basis of prior information about the project, the risks identified, measures suggested in the socio-cultural assessment, and dialogue previously established about the project, suggests measures and/or proposes some action and listens to the feedback given by the interested parties. This action involves a two-way transfer of information: the project will offer options and listen to the parties until a decision is reached. It should be noted that this stage takes more time and does not necessarily have to be decided at the same meeting, depending on the topic. Pay attention to the principles described in the previous section for this level of participation.
- c) The third level includes dialog, with stakeholders in continuous dialogue with the project. At this level of participation, the borrower should create a routine on the progress of the project and measures and encourage community members to get involved through dialogues, reflections, questions, complaints, etc. If the dialogues break down, this is evidence that some error and/or fault has been committed and the suggestion is to carry out, together with community members and social organizations, an overall evaluation and/or submit a formal complaint through the Grievance Redress Mechanism.

The suggested activities for the different levels of stakeholder engagement are detailed below.

## **Engagement activities**

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### **Initial engagement**

To start the process, the contact procedure with the representative social organization must be respected. The need for the organization to liaise with grassroots groups and representatives of women and young people and other parties it deems relevant should be highlighted, and it should be stressed that travel will be the responsibility of the borrower. They should then ask for an answer as to the best way for this to happen.

A first meeting about the start of the process should be scheduled with the representative social organization, including institutions that can contribute to the process. The president should also be advised of this approach and await his response.

At this initial meeting, the agenda should be suggested and it should be ascertained whether the community members have any other topics to discuss at the meeting.

It is essential to specify what kind of participation is required for community members and stakeholders at the different stages of the project: before planning, during planning, construction and operation. As far as institutions are concerned, they don't have to be involved at every stage.

This first meeting will be important for aligning basic stakeholder engagement information for further meetings, especially if it is possible to validate a medium-term schedule with the planned engagement activities from the initial stage.

### **Information Sharing**

Sharing information is the starting point of the stakeholder engagement effort. The aim is to provide adequate information about the project, the planned stages, phases of engagement, related topics, anticipated risks for the community, etc. This unilateral

process is intended to introduce the project to the community and, in particular, to highlight what a consultation process that runs parallel to the work is like.

The borrower should provide the information without exalting the importance of the project for the community, or making judgments about the expected risks and whether or not the work can continue. Value judgments, as described, are not part of the principles to be adopted in consultation plans. The aim of the engagement activities is for interested parties to be able to obtain relevant and detailed information about the Project that will be implemented in the community.

The following activities are proposed to share information with stakeholders:

**a) Formalizing the start of the process with the interested parties.**

At this stage you should consider formalizing the start of the process to the interested parties so that people, groups and institutions can plan ahead and understand what is being proposed. We suggest formalizing basic information about the project, the start of the consultation process and indicating that a first information meeting will be scheduled in the community.

- A letter addressed to the social organization, its board of directors in the form of the president. This formal communication is important for registering the start of the process, giving due importance to the consultation process and consulting the association on the best date for the first meeting, which should last at least the whole day. In this letter, consider the important presence of the organization's grassroots groups, women's groups and young people. After the letter, a phone call and/or message should be sent to discuss the dates and how the representatives will travel. For this meeting, the community members can request the presence of the whole community. This prerogative should be respected and the meeting should align who will actually be the stakeholders in the process in order to plan the next trips.
- Letter to the City Council. This letter should be aimed at inviting the Municipality to participate in the first meeting of the consultation process, with the date already set by the community's social organization, and should minimally describe what the process is about and who is involved. Remember that the body must have time to request travel and these deadlines must be taken into account in the team's timetable.
- Free Prior and Informed Consent (FPIC) in accordance with ILO-169.
- In the case of activities with indigenous communities, prior contact and authorization from FUNAI is required.

**b) Information meetings**

The purpose of the first meeting is to share information, answer questions and inform the parties about the timetable, the stages of the work or production plan, the workers expected and to make it clear that a Consultation Plan will be developed with the interested parties to discuss the stages, possible risks and measures. The first part of this meeting, which should last at least a full day, is to explain what the Consultation Plan is and how it will be integrated into the work. The second part should deal with the choice of site and show the project plan, preferably leaving it with the community so that they can talk about any proposals they may have for the project, which is guaranteed at the planning stage. This action at this stage encourages participation and highlights the participatory and consultative nature of the project.



Meetings lasting a minimum of one full day and a maximum of two are the best format for sharing information with community members, given their production activities and other roles in the community.

Relevant information via an app messaging should be avoided. This communication should only be used to confirm specific dates and information. This communication centralizes information and places responsibility on one person, which can lead to conflicts with other communities.

Meetings will be scheduled throughout the process, at the different stages, and serve to provide information geared to the stage and phase of the project. Specific meetings to share information about the project, risks identified, measures considered pertinent and the timetable for monitoring and evaluating the work and measures, during the implementation stage, are considered relevant for greater time to exchange information between the borrower and community members.

Finally, it is suggested that a preplanning stage be held to choose and evaluate the project site, in line with the guidelines set out in the CSA. The purpose of this first meeting is to let the community know what will be done, when and who will be in charge, and it should be strongly avoided that any activity is carried out without the knowledge and consent of the community's social organization. The community members have their own daily activities and their own form of governance, and the person assigned will need to organize themselves to welcome someone into the community.

### ***c) Visual material to be produced***

Visual materials are an important tool for explaining processes and socializing information. Speech alone often confuses and falls by the wayside, especially when there is a lot of diverse information. Flip charts, maps and drawings can and should be used during meetings to highlight the explanation. Teachers and young people can be asked to help if necessary. After the meetings, any information that is considered relevant should be reflected on in order to prepare a consultation stage, or a timetable that needs to be available for community members to plan, and it is suggested that teachers and young people be asked to draw pictures and hand out explanatory leaflets.

### **Consultation**

During consultation meetings, i.e. meetings scheduled for decision-making purposes, to obtain consent and move on to the next stage or proposed activity, the community's social organization and other interested parties will present their considerations, points of view and doubts. Consultation meetings can take place at any stage in different phases and should follow the same format as information meetings, except that the content is different. It is recommended that everything that needs to be decided for the smooth running of the borrower's schedule and planning should be concentrated in the pre-planning stage and also in the planning stage, leaving the project implementation stage for the execution of measures, monitoring and evaluation. Consultation stages do not always reach consent in a short time, it will depend on the previous stages. Time must be built into the borrower's schedule for these breaks (which can last hours or days) to reach consent on a certain issue.

The contents that should be dealt with in this stage, in general, are: (i) the location of the sub-project (taking into account the issues highlighted in the Socio-cultural Assessment); (ii) the design of the sub-project; (iii) possible hiring of local labor and measures aimed at external workers (health protocol, accommodation outside the territory, drawing up a code of conduct); (iv) measures associated with each social risk; (v) evaluation at the end of each stage, in order to obtain consent to continue with the Project; (vi) meetings

to deal with measures to redress grievances and complaints and other definitions, all of which must be documented.

At each consultation meeting, the topic should be defined in advance and how everyone's consent will be given, as opposing opinions can remain firm until the end of the meeting. Aligning the format can be relevant for crucial moments in the construction schedule.

### **Dialogue**

During the implementation phases of the project, the borrower must maintain constant dialog with the stakeholders. At this stage, a schedule of evaluation and monitoring meetings should be defined, with a short time between them, so that problems are captured at the beginning and remain at the local level, generating positive results and not causing new impacts and/or increasing the significance of those identified in the socio-cultural evaluation.

### **Meeting Facilitation**

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Facilitation involving traditional communities is a different process from what is usually seen in organizational meetings. Normally, each group has a governance model where decisions are taken in different formats, depending on the topic being discussed and the oppositions marked out by the group. This process must be respected as it is part of the cohesion strategies of families and alliances between communities.

The project must include the following aspects in order to be effective and comply with the consultation standards:

- a) Selection of a meeting facilitator/mediator who must have the following characteristics:
  - Understand the reality and history of the territory and communities;
  - Understand the local situation and past experiences in order to use concepts and examples that can help in times of lack of understanding. In this case, you can also ask them to bring examples of similar situations to the meeting;
  - Support horizontal discussion, valuing everyone's voice and contribution, and encourage the participation of men, women, young and old;
  - Have the patience to listen and the sensitivity to objectively capture what the interlocutor brings to the discussion;
  - Avoid words that are difficult for everyone to understand and, when necessary, explain their meaning didactically and objectively;
  - Use graphic means to support trades, such as drawings and graphic indicators with the support of flip charts;
  - Have the sensitivity to understand when the meeting is paused, when the community members need to talk among themselves and when it is necessary to decide on a course of action. Propose a course of action and let the participants decide on the best option for the moment;
  - If appropriate, a good game, dynamic or playful activity will help people get excited and participate more actively in meetings. Remember that this "I'll talk and you sit and listen" format doesn't encourage participation and makes people sleepy.

- b) Observe and encourage meetings, especially consultations, to include a representative number of men, women, young people and leaders of the representative social organization, especially grassroots groups. Encouraging dialogue about the minimum quorum for meetings is a strategy to avoid meetings becoming empty and/or being centered on just a few people, especially during consultations. Measures are effective when everyone is informed and responsible, and consents are valid when they respect safeguards and are representative of all stakeholders;
- c) Time and place of the meeting: Meetings should also be scheduled at appropriate times to allow everyone to take part. If some groups, especially grassroots groups and women, do not participate, separate consultations are necessary to ask for their opinions on the topic discussed;
- d) Announcement: The meeting must be formally announced in an appropriate manner at least one week in advance;
- e) Timeliness: As already described, collective decision-making can take a long time, depending on the topic. The project should give community members enough time to deliberate issues between all interest groups;
- f) Meeting report/record: Those responsible should draw up a report for each meeting containing at least the following information: (i) topics discussed; (ii) list of concerns raised about the topics discussed; (iii) list of decisions taken during the meeting; and (iv) list of participants, with information on community, gender and age.

### **Participatory approach**

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The general approach to facilitation is a participatory one, which allows everyone to participate, not just a few; people allow each other the space to think and speak, even if they take their time or reproduce the same speech as someone else; opposing points of view can coexist, and should be valued; people can respect each other's point of view, even when they don't agree with them.

The facilitator will focus on moving stakeholders from low levels of commitment to the process to high levels of commitment. The facilitation method depends on what is acceptable to the community. However, the facilitator must mediate without interfering in the group's internal rules and include some procedures to ensure compliance with the international and national guidelines described in the Socio-Cultural Assessment:

- **Basic rule:** Explain the basic rules of the meeting. Explain the rights of traditional communities in relation to the right to free, prior and informed consultation, including the right to say no. Explain that some moments will be decisive and that they should be encouraged to discuss how agreement and consent will be reached. To help, we suggest inserting the points on a flip chart for everyone to see;
- **Overview:** The facilitator introduces the subject, the purpose of the dialog or decision and explains each party's contribution to the process. In this way, the interested parties will clearly understand what their contribution is and where they want to end up;
- **Sharing information:** Sharing information about the proposed project. This includes a general discussion, after which the community identifies the important points to be discussed. This phase ends with a discussion on the content and implementation of what is being proposed;

- Identify practices and rules internal to the group: Identify in a participatory manner the practices and rules that should be considered in the formulation and implementation of the Program and measures. Request and document rules, as well as associated risks and possible flexibilities to remedy or eliminate potential risks;
- Decision-making: Allow sufficient time for the community to assess risks, threats and opportunities when deciding on measures and during the execution of the work and measures. Explain the process in detail, including the phases in which community participation is required;
- Grievance redress mechanism: Clearly address the need for grievance redress mechanisms, and encourage reflection on the need and importance in relation to the work and the opportunity given to everyone to speak out, considering the shame and insecurity of speaking in plenary. Often the internal rules associated with grievance mechanisms are concentrated in the president of the association, which can be validated as a grievance channel, but creating an independent mechanism that includes the redress of complaints and denunciations of the work, an atypical event in the community's reality, should be the responsibility of the borrower and can be valuable in correcting problems as soon as they occur;
- Results report: The facilitator informs participants how the meeting report will be shared or disseminated. It should be standard practice to share and discuss the results of meetings and activities;
- Evaluation of the meeting: The facilitator gathers information from the participants to see if the goals of the meeting were achieved and evaluates them collaboratively. If they were not achieved, relevant points should be identified and reflection on how they can be improved in future meetings should be encouraged;
- Next steps: The facilitator explains to the participants what was done in that meeting, lays out the timeline and steps of the process again, updating their current momentum, and talks about the next steps that will be taken in the process, including agreeing on a time and best day for the next meeting.

## **Human and material resources**

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Overall responsibility for the process of engaging stakeholders in the consultation process lies with the borrower. The resources needed for implementation must be foreseen before the process begins, so that initial planning can take place and commitments can be agreed in the field, avoiding cancellations and/or non-compliance with agreements, as this would jeopardize the entire process. Word of mouth has a lot of power in communities that maintain strong ties of kinship and cronyism, and if you make a commitment you must fulfill it so as not to break the bonds of trust that are being built.

Here are some important items that should not be forgotten, but they will certainly be added to by many others needed by the borrower to articulate the process. For the engagement of the parties consider:

### **Material Resources**

- Resources for participants to travel to other communities, such as money for fuel or transportation. The communities are accessed by land. Be aware of rainy months, which can make it impossible to get to the meetings;

- Consider a plan for feeding the participants. Remember that the community members will be available all day, will leave their activities and will not be in their community. Consider talking to the president of the representative social organization at the first meeting to align this point. In any case, the borrower should provide food during the meeting, for breaks during the dialog process. Coffee, sandwiches or even another product bought from the community is welcome and contributes to community income;
- Support material for meetings: Flip chart, drawings, pens, A0 paper, colored pencils, etc;
- Funds for printing important newsletters, schedules and records of meetings to hand out to participants;
- Depending on how the meeting is planned, how long it will last and how far the Stakeholders have traveled to take part in the activity, it is recommended that a minimum of water, coffee and, ideally, a small snack be provided.

### **Human resources:**

- Specialist in consultation processes to facilitate and execute the process. Preferably someone with training or experience in social communication, conflict resolution and anthropology;
- Assistant to the expert. Your role will be to support the expert, record meetings, draw up documents and letters, check the list of participants, take consent photos of the process, which should only be used to record the process on screen;
- Assess the need for support from an indigenous professional and/or a professional translator, if the majority of people in a given community express themselves in a specific language.

### **11.2.3 Grievance redress mechanism (GRM)**

The aim of the GRM is to channel a complaint or grievance into an acceptable and institutionalized mechanism to resolve conflicts arising from the implementation of the consultation process, the work and the measures. The mechanism should focus on dialogue as a neutral way for stakeholders to discuss problems and reach a solution and/or redress where necessary.

For PROCASE II, it is suggested that the mechanism be simple, with few processes, and that it be developed in dialogue with community members and representative social organizations. Considering that there is governance to solve internal problems in the territory, the idea is to collaboratively build and/or assimilate its rules, a neutral procedure that can be relevant to the project cycle, in which complaints are not subject to a possible "filter" by the social organization, for fear of the project being cancelled and/or for exposing a very particular issue in the community.

Basic principles must be taken into account when drawing up the GRM:

- The GRM should be designed to function at a local level, in all communities, throughout the life of the Project. It should be discussed that the complaints received offer opportunities to inform and improve the way the borrower conducts the process within the territory;

- The borrower must be committed to a consultative, participatory, fair and equitable working relationship with community members who express concerns;
- The borrower must also commit to ensuring that no complainant is subjected to retaliation by the borrower, the contractor or other institutions involved in the Project, as well as community members when they raise their concerns and participate in the grievance resolution process;
- The borrower should encourage individuals to have a voice in the project, especially people who, for various reasons, don't expose themselves but have a lot to contribute;
- The GRM should provide an opportunity for these communities, historically violated in their ways of expressing themselves and deciding on activities that affect them, to lodge complaints, defend their point of view and their way of life;
- The borrower must encourage communities to defend their rights, even if the project is related to a service that is so important to them, violations can be committed through carelessness, negligence or lack of information. The borrower, even on a small scale, considering the size of the project, must be able to comply with international standards and national legislation;
- The GRM must be monitored by the borrower in order to guarantee timely service, replan activities and apply a corrective plan, if necessary.

### **Building the mechanism in a participatory way**

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The scope, size and type of grievance mechanism will be proportional to the nature and size of the possible risks and impacts of the Projeto grama, as listed in the ASC's risk matrix. The grievance mechanism should contain at least three basic steps.

#### **Step 1: receive and acknowledge a complaint**

Culturally appropriate means by which community members can raise or air their grievances, including, but not limited to: dialogue aimed at this topic, a specific meeting; a closed box in each community in the collective spaces that can receive drawings and papers with grievances, anonymously or not; reports made privately by the president of the representative social organization and community representatives, among others to be built in collaboration with the community members. It's important to discuss a routine for talking about this specific subject. One suggestion is for the mediator to dedicate an hour at each meeting to evaluation, reading the papers in the boxes without identifying the community and possible complaints about the stages underway. People should be encouraged to ask a variety of questions, taking into account the assessment of each risk described in the CSA; bear in mind that some community members may not be fluent in writing. Drawings, cards previously drawn up by the borrower and other forms to be discussed should be encouraged.

Complaints must be registered by the borrower.

#### **Step 2: evaluate, assign responsibility and investigate**

Discuss the procedures that will be followed to resolve the complaint. Often the Consultation Plan mediator does not have the power to bring about a resolution. You should establish a transparent procedure to be followed: registration of the complaint, deadline for resolution and the person responsible for responding.

The sooner complaints are resolved, the lower the chances of social impacts, conflicts and complaints to defense agencies.

### **Step 3: consult and implement the resolution**

This procedure must take into account the seriousness of the complaint, claim or grievance. The borrower must be institutionally prepared to replace workers, adapt measures, immediately resolve environmental impacts caused by the contractor and even turn to other institutions to help resolve the problem. For example, as described in the CSA, a community may have its electricity distribution network overloaded, which could affect surrounding families and the project facilities themselves. If there is a general power outage due to the work, or which impacts the work, the borrower should be ready to receive an urgent complaint via an app message, for example, and take action with the company responsible.

Even if the complaint could lead to penalties for the contractor or the borrower, it is recommended that the problem be registered, dealt with and resolved effectively and quickly, because depending on the seriousness of the complaint and the lack of resolution, the community should be encouraged to make complaints to their support network.

#### **11.2.4 Monitoring and evaluation**

The following table presents a guide with relevant questions and information, adapted from Kvam (2017), which can be used to monitor the phases of the consultation and engagement process, as well as serving as guidance for writing the summary report of the stakeholder consultation process. It is usually requested as evidence of the borrower's compliance with the safeguards during the Project stages.

This script of questions for monitoring should be drawn up at each stage of the project (Pre-planning, Planning, Implementation and Operation) and should be guided by the phases and contents described in this Consultation Plan.

The socio-cultural assessment and this Consultation Plan on canvas should be a real support for the general contextualization of the community's reality.

The public consultations held will be the subject of a report, to be submitted to the IDB for analysis and approval. The report(s) should minimally contain the minutes of the meeting, an objective summary of the issues raised by the Stakeholders and the responses offered, agreements defined in the consultation, attendance list, photographs, didactic content used, etc.

**Table 6 - Relevant questions and information in the monitoring process**

Supporting question	Objective and orientation	Relevant information to monitor
<p>1. When did the project interact with stakeholders?</p>	<p>To convey the principles that underpin engagement and decisions regarding effective interaction with stakeholders.</p>	<ul style="list-style-type: none"> <li>- At what times/how often does the borrower interact with stakeholders?</li> <li>- For example: whether at certain points in a project cycle: periodically (e.g. the phases of each stage); in response to legal or other requirements; in response to requests from interested parties;</li> <li>- Quantify these interactions in a report with photo evidence and attendance lists;</li> <li>- How has the commitment to levels of participation (sharing information, consultation and dialogue) with stakeholders during the implementation of the Program been contemplated (divide by stages)?</li> </ul>
<p>2. What objectives have been set for the stakeholder interaction processes?</p>	<p>Convey the justification and objectives of the Consultation Plan. - What resources (costs, people responsible, others) have been allocated to the consultation process?</p>	<ul style="list-style-type: none"> <li>- Reference data and indicators used in monitoring and evaluating the additional institutional capacity needed to make implementation more effective;</li> <li>- Consultation Plan: main categories and subcategories of stakeholders. Nature of their participation in the project, main characteristics, how the project interacted with each of the different groups;</li> <li>- Examples of how the Consultation Plan was based on the results of the stakeholder analysis (CSA);</li> <li>- Special measures/strategies applied to ensure the effective participation of the parties;</li> <li>- Possible updates made to the Consultation Plan;</li> <li>- Evidence of support or opposition from the institutions involved, where relevant;</li> <li>- Examples of different opinions among stakeholders (e.g. evidence of agreement or disagreement regarding consultation moments - construction site, architectural design of the school and measures to reduce risks);</li> <li>- On what basis do communities enter into consent at decision-making moments - mechanisms and interaction (e.g. acceptance, understanding, disagreement, negotiation of measures)?</li> </ul>



Supporting question	Objective and orientation	Relevant information to monitor
<p>3. Which stakeholders did the project team interact with?</p>	<p>Provide concrete examples and qualitative and quantitative data; Examples can preferably be drawn from situations where there are real challenges, as opposed to those involving a restricted and/or easy-to-solve problem.</p>	<ul style="list-style-type: none"> <li>- Specific subgroups of stakeholders with special participation: women and young people;</li> <li>- The general logic guiding interactions;</li> <li>- The specific purposes of different interactions and the extent to which these purposes have been achieved or promoted;</li> <li>- Whether the interactions were one-off (reserved) events or part of an ongoing interaction process;</li> <li>- How many stakeholders interacted or how many consultation sessions took place at decision-making moments;</li> <li>- Possible changes made to the interaction plan and reasons for the changes;</li> <li>- Full written feedback summarizing program/user initiatives related to concerns and insecurities</li> </ul>
<p>4. What interaction formats were prioritized?</p>	<p>Demonstrate that the form of consultation was adapted to the socio-cultural specificities of the community and how it was based on the Consultation Plan and CSA.</p>	<ul style="list-style-type: none"> <li>- Brief description of events and discussions (location, format, number of participants, key issues and concerns raised), how it was documented, whether consensus was reached;</li> <li>- Information provided to stakeholder groups prior to consultation meetings;</li> <li>- Times, duration and formats chosen and why;</li> <li>- Key documents disclosed to stakeholders;</li> <li>- Publication of the results of the consultation process;</li> <li>- Amount of time given to interested parties to examine and discuss the information;</li> <li>- Measures to ensure that the process respects the opinions of the different stakeholders;</li> <li>- Examples of stakeholders joining the process and developing confidence that the interaction process was fair and legitimate;</li> <li>- Dialogic methods applied to the consent process in consultation meetings;</li> <li>- The most striking differences between stakeholders (e.g. the concerns of Campo Verde and other communities).</li> </ul>

Supporting question	Objective and orientation	Relevant information to monitor
<p>5. How have the views of stakeholders influenced the planning and execution of the Program (in the different Stages)?</p>	<p>Demonstrate, by means of concrete examples, the extent to which the process of interaction with stakeholders has fulfilled the proposed objective of dialoguing about risk-related safeguards, the risks identified and the measures to be implemented.</p>	<ul style="list-style-type: none"> <li>- The opinions, wishes and specific contributions of the interested parties on the different issues concerning the work;</li> <li>- Input from stakeholders on measures to reduce identified risks;</li> <li>- Decisions or measures by the project team in relation to issues that have been based on input from stakeholders (e.g. a decision not to proceed with a measure based on community input, a change in the planning of the work based on a negotiation);</li> <li>- Reasons for the decision not to incorporate or address significant issues raised by stakeholders;</li> <li>- Whether and how stakeholders have been informed about decisions, measures or other changes resulting from their contributions.</li> </ul>
<p>6. How has the project established grievance redress mechanisms? How are they working?</p>	<p>Explain the applicable processes when affected stakeholders have questions or doubts; when mediation is required; or when the project is considered to have caused a negative impact or contributed to it occurring</p>	<ul style="list-style-type: none"> <li>- Means/mechanism by which the Program receives complaints or doubts about the impacts, complaints and denunciations of the Program/work and the effectiveness of the measures;</li> <li>- Type of Grievance Redress Mechanism created and how it aggregated internal group rules?</li> <li>- Types of complaints received and if not, to what do you attribute them?</li> <li>- Efforts to mediate or solve problems;</li> <li>- Criteria for evaluating the effectiveness of the solutions found;</li> <li>- Trends and patterns in complaints or doubts and their solutions;</li> <li>- Meaningful examples of redress for a real complaint, grievance or report.</li> </ul>



## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.4 Secap Project Preparation Consultation And Stakeholder Participation Plan**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II

**PROJECT PREPARATION CONSULTATION AND STAKEHOLDER  
PARTICIPATION PLAN  
DOCUMENT DRAFT**

**June 2024**

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## CREDITS

**IDB - INTER-AMERICAN DEVELOPMENT BANK**

**IFAD - INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**

**PARAÍBA STATE GOVERNMENT**

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## SUMMARY

1. Introduction.....	4
2. Project Overview.....	4
2.1. Project objectives.....	4
2.2. Project scope.....	4
2.3. Project budget .....	5
2.4. Description of the components.....	6
3. Identification of Priority Issues .....	21
4. Identification of actors and stakeholders .....	21
5. Organization of public consultations in the preparation phase of the PROJECT ..	22
6. Activities of the public consultation process of the DRAFT preparation phase .....	23
6.1. Public Disclosure of Information and Virtual Participation .....	23
6.2. Public Consultation - Distance Participation Format.....	25
6.3. Consultation Guide .....	27
6.4. Query records.....	28
7. Attention to gender issues, vulnerable groups and traditional communities.....	29
8. Planned Allocated Resources .....	30
8.1. Dissemination, Calling and Social Mobilization .....	30
9. Complaints Management and Information Dissemination Mechanism for Public Consultations in the PROCASE II Preparation Phase .....	32
9.1. Relationship, communication and service channels in the Public Consultation phase of the PROCASE II preparation stage.....	33
10. Experience in Public Consultation and Participation .....	38
11. ANNEXES .....	38
11.1. ANNEX 1 - Stakeholder Matrix .....	39



## 1. INTRODUCTION

The stakeholder engagement process is used as a link between social actors, with the intention of combining eliciting the interests of society and public authorities, promoting the sustainability of the project. During this process, proposals and criticisms can be presented, testimonies can be gathered and doubts can be clarified. It is ideal for listening to those directly affected by the project, as well as for identifying alternatives for resolving any conflicts, in accordance with national and state regulations and the IDB and IFAD Environmental and Social Safeguards Standards and Policies.

This is the context of the proposal to build a communication channel with the public directly or indirectly affected by the **Paraíba Sustainable Rural Development Project - PROCASE II (PROJECT, henceforth)**.

## 2. PROJECT OVERVIEW

The State Government of Paraíba has requested the financing of a project through a specific investment loan (LON/ESP) to promote the sustainable development of the rural area of the state of Paraíba (involving the Atlantic Forest and Caatinga biomes), focusing on the problems of low production and productivity and vulnerability to climate change (CC) of family farming activities, environmental degradation and deforestation, insufficient water supply services for human consumption and lack of sanitation in rural communities.

Below is information detailing the description of PROCASE II, its components and planned sub-projects.

### 2.1. Objectives of Project

The overall aim of the project is to contribute to reducing rural poverty levels, improving food and nutritional security and adapting the rural population to climate change.

The main specific objectives are:

- Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change;
- Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities;
- Improving the environmental conditions of rural communities and their surroundings.

### 2.2. Project Scope

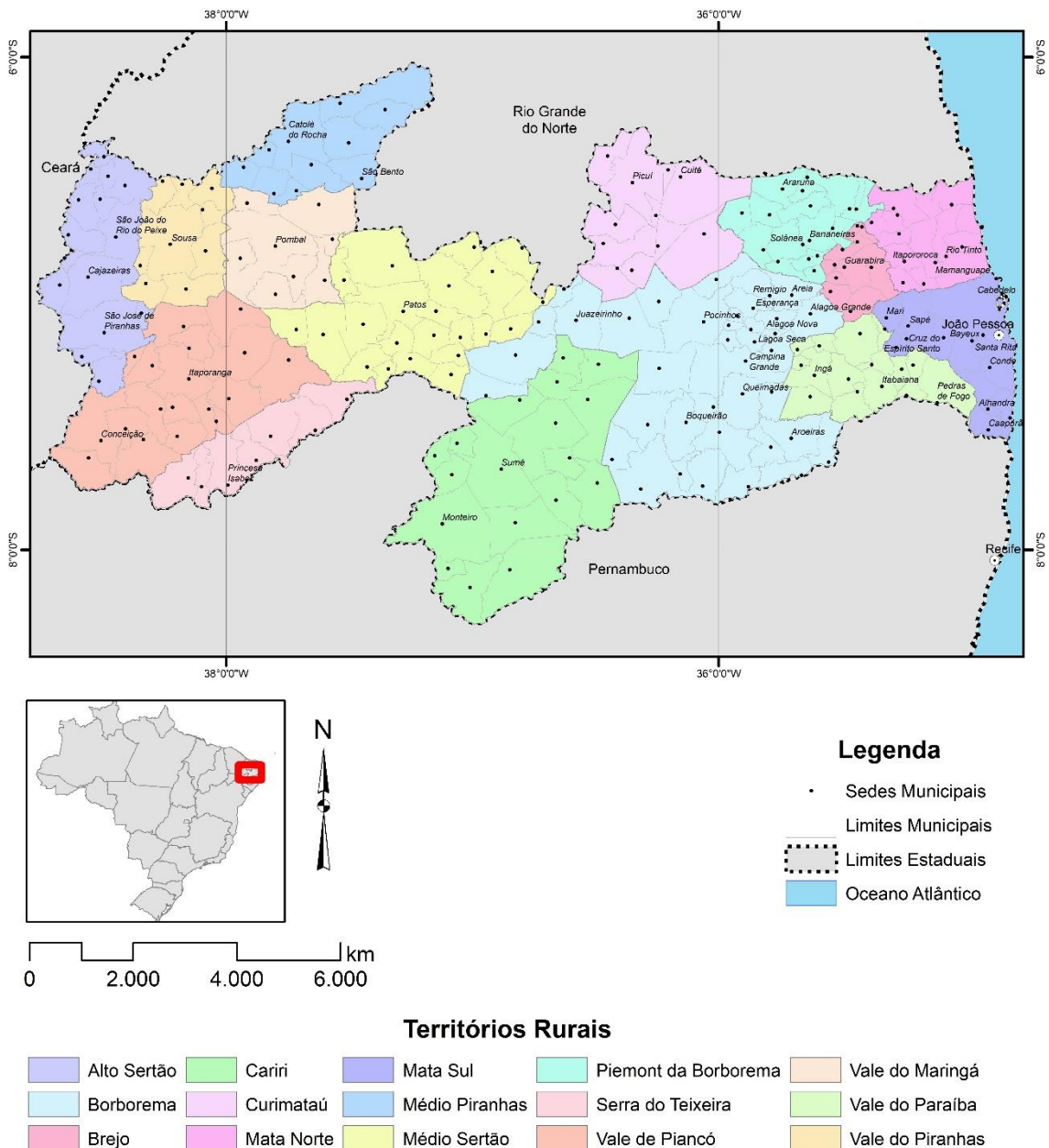
**It is important to note that the beneficiary communities for PROCASE II have not yet been defined and the consultation strategy presented in this document is aimed at communicating and interacting with the institutions representing the prominent communities in the project's area.**

The project will cover the entire state of Paraíba, involving its 223 municipalities (see figure below), which are distributed between the Caatinga (194) and Atlantic Forest (29) biomes. The Agricultural Census (IBGE 2017) shows a total of 163,218 agricultural establishments, 76.88% of which are family farms (UAF), from which the project will select its beneficiaries.

The project will seek to serve approximately 60,000 families as direct beneficiaries, establishing a preferential focus on the following profiles: women, young people, Persons with Disabilities, Traditional Peoples and Communities (PCT) and indigenous peoples (including fishermen, gypsies and quilombolas). In any case, specific criteria will be defined for prioritizing and selecting the communities to benefit.

The following map shows PROCASE II's area of operation.

**Figure 1 - Area covered by the Project**



Source: IBGE, 2015 - elaboration: Consultoria.

### 2.3. Budget from Project

The total amount planned for PROCASE II is 105 million dollars, which will benefit an estimated 600 communities.

**Table 1 - Estimated PROJECT costs (in US\$)**

<b>Components and sub-components</b>	<b>Total Value</b>
<b>C1. Resilient production systems to reduce rural poverty</b>	<b>62.416.000</b>
<i>S1.1 - Implementing resilient biodiverse production systems</i>	56.416.000
<i>S1.2 - Strengthening and diversifying marketing</i>	6.000.000
<b>C2 - Organizational and Farmer Capacity Building and Knowledge Management</b>	<b>32.302.800</b>
<i>S2.1 - Strengthening the Capacities of Family Farmers</i>	19.252.800
<i>S2.2 - Strengthening Organizations' Marketing Capacities</i>	2.730.000
<i>S2.3 - Diversity, Gender, Youth, Nutrition and Food Security</i>	4.600.000
<i>S2.4 - Land and Environmental Regularization, and Access to Public Programs and Policies for Family Farming</i>	2.600.000
<i>S2.5 - Innovation, Knowledge Management (KM), South-South and Trinagular Cooperation (SSTC)</i>	3.120.000
<b>Project Management, Monitoring &amp; Evaluation</b>	<b>10.281.200</b>
<i>Project Management</i>	8.981.200
<i>Monitoring &amp; Evaluation (M&amp;E)</i>	1.300.000
<b>TOTAL</b>	<b>105.000.000</b>

## 2.4. Description of the components

The PROCASE II components are presented below, highlighting the main information that describes them, including their sub-components.

### **Component 1: Resilient Production Systems to Combat Rural Poverty**

The aim of this component is to increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change, as well as improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities.

The specific objectives are:

- Transform existing agricultural systems by introducing innovative, more intensive and diversified agroecological practices;
- Promote greater resilience of production systems adapted to climate change;
- Promote improved food and nutrition security;
- Improve the integration of producers into value chains, prioritizing women, young people, people with disabilities, Traditional Peoples and Communities (PCT), indigenous peoples, fishing communities and gypsies;
- Make investments in social technologies, ensuring better access to and reuse of water, and sustainable energies;
- Support producer organizations (associations and cooperatives) to enable production to be processed, adding value and consequently improving marketing and market access, through investments in machinery and minor renovations;

Productive investments, both at community level and at cooperative level, will be accompanied by technical assistance and extension services (TA) and specialized

technical advisory services (STA) respectively, financed by Component 2, in order to guarantee better business management, marketing and sustainability.

Component 1 is organized into two sub-components: 1.1: Implementing Resilient Investment Plans; and 1.2: Strengthening and diversifying marketing.

### **Subcomponent 1.1. Implementing biodiverse and resilient production systems**

The aim of this sub-component is to strengthen and adapt production systems based on the use of agro-ecological practices and low greenhouse gas emissions, seeking greater resilience and allowing for an improvement and diversification of healthy food production for self-consumption and the market. It is hoped that these activities will improve families' food and nutritional security, while at the same time helping to improve their income.

Investments will also be made in social technologies (small water and energy infrastructures), which play a fundamental role in building and strengthening more resilient production systems and improving the basic living conditions of families.

The technical characteristics of the production proposals supported by the project will be adapted according to the specific agro-climatic characteristics of each biome.

#### ***Product - Resilient Investment Plans (PIR)***

It will be the main instrument for planning and implementing the resources of this subcomponent. It will have a territorial focus and will be prepared with one or more communities, with the support of TA. Each PIR will be carried out by an existing community association, representing the beneficiary community or communities, with which the project will sign an agreement establishing its obligations and rights. The project will pass on the funds provided and the association will make the purchases and contracts provided for in the PIR, reporting back to the project with the support of technical assistance.

The geographical scope of the PIR will be a Local Territory, made up of up to three communities, and its beneficiaries will be the families of these communities. The PIR will support productive activities (new or reinforcing existing activities) geared towards adapting to climate change, with the potential to guarantee food security and improve income through the sale of surpluses. It aims to incorporate concepts of good production practices based on the principles of agroecology, nutritional education and food security for families, as well as ensuring integration with social technologies.

The PIR will finance three areas of intervention: i) Productive and commercialization ii) Environmental and iii) Social Technologies, between which complementarity and synergy will be sought in order to promote sustainable change. As shown below:

**Productive and marketing axis:** The aim will be to develop productive systems at the family level, always based on the use of agroecological practices with a low impact on greenhouse gas emissions. This axis will also strengthen capacities to market production in the various channels accessible to families (local fairs, PAA, PNAE, local commerce, etc.) and relevant to the beneficiaries, such as: i) Agroforestry systems (SAFs) for diversified production, goat and sheep farming for milk and meat, dairy cattle farming, and free-range poultry farming; ii) Backyards for fruit and vegetable production, including non-conventional food plants (PANC) and medicinal plants; iii) Beekeeping and Meliponiculture; iv) Agroecological consortia for organic production, including cotton. It is important to mention that in the case of support for cattle breeding, the project's strategy will be to support dairy production exclusively (it will not support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, with the exception of the purchase to replace

breeding stock. The list is not exhaustive and other activities may be considered, as long as they are in line with the demand of the beneficiaries and the objectives and criteria of the project.

Compared to the first phase of PROCASE, which focused on the semi-arid region of the Caatinga biome, the PROCASE II management team will have to pay close attention to identifying relevant proposals for developing productive activities with the potential to adapt to climate change in the Atlantic Forest biome.

All the activities supported under this Productive and commercialization axis will be in accordance with the Environmental and Social Management Plan (PGAS/ESMP) of each PIR and with the project's Strategic Environmental and Social Management Plan (PGASE).

Extractivism, both in the Caatinga biome and in the Atlantic Forest biome, could also be supported through PIRs, both to enhance non-timber products such as fruit, fibers and lianas, seeds, honey from native bees and other bio-economic products. As it includes an important coastal area, the improvement of artisanal fishing activities, including shellfish gathering, which is generally carried out by women, could be considered when drawing up the PIRs.

In addition to these activities, and considering that part of the project's area of operation has strong potential, economic diversification activities based on tourism (particularly in the coastal Zona da Mata) and handicrafts could be developed through the PIR. These non-agricultural activities, which generally involve women and young people, will be very relevant and in line with the project's objectives.

The Productive and Commercialization Axis will focus on actions to sustainably strengthen primary production and the commercialization of products generally in natura and on the local market. TA will encourage and support the establishment of partnerships with cooperative production processing units supported by the project through subcomponent 1.2. This should make it possible to add value to primary production in order to reach other types of market.

**Environmental Axis:** The aim is to manage and restore the environment, whether or not it is associated with the activities of the PIR's Productive Axis at Local Territory level.

They will have specific resources for collective use to encourage the implementation of territorial environmental actions, such as: i) Casas de Sementes da Paixão (Seed Houses of Passion); ii) Implementation of nurseries focused on the production of native species; iii) Reforestation, recovery of permanent preservation areas (springs) and degraded areas; iv) Soil and water protection actions; v) Recycling or composting plans, etc. These actions will be implemented in each territory by an environmental management group made up of project beneficiaries, in which the PROCASE II participation of Local Development Agents (ADL) will be prioritized, as key players in introducing environmental education actions and new environmental practices. To implement these actions, synergies and complementarities will be sought with the actions and competencies of SEMAS (Secretariat for the Environment and Sustainability) and AESA (Executive Agency for Water Management), the State Superintendence for the Environment (SUDEMA), the National Semi-Arid Institute (INSA), Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Empresa Paraibana de Pesquisa, Extensão Rural e Regularização Fundiária (EMPAER), Universidade Federal de Campina Grande (UFCG), Universidade Estadual da Paraíba (UEPB), Universidade Federal da Paraíba (UFPB) and other institutions.

The activities of the Environmental Axis will mainly stem from the Environmental and Social Management Plans (PGAS/ESMP), which will be drawn up at the same time as the diagnosis of each PIR. The ESMP will provide a simplified analysis of environmental and social impacts in order to promote and encourage the adoption of environmental and agro-ecological practices. Environmental activities will be carried out with the support of TA, which will also take care of production and marketing.

**Social Technology Axis:** The aim of this axis is to implement social technologies at the family level, such as: i) second-water cisterns (agricultural production); ii) a water harvesting system; and iii) trench dams (underground dams). In addition to these technologies, 1st water cisterns (human consumption) and other household sanitation solutions such as evapotranspiration basins, or access to more sustainable domestic energy, such as biodigesters and eco-efficient stoves, will also be supported.

The social technologies will be implemented by entities contracted by the PMU specifically to provide TA for this axis, taking into account the specific nature of the TS and the legal framework targeted. These entities will be trained by PROCASE II, although most of them have the experience to do so. In addition to implementation, these organizations will also provide training to ensure that these technologies are properly appropriated, used and maintained by the families.

The connection and complementarity between the productive, environmental and social technology axes should be sought and highlighted when drawing up the PIRs, with the aim of maximizing the results of the investments made by the project.

In each of these areas, priority will be given to the introduction of innovative practices and technologies, particularly those that will be supported through Subcomponent 2.5, such as mechanization and the use of tools and equipment adapted to the reality of family farming, with a focus on vulnerable groups such as women, young people and the disabled.

The PIRs will also be able to support the strengthening of the functioning of community associations through the acquisition of specific equipment, for example, to improve connectivity, such as audio visual equipment, etc.

**General aspects about the PIRs:** During the implementation of the PIRs, in addition to a close and permanent synergy with TA actions (including specialized TA in cases where it is justified) and the strengthening of community organizations, complementarities will be established with other Component 2 activities, such as: land and environmental regularization; innovations; actions related to diversity, gender, youth, PCT and families with Persons with Disabilities.

The PIR will benefit groups of families, prioritizing women, young people, traditional communities and the Persons with Disabilities, and will finance inputs, tools, equipment and other investments needed to enable the adoption of technologies to improve productivity, adapt to climate change and improve food and nutritional security.

The investments will be financed with non-reimbursable resources and with an economic counterpart from the beneficiaries of at least 10%.

In all cases, the activities selected will come from the Participatory Rural Diagnostic, which will identify not only the demands, but also the problems, priorities and potential demands of the beneficiary communities and families. These activities must meet eligibility criteria that will be detailed in the Project Operational Regulations (ROP) and present: i) high adherence to the productive means characteristic of the biome, region and community, ii) allow productive intensification based on the principles of

agroecology, as well as adaptation to climate change and iii) follow the full agreement of the families involved.

The same PIR can support more than one productive activity or environmental axis and include the implementation of various types of Social Technologies, thus seeking coherence with the reality of family farming in order to meet the demands of the communities in a diversified way and can guarantee the inclusion of various profiles of beneficiaries, particularly women and young people. In these cases, the beneficiaries will be organized into interest groups around the activities selected to make up the PIRs.

During the process of drawing up the PIRs, the integration of new members and partners into existing organizations will be encouraged, giving priority to women, young people and families with Persons with Disabilities.

**Provision of Technical Assistance and Rural Extension (TA) services:** All PIR beneficiaries and their organizations will receive TA services for a period of two years, contracted by the PMU through a competitive process that meets IDB/IIFAD standards. These services will be financed by Subcomponent 2.1, in which they are presented in detail. They should enable the beneficiaries to be strengthened and advised on how to design, implement, monitor the operation of and complete the PIRs. This includes advice on production from an agroecological perspective and adaptation to climate change, management, organization, access to public policies and marketing, guaranteeing compliance with current health and environmental legislation. The support provided by the TA entities should include support for the beneficiaries to carry out the procurement and accounting processes related to the implementation of the PIRs, considering that the financial resources will be transferred to the beneficiary associations through the procedure defined in the ROP. In the selection of TA services, criteria will be applied that allow for the inclusion of women technicians in the teams, with a view to being as adherent as possible to the specific needs of women and to proposing more appropriate solutions for the women beneficiaries of the Project's actions. For example, it will be a selection criterion for TA organizations to have a minimum percentage of 30% women on their teams.

In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, which complies with the legal framework for contracting services for this modality. The entities thus contracted will be responsible for acquiring materials, providing specialized services for the construction of Social Technologies and training beneficiaries to apply good use and maintenance practices.

**Planned Actions and Products:** The actions planned in this product involve: (i) identification of communities; (ii) community eligibility criteria; (iii) prioritization and selection of communities; (iv) Resilient Investment Plan Drafting Process; (v) drafting of PIRs; (vi) parameters for drafting PIRs; (vii) investments eligible for funding; (viii) fundable Climate Adaptation investments; (ix) fundable Climate Mitigation investments; (x) ineligible investments; (xi) PIR approval process; (xii) evaluation and prioritization criteria.

Details of the planned actions can be found in the **Annex** of this AASE.

### **Subcomponent 1.2 - Strengthening and diversifying commercialization**

This sub-component aims to improve marketing and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives.

It aims to strengthen cooperatives by means of a Business Plan (PN), with a view to consolidating their management capacities, adding value, diversifying their commercial

offer and accessing markets under better conditions. Rather than seeking to create new cooperatives, priority will be given to existing cooperatives to improve their management capacities and those with operational weaknesses.

### ***Product - Business Plans***

The preparation of these PNs will take into account the strengthening of production carried out in subcomponent 1.1 through the PIRs, with the aim of integrating producers into these cooperatives in order to access the market.

The development of the PNs will seek to diversify the markets accessed. In addition to the institutional markets, such as PNAE and PAA, other players will be sought, mainly from the private sector. The project will seek to include the organizations in the Regional Information System for Family Farming in the Northeast (SIRAF), created by the Northeast consortium and which has been offering a new channel for establishing contact between producers and buyers.

Business Plans (PNs) will be the main instrument for implementing the subcomponent and will be drawn up with producers' economic organizations, usually cooperatives. The PNs should make it possible to finance structuring investments that could benefit family farmers, including the producers benefiting from the PIRs. Specialized technical assistance services (STA) specially dedicated to the NPs and to strengthening the capacities of the beneficiary organizations will also be financed by the NPs.

The PNs should allow for the implementation of competitive mechanisms, geared towards innovative and environmentally sustainable solutions, to strengthen network marketing and cooperative centers.

Investments will focus on existing organizations that have weaknesses in their management processes, that are unable to achieve sufficient levels of commercialization, that find it difficult to comply with environmental and health legislation, or that operate below their capacity. In these cases, the project will strengthen the capacities of the management teams, support the improvement and modernization of equipment and facilities, improving the processing and diversification of products, with a focus on adapting and/or expanding the physical infrastructure (such as processing and storage areas), with the aim of also meeting the health and environmental standards for obtaining certifications (SIF –federal sanitary inspection, organic certification, distinctive collective seals, valuing sustainable products from the Caatinga and Atlantic Forest biomes, etc.). Where relevant, the development of participatory guarantee systems (PGS) geared towards certification processes will also be supported. Subcomponent 2.2 will make an important contribution to these activities and complementarities will be built.

In exceptional cases, the project's support may be directed towards structuring the productive capacity of a cooperative, operating within the supported production chains. These cases will be specific and subject to prior feasibility analysis, taking into account in particular the existence of other similar ventures in the project area.

Strengthening the capacities of the cooperatives' teams will be a key point of the PNs, which will address the issue of best processing practices, as well as others, such as administrative and financial management. In this case, courses are planned on good management practices and the organization of production, processing, adding value, financial management, institutional strengthening, marketing strategies, etc. The management teams of these enterprises will be the main beneficiaries. These courses will mainly be carried out through specialized consultancies (such as individual consultants, EMPAER, EMBRAPA, SEBRAE, SENAR, etc.).



The preparation of the Business Plans will include a diagnosis of the organization's situation, clearly identifying the most important problems and difficulties encountered and also the opportunities that can be seized. The PNs may include agricultural activities of primary production, processing and marketing of this production. Other economic initiatives can also be included, such as handicrafts and community-based tourism, among others, provided they have the potential to generate income in a sustainable way. As the object of these Plans will be 'business' related, involving production and market issues, it is necessary to include more detailed information such as a 'map' of the production chain identifying flows and actors, an analysis of the products demanded by the market and their trends (volumes, prices), an analysis of the competition, a strategy for operating in the market, a sales plan and an investment management strategy. The Business Plan will identify the material investments that will have to be made (construction/refurbishment, machinery, equipment, etc.). In addition, it should point out the training needs (which may cover production, marketing, administrative and financial management, or other dimensions) that the implementation of the Business Plan will require.

**Provision of Specialized Technical Assistance (STA) services:** Considering the capacities found in the organizations in the region served by the Project, it will be necessary to contract STA services for the preparation and implementation of all the Plans. These services will be contracted by the PMU, through a competitive process that complies with IDB/IFAD standards, with funds provided in the budget for Subcomponent 2.2. However, in certain cases and when the beneficiary organization shows experience and capacity, it could take on the responsibility of hiring the STA directly.

Individuals or legal entities may be contracted to provide these services. The criteria for selecting providers will include: i) experience in providing consultancy services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using the internet); v) experience with access to public policies.

STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and also to meet demands not included in the business plans it supports. Opportunities for cooperation and alliances with the private sector will also be sought whenever possible.

**Planned Actions and Products:** The actions planned in this product involve: (i) Identifying and selecting beneficiary organizations; (ii) Drawing up the PNs; (iii) Eligible investments for financing; (iv) Types of Climate Adaptation investments that can be financed; (v) Types of Climate Mitigation investments that can be financed; (vi) Non-eligible investments for financing; (vii) Criteria for evaluating and prioritizing the PNs; (viii) Implementing the PNs.

Details of the planned actions can be found in the of this AASE.

## **Component 2 - Strengthening Family Farming Capacities and Organizations and Knowledge Management**

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The aim is to strengthen the individual and collective capacities of family farmers and their organizations, necessary to increase the adoption of agricultural technologies that

promote greater resilience in their systems, to improve productive and social inclusion, as well as the environmental and land conditions of rural communities and their surroundings.

The capacities strengthened through the component will be an essential tool for implementing the investments and innovative practices promoted by Component 1.

To help achieve the project's general objectives, the component will develop a set of activities with the following specific objectives:

- Strengthen the capacities of families and community organizations to implement more resilient and productive production systems, to better manage organizations and to access public policies;
- Strengthen the capacities of rural organizations so that they can develop their production and access markets;
- Strengthen the specific capacities of priority audiences in the areas of gender, youth, PCTs, Persons with Disabilities, LGBTQIAPN+ population to promote their empowerment.
- Promoting the land and environmental regularization of family farming establishments, agrarian reform settlements and quilombola communities.
- Implementing a knowledge management (KM) and south-south and triangular cooperation (SSTC) process to generate, record, share and use relevant knowledge.

The sub-components involved in this C2 are presented below. The full details of each sub-component can be found in the Annex **Error! Reference source not found.**

### **Subcomponent 2.1. Developing the Capacities of Rural Community Organizations**

The component will focus on strengthening the capacities of beneficiary families and community organizations, taking into account the weaknesses identified in various areas, with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations.

It will finance the contracting of Agroecological Technical Advisory and Extension Services (TA) to carry out activities aimed at increasing the beneficiary families' access to adequate and quality information. The main themes to be addressed by TA will be the development of more profitable, diversified and resilient agricultural production, the protection and recovery of environmental resources and the improvement of organizational management. It will also seek to integrate them more closely into different value chains in the region, with initiatives to support processing and marketing. And finally, the subcomponent will seek to strengthen the TA teams contracted to ensure the good quality of this service.

#### ***Actions planned***

- Provision of agroecological TA services in communities
- Complementary training/exchange events for farmers, including association leaders.
- Events to improve TA teams
- Training family farmers in public policies

Approximately 18,000 families will benefit from TA services, of which 50% should be represented by women, 20% by young people and at least 5% by Traditional Peoples

and Communities and 2% by the PCD. Part of this same public (approximately 2,600 people) will be served with complementary training events. Approximately 150 technical TA agents will also be trained.

The Public Policy courses should benefit a total of 32,000 families, of which 50% should be represented by women, 30% by young people and at least 5% by Traditional Peoples and Communities.

### **Subcomponent 2.2. Strengthening Family Farming Organizations for Market Access**

The aim of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) served by the project. Groups/organizations of farmers will also be worked with in order to create or strengthen local fairs and small marketing centers. In the context of improving marketing conditions, the project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories / 'consortia of municipalities'.

The aim is to help family farming organizations and their products enter diversified marketing channels, generating more income for the families benefiting.

#### ***Actions planned***

- Provision of Specialized Technical Assistance services (STA)
- Initiatives to strengthen fairs and marketing centers
- Pilot implementation of the Participatory Organic Certification System (POCS)
- Structuring Municipal Health Inspection Services

The provision of STA services will work with 60 Business Plans from economic organizations, benefiting approximately 5,000 families, of which 50% must be represented by women, 20% by young people and at least 5% by Traditional Peoples and Communities and 2% by the PCD.

The initiative to strengthen local fairs and marketing centers will work with 50 units (fairs and centers), benefiting approximately 800 families.

It is planned to set up 2 Municipal Consortia Health Inspection Services, as well as 15 participatory guarantee systems (SPG).

### **Subcomponent 2.3. Diversity, Gender, Youth, Nutrition and Food Security**

This sub-component will aim to promote the empowerment of women, young people, PCTs, LGBTQIAPN+ and Persons with Disabilities, as well as improving the nutrition and food security of beneficiary families. The activities will work with the project's cross-cutting themes, strengthening and supporting the integration of these themes into all the components.

#### **Focus on gender and diversity**

The project will take a holistic approach to transforming gender relations, promoting the inclusion of Afro-descendants and PCTs, the LGBTQIAPN+ community and people with disabilities, focusing on the environmental, economic, political and cultural causes of the social vulnerability of these groups. In order to transform unequal power relations, shaped by patriarchal and exclusionary structures, norms and practices, as well as empower women, Afro-descendants and PCTs, the LGBTQIAPN+ community and people with disabilities, the following transformation paths will be followed:

- i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development,
- ii) dealing with the issue of women's overload due to domestic and care work, promoting a fairer division of the workload between men and women,
- iii) empower target groups to have a greater voice and decision-making power in rural institutions and organizations,
- iv) promoting advocacy in policies for women, young people and PCTs,
- v) prevent gender-based violence, v) value traditional knowledge, practices and ways of life for production, food and management of natural resources and
- vi) promote the inclusion of the LGBTQIAPN+ community and people with disabilities, seeking to empower them, promote their leadership and respect their rights.

Therefore, this sub-component aims to support the mainstreaming of the gender and diversity strategy throughout the Project, which will have an intersectional approach, considering the overlap of multiple discriminations of gender, race/ethnicity, sexual orientation and disability. All the activities and products proposed for this component will be contained in and guided by the Gender and Diversity Strategy and Plan to be drawn up at the start of project implementation.

#### Focus on youth

Among the factors that influence staying in rural areas is access to work and income opportunities, education/training that is suited to the characteristics of rural areas, appreciation of rural lifestyles, and the availability of services and conditions that can offer the possibility of success in agricultural production. In order to respond to these issues raised in the Youth diagnosis and to promote the permanence of young people in the countryside, as well as offering more opportunities for sustainable income and work for young people in general, the strategy of this subcomponent is based on three main axes:

- i) Promote a broad training program in agricultural and non-agricultural activities that generate greater employment and income opportunities,
- ii) Implement a program to revalue life in the countryside through communication activities,
- iii) Promote the formation of Youth Networks and debates on issues relevant to the development of rural youth.

#### Focus on Nutrition

In order to improve food security, nutritional status and increase the adoption of healthy eating practices by the Project, this PROCASE II subcomponent will implement a strategy centered mainly on food and nutrition education training. There will be 3 main lines of action:

- Raising awareness of good nutrition and health practices (reproductive health, maternal health and child health), in particular to improve the nutritional and health status of women and children;
- Raising awareness of the food culture, healthy eating, which in particular includes the Unconventional Food Plants (PANC/UFP) of the target territories; and

- Training vulnerable communities in the processing of healthy local products in order to increase their daily consumption in a sustainable way and foster the empowerment of vulnerable communities, valuing local food culture.

### ***Planned actions and products***

- Gender and Diversity Plan: The Gender and Diversity Plan will be drawn up in the first few months of project implementation by the PMU's Gender and Diversity specialist with the support of a specific consultancy hired to detail the general strategy and implementation methodology for all activities related to gender equity and women's empowerment, as well as the inclusion of PCTs, people with disabilities and LGBTQIAPN+. The activities set out in the Gender Plan should include:
  - a. Modular training in Gender and Diversity for project and TA teams
  - b. Gender and diversity training for the project's direct beneficiaries
  - c. Implementation of the Agroecological Logbook Methodology
  - d. Training cirandeira(o)s
  - e. Childcare/education activities that allow women to participate in the project's activities
  - f. Thematic diversity meetings (aimed at people with disabilities and LGBTQIAPN+)
- Youth Plan: A Youth Plan will be drawn up in the first few months of project implementation by the PMU's Youth specialist to detail the general strategy and implementation methodology for all the activities in this subcomponent related to the socio-economic and political empowerment of young people. At least the following cross-cutting activities will be developed for rural youth in the Project area:
  - a. Vocational training in agricultural and non-agricultural activities
  - b. Training Young Communicators
  - c. Thematic meetings with young people and the formation of Rural Youth Networks
- Plan to Strengthen Traditional Peoples and Communities (PCTs): A Plan to Strengthen Traditional Peoples and Communities will be drawn up in the first few months of project implementation.
  - a. Strengthening PCT Networks
  - b. PCT Policy Integration Fairs
- Nutrition and Food Safety Plan: A Nutrition and Food Safety Plan will be drawn up in the first few months of project implementation.
  - a. Nutrition education initiative to improve nutrition and maternal and child health in the project's most vulnerable communities
  - b. Training events on food culture and food processing to enhance local products with a view to improving nutrition and facilitating the empowerment of women and young people
  - c. Raising awareness of nutrition, health and food culture among students at the Integral Citizen Schools
- Local Development Agents: The project will hire a foundation, which will be responsible for hiring Local Development Agents (LDAs), who are young people

from the communities themselves, hired by PROCASE II to carry out tasks such as mobilizing communities and organizations to actively engage in the project. In addition to mobilization, the LDAs will have to play an important role in managing the agreements made by the community associations, supporting the holding of tenders, updating financial information, monitoring the investments made, rendering accounts and keeping the associations fiscally regular. One young person will be hired per Resilient Investment Plan, which in turn serves 3 communities. The young ADLs will receive a series of training courses to develop their skills. By playing the role of ADL, it is hoped that the young people selected will be able to gain experience in leadership and management, becoming references in the communities they represent and continuing to support them even after the end of the Project. The ADLs will also play an important role in supporting the implementation of cross-cutting activities, such as gender, diversity and youth, as well as in communication between the communities, the Project and the TA teams.

**Subcomponent 2.4. Land and Environmental Regularization**

The aim of this subcomponent is to strengthen the family units served, making the production base more secure by supporting land and environmental regularization.

**Actions planned**

To achieve this goal, actions to support land and environmental regularization will be implemented.

- Support for land and environmental regularization: Seeking to provide solutions to the problem of a large number of family units in Paraíba that do not have complete legal documentation or formal recognition of these properties, the project aims to implement a land regularization and environmental registration initiative.
  - a. Choice of communities/properties to be benefited
  - b. Implementing the regularization roadmaps: EMPAER's previous experience has allowed it to define a roadmap or sequence of steps that must be taken in order for a rural property to be regularized. It is this roadmap, which covers both the land ownership and environmental registration dimensions, that forms the methodological backbone of the Project's regularization initiative.

It should be noted that the route to be taken by each property to be regularized is slightly different depending on the starting situation of each property, in which case there are two possible initial scenarios: i) Properties with public deeds - areas of ownership and ii) Properties without public deeds - areas of possession. Both routes are similar, with the one for squatter areas having a few additional steps. The roadmaps are presented in more detail in the table below.

**Table 2 - Roadmaps for land regularization and environmental registration**

Initial moment: Mobilization and dissemination action, in which the initiative is presented and explained to the beneficiary public, with the aim of identifying/confirming the family units or communities interested in participating and that meet the prioritization criteria (areas without litigation, quilombolas, settlers, PA with less than 25 ha, etc).	
Once the potential participants have been identified, the following activity guides are applied.	
<b>Activity roadmap (i): Domain areas</b>	<b>Activity roadmap (ii) - Ownership areas</b>
1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).	2 - Georeferencing rural property.
2 - Georeferencing rural property.	2 - Georeferencing rural property.

<p>3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>	<p>3 - Georeferencing inspection: done 100% by satellite image and on-site inspection of some properties. It checks that the landmarks are correctly implanted and if there are any discrepancies that need to be corrected. Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>
<p>4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages</p>	<p>4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages</p>
<p>5 - Creation or updating of the registration code in the National Rural Registration System (with issuance of the CCIR )<sup>1</sup></p>	<p>5 - Creation or updating of a registration code in the National Rural Registration System (with issuance of the CCIR)</p>
<p>6 - Approval by the agency (INCRA/EMPAER) of the geo-referenced parcel/property in the Land Management System (SIGEF), which allows technical parts (plans and descriptive memorials) of the property to be generated. The delivery of these technical documents certifies the regularization of land ownership, which is georeferencing (in script (i) for ownership areas).</p>	<p>6 - Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows for the generation of technical documents (plans and descriptive memorials) for the property. As this is vacant land, the documentation is issued in the name of the state at this stage. The delivery of these documents concludes the first stage of land regularization, which is georeferencing.</p>
	<p>6.1 - Delivery of the plan and memorial to the notary's office, for the creation of the registration and collection of the wasteland.</p>
	<p>6.2 - Analysis by the Discriminatory Commission</p>
	<p>6.3 - Updating the technical documents, which will then be in the name of the beneficiary squatter, and drawing up a definitive property title in their name (or that of the community in the case of collective land).</p>
	<p>6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).</p>
<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>	<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>
<p>8 - Drawing up the domain recognition title</p>	<p>8 - When stage 6.4 of the notary's office is completed, the property is fit and up-to-date. With the above steps completed, the property's documentation is fully regularized and ready to be handed over to the beneficiary (individual or collective).</p>
<p>9 - The property is ready and up to date. Once the above steps have been completed,</p>	

<sup>1</sup> CCIR is the Rural Property Registration Certificate, which is issued by INCRA via the Rural Registration System.

the property is ready, with recognition of ownership. The technical documents can be sent to the notary's office for registration of the area. A new, updated certificate can then be issued.	
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It is hoped that approximately 5,000 properties (covering around 100,000 hectares) will be able to follow this route with the project, until the desired regularization is achieved. It should be made clear that in agrarian reform settlements (federal or state) and in the municipalities served by EMPAER, title will be granted individually, per beneficiary family. In the case of quilombola communities, the title will be collective, covering the entire georeferenced polygon and in the name of the duly registered residents' associations.

The land and environmental regularization initiative will assist approximately 5,000 rural properties and families, 40% of which will be quilombola communities and federal and state settlements.

### **Subcomponent 2.5. Knowledge Management and South-South and Triangular Cooperation**

Subcomponent 2.5 will develop and implement a knowledge management process capable of generating, recording, sharing and using knowledge generated in the Project. It will also seek to feed the project implementation process with relevant information and knowledge. Knowledge will be made available at different geographical scales: among project participants (at community and territorial level), at state level, in the Northeast region and in other developing countries (via CSST), and to different target audiences: beneficiaries, Implementing Partners and service providers, the project team, government entities and others. The objectives will be refined during the preparation of the Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC) plan.

#### ***Actions planned***

- **CG and TSSC plan:** This plan will define the detailed objective of the KM and SSTC activities, the products developed for each target group, the distribution channels, among others. PROCASE II will be able to draw on a wide range of resources, products and experiences from other initiatives and projects, including lessons learned from PROCASE I. Therefore, PROCASE II's KM and SSTC activities should avoid duplicating existing material while at the same time utilizing this material in project activities, such as capacity building and training. The main activities and products include:
  - Systematization of experiences, good practices and results and Studies of interest to the Project on specialized topics
  - Communication and Dissemination in Knowledge Management
  - South-South and Triangular Cooperation Actions

Under this subcomponent, 25 systematizations and studies on Knowledge Management will be carried out, 6 annual communication and dissemination phases and 10 South-South Cooperation exchange events.

### **Project Management, Monitoring and Evaluation**

The aim of this component is to create an efficient mechanism for managing and controlling the activities implemented by the project, enabling them to be fully



implemented in line with the project's intervention proposal, as well as guaranteeing the implementation of the Annual Workplan and Budget (AWPB).

It also aims to introduce technological innovations to ensure the monitoring and evaluation of activities, the recording and systematization of Knowledge Management, as well as enabling transparent communication between stakeholders, including knowledge exchange actions.

To meet these objectives, the component will work on the basis of 2 sub-components, as follows.

### **Project Management**

It will make it possible to support the Project Management Unit (PMU)<sup>2</sup>, by implementing instruments to strengthen: i) Management; ii) Administration; iii) Technical operational capacity; iv) Procurement processes (tenders and contracts); and v) Financial management. This support should facilitate compliance with the contractual clauses of the Loan Agreement.

As a Management Sub-component, its activities converge to comply with IDB and IFAD Guidelines and Policies for financing, such as the specific procedures for: i) tenders and contracts; ii) requests for disbursements and rendering of accounts for the resources contributed, executed and/or committed; and iii) supervision of the implementation of community initiatives, ensuring compliance with environmental and social safeguards, procurement and financial management requirements, including rendering of accounts by beneficiaries.

### ***Product - Project management support***

**Main products:** Project Management Unit operational for 6 years

### **Monitoring and Evaluation (M&E)**

The project will set up a Planning, Monitoring, Evaluation and Systematization (PMAS/M&E system) system for its activities and results, which will be an essential management tool, enabling planning and monitoring of the project's execution, as well as actions to ensure digital inclusion.

### ***Product - Monitoring system***

The project will implement an information management system, where data collected in the field will flow to the PMU. For better organization, a computer system will be developed based on those used in Procase - phase 1, to monitor all the activities to be carried out.

**Main products:** M&E systems developed

### ***Product - Impact assessment studies***

The impact assessment will provide information on whether the project was able to achieve the results set out in the objective, as well as recording the impacts on improving the lives of the target population, such as nutrition, income, production methods, among others.

The research will use the difference-in-differences method, and will therefore be carried out on 2 groups, the treatment (a sample of Project beneficiaries) and the control (non-

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<sup>2</sup> The PMU was formally created by Decree No. 44.934 of April 15, 2024, which provides for the Unit and defines the Basic Structure for managing the Paraíba Sustainable Rural Development Project - PROCASE II.

beneficiaries, but who have a similar profile to the treatment group), with field research being carried out at 3 different points in time: i) Baseline, which will be a kind of initial X-ray of the Project's beneficiary families, where information on family composition, production, income, etc. will be obtained. will be obtained for later comparison with subsequent studies; ii) Mid-term, which will be carried out between years 3 and 4 of the Project, i.e. halfway through its implementation; and iii) Final Impact Assessment, which will be carried out during the last year of the Project's implementation, on the same group surveyed in the previous stages.

**Main products:** Baseline, mid-term and impact research carried out

#### ***Product - Systematization of experiences***

The project will also systematize the innovations, both in terms of processes and activities, highlighting their importance and results. These products will be used by the project team and state officials, as well as in other regions of the northeastern semi-arid region and similar areas, and could support the adoption of other public policies in the Northeast.

**Main products:** 50 systematizations carried out

### **3. IDENTIFICATION OF PRIORITY ISSUES**

For the consultations, **the positive and adverse socio-environmental impacts of the projects should be addressed, as well as the mitigation measures provided for in the ESMP**, and topics about the project that are relevant to the discussion with the public.

In general, the following questions are anticipated:

- Description of the project, detailing the permanent items that cause the most concern or anxiety;
- Working dynamics of the major interferences to be carried out in the community during the work versus the mitigation and control actions adopted (mud, dust, traffic, noise, duration of the work);
- Risk of accidents;
- Communication and grievance channels;
- Costs and expenses that may affect the community;
- Main environmental and social risks and impacts identified;
- Main mitigation measures to address the impacts identified.

### **4. IDENTIFICATION OF ACTORS AND STAKEHOLDERS**

The PROCASE II team has a matrix of representatives from the associations and cooperatives associations and cooperatives for engagement in the Public Consultations. The stakeholder matrix is an instrument that consolidates the important actors to be invited to get involved in discussions related to PROCASE II sub-projects. This Matrix with the selection of Stakeholders related to PROCASE II sub-projects is presented in Annex 11.1.

There will therefore be a focus on publicizing and inviting to the public consultation of the PROCASE II preparation phase, in addition to institutions and representations, rural women, the active youth population, quilombolas, indigenous people, gypsy communities, artisanal fishermen and fisherwomen (shellfish gatherers), riverine dwellers and settlers.

## 5. ORGANIZATION OF PUBLIC CONSULTATIONS IN THE PREPARATION PHASE OF THE PROJECT

The aim of public consultations is to present the PROJECT and the socio-environmental documents, as well as to gather information, concerns and questions from interested parties, including answers to the questions raised. At the end of the consultation process, evidence of the process and its outcome must be catalogued.

As part of the preparation phase for the PROJECT, the following public consultations are planned<sup>3</sup> :

- **Public Disclosure of Social and Environmental Information and Reporting Channels:**

- This publicizing must begin at least 20 days before the scheduled public consultation.

By making all the social and environmental documents produced during this preparation phase (AASE, PGASE, ASCE) available on the PROCASE II website, as well as any other project information materials.

- Documents and summary reports will also be made available with information on the socio-environmental documents produced.
- This website should allow interested parties to interact via a form on the same site. This interaction will take the form of an *online* survey through which interested parties can submit their wishes and contributions.
- The deadline for publishing the answers will be between 7 and 15 days, via this same website.

- **01 Hybrid Public Consultation (with online transmission):**

Public consultation with remote participation via live transmission (from PROCASE II headquarters in João Pessoa).

Synergy with organizations will be promoted to provide suitable local structures for broadcasting the consultation, where the interested population can watch. This strategy aims to broaden the reach of the consultation to interested parties in order to make it possible for the public that has greater difficulty in accessing the internet to participate. At first, the following mapped opportunities were identified and are being articulated: 15 regional offices of EMPAER - Empresa Paraibana de Pesquisa, Assistência e Extensão Rural, City Halls and Municipal Secretariats, local unions, local associations, and FUNAI<sup>4</sup>

- Virtual platforms such as YouTube could be used, with time for participants to have the opportunity to express themselves via virtual platforms (online, chat).
- This consultation will address the main aspects, impacts and forms of mitigation of the Project in a broad manner (environmental and social), in accordance with the AASE, PGASE and ASCE documents.

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<sup>3</sup> A public consultation is understood in this proposal to be a plenary session or request for a meeting and presentation of the PROJECT. At times, the document may use the term Public Consultation to refer to the entire process that involves the dissemination of information, calls for proposals, plenary sessions, demonstrations and responses.

<sup>4</sup> This item corroborates the characteristics of a hybrid query.

- The invitation should be made to the entire Stakeholder Matrix, but with an emphasis on the Institutional public (entities, associations, city halls, licensing bodies, etc.).

It is important to clarify that this Consultation and Participation Plan is intended to detail the Public Consultations on socio-environmental issues in accordance with the documents: AASE and PGASE.

The planning of the Consultations presented in this Plan will be led by the PROCASE II team, with the support of leaders, associations and municipal councils.

By publishing the environmental and social documents on the PROCASE II website:

- (i) The **Public Disclosure of Information** begins with the publication of the socio-environmental studies and documents produced in this preparation phase;
- (ii) The publicity period also begins with the dissemination of information and the calling of interested parties to the public consultation.
- (iii) At the end of the publicity and call period (a minimum of 10 days), the **Public Consultation** plenary session will be held.

## 6. ACTIVITIES OF THE PUBLIC CONSULTATION PROCESS OF THE DRAFT PREPARATION PHASE

The activities included in the public consultation process for environmental documents are detailed below.

### 6.1. Public Disclosure of Information and Virtual Participation

The public disclosure of information includes making available the preliminary versions of all the socio-environmental documents from the project preparation process, and other materials that may be produced, covering the main issues related to the works to be carried out, as well as complementary information material.

#### Specific objectives

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- Establish a continuous channel of consultation and communication with the affected and beneficiary population throughout the project's life cycle.
- Provide information that can be viewed during the call and publicity period to present the PROJECT;
- Present the Projects to be carried out in the Consultation area, taking into account the priority issues identified; inform the duration of the Project activities (preparation phase + implementation phase + consultations) taking care not to create unrealistic expectations<sup>5</sup> ;
- Present the preliminary version of the socio-environmental documents, highlighting the possible risks and impacts preliminarily observed and the proposals envisaged to mitigate them;
- Inform about the process of involving the Project's interested and affected parties, highlighting the possible channels and mechanisms for complaints and grievances

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<sup>5</sup> As of the end of the consultation process in the project preparation phase, there is no definition of which communities will benefit from the project's actions.

made available for community participation and the response time for complaints submitted and addressed;

- Open up a space, an opportunity, for demonstrations and record them, including the responses given by the PROCASE II team;
- Open up the opportunity for people to sign up to receive information about relevant consultations and channels for expressing their views;
- Formalize the participants' registration list via the Internet;
- Draw up a summary document with all the questions raised by the participants, the answers given, describing possible contributions to improving the PROJECT's design.

### Early disclosure strategy

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PROCASE II's communication and socio-environmental team has established a strategy for publicizing the project and the public consultation process, with the aim of informing the population about the project, the socio-environmental issues that guide it, starting to capture the expectations and desires of the interested parties and publicizing the public consultation process.

Early outreach activities involved:

- 10 plenary sessions were held with interested parties between April 4 and 30, 2024;
- Liaison with town halls, trade unions and potential information dissemination agents (health workers, for example).

### Participation format

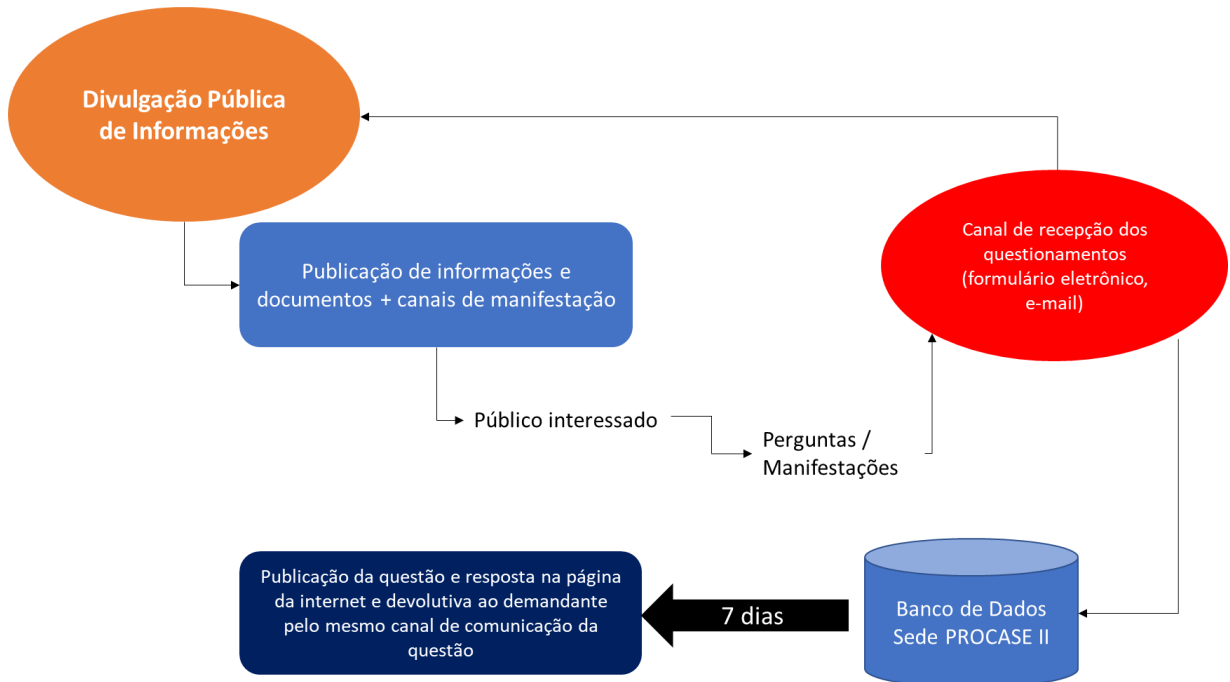
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In the public disclosure of information, interested parties will be able to access the socio-environmental documents and other specific informative and strategic materials of the PROJECT that will be produced by PROCASE II on the website: <https://www.procasse.pb.gov.br/>

Comments can be sent via an **electronic form** that can be filled in online and sent automatically. The form will also contain questions about impressions and concerns about the project. Other exclusive channels, such as e-mail, will also be made available. The deadline for responses will be 7 days, via this same website.

These channels for dissemination and participation will be open throughout the life cycle of the PROJECT.

**Figure 36 - Flowchart of the question and answer circuit during Public Disclosure of Information**



Source: Prepared by the Consultancy, 2024

### Expected result

As a result, it is hoped to inform society about the PROJECT, its resulting benefits, as well as the expected impacts and forms of mitigation, guaranteeing the dissemination of information on social and environmental risks to interested parties, establishing openness to dialogue and manifestations from the different stakeholders.

## 6.2. Public Consultation - Distance Participation Format

### Specific objectives

- Present the PROJECT;
- Present the justifications (criteria and motivations) that give rise to the need for implementation (risk areas, quality of life, etc.);
- Inform the estimated duration of the activities in a simplified schedule (preparation phase + implementation phase + consultations);
- Present the preliminary version of the documents with the IDB/IFAD perspective, highlighting the possible risks and impacts preliminarily observed and the proposals envisaged to mitigate them;
- Present the design or preliminary design solutions;
- Inform about the process of involving the Project's stakeholders, highlighting the channels made available for community participation and the complaints and grievances mechanism (MQR/GRM) so that they can speak up
- Open up space, opportunity, for demonstrations and record these, including the answers given at the meeting;

- Inform about the deadline and response channels for questions that cannot be answered during the event (7 days on the PROCASE II website);
- Open up the opportunity for people to sign up to a list to receive information about relevant consultations and channels for speaking out;
- Draw up a summary document with all the questions raised by the participants, the answers, describing possible contributions to improving the PROJECT's design.

### Target audience

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The consultation in virtual format includes the presentation of preliminary versions of the documents from the PROJECT's preparation process, covering the main issues related to the works and plans to be carried out. This consultation is aimed at interested and affected parties in general and the public directly affected and benefiting from the PROJECT, as well as those responsible for institutions related to the subject.

Although these are the main target audiences, the consultations are open to anyone interested.

The call for proposals and mobilization should include communication strategies aimed at the target audience of these consultations. The list of invitees to the public consultations is shown in the **Stakeholder Matrix** in **Annex 13.1**.

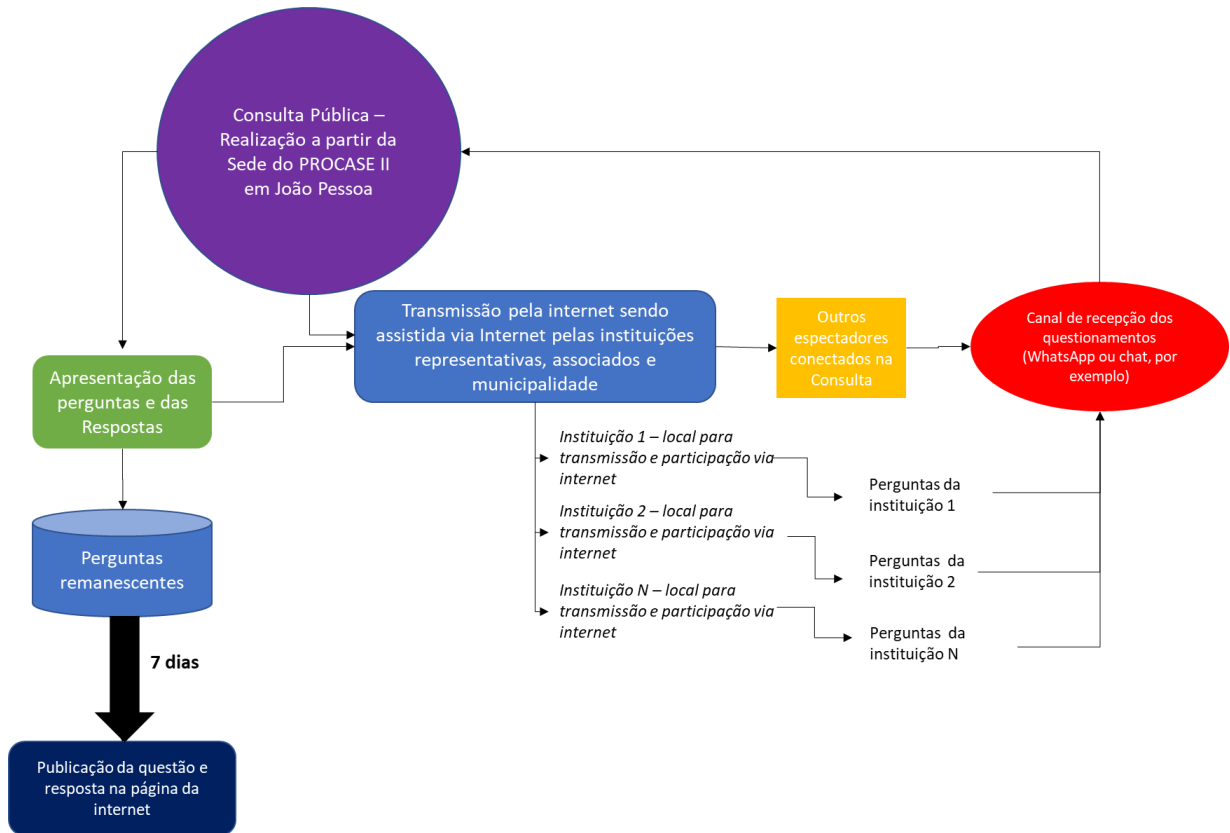
### Participation format

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- The virtual public consultation will be broadcast via the internet.
- Associations, cooperatives, NGOs, town halls and other locally active institutions will be encouraged to organize themselves with the community concerned and to support joint publicity and feasibility in order to promote as much participation as possible during the Public Consultation.
- Work is underway with institutions, organizations and partners to set up local hubs to broadcast the public consultation and allow groups to participate collectively.
- By registering and sending questions to a specific channel during the Public Consultation, the organizing team will be able to collect questions submitted by participants and send them to this exclusive channel, which will be centered on an agent based at PROCASE II headquarters.
- The channel is still being defined, but it could be an active chat during the Consultation.
- Since it will also be broadcast online simultaneously via virtual platforms (such as Youtube), virtual participants will be able to send in their questions via chat on these platforms. It will be up to the agent based at PROCASE II's central office (João Pessoa) to select questions from the different locations and channels and pass them on to the conductors of the presentation (PROCASE II technicians who will be able to respond at the time of the presentation).

Some questions will be answered during the consultation itself and any remaining questions that cannot be answered at the time of the vote will be dealt with and answered afterwards, and published on the PROJECT website within 7 days, showing the questions, answers and indicating the communities or representations that raised the question. This strategy is suggested to better organize the responses in view of the large number of questions expected. The following is a quick flow of the question-and-answer mechanism of the Virtual Public Consultation.

**Figure 37 - Flowchart of the question and answer circuit during the Virtual Public Consultation**



Source: Prepared by the Consultancy, 2024

### Expected result

As a result, it is hoped to consult society on the PROJECT as a whole and obtain information that can improve both the AASE/PGASE/ASCE socio-environmental documents and the construction projects and production plans, by taking advantage of the knowledge of the consultation participants who work locally or regionally to enrich and improve the studies.

### 6.3. Consultation road map.

**Part 1:** The Consultation will begin with a brief opening, including information on the objectives of the event, the program and guidance on how to participate, which will be available throughout the presentation via the comments box. At this point, the organizations promoting the Consultation will also be introduced.

**Part 2:** Next, a presentation of the project will be made, in a brief and objective manner, in plain language and accessible to the general public, with the aid of audiovisual resources that facilitate the understanding of those present, when necessary. A qualified PROCASE II representative will make the institutional presentation of the PROJECT. Members of PROCASE II's planning, social, engineering and environmental teams will complete the group of experts to explain the PROJECT. The objectives and justifications of the projects, their description and their technological and locational alternatives will be discussed.



**Part 3: Socio-environmental:** The PROCASE II experts will provide a summary of the results of the social and environmental diagnosis of the area of influence of the PROJECT; a description of the possible environmental impacts of the implementation and operation of activities; a characterization of the future environmental quality of the area of influence; a description of the expected effect of the planned mitigating measures in relation to the negative impacts, mentioning those that cannot be avoided; and the actions to follow up and monitor the impacts, indicating those responsible for carrying them out.

**Part 4:** After the presentation, the floor will be opened for participants to express their perceptions of the projects, doubts and expectations.

**Part 5:** Responses will be made during the course of the Consultation and those that for technical or time reasons are not covered at the moment will be answered on the PROCASE II websites. The questions will be answered using criteria based on the order of the manifestation, similar questions or contributions, and relevance and complexity to the scope of the request.

**Part 7:** Finally, the official MQR/GRM communication channels for dialog and resolving questions, response time, thanks and closing the event will be presented. In addition, at the end of the session, the channels that will be available to receive other contributions related to the scope of the PROJECT and the socio-environmental documents will be informed.

Note: The consultation will be recorded with minutes, recordings and photographs for documentation and subsequent review of the material. The hearing will be recorded and edited in order to produce documents proving that the public consultation took place and the lessons learned by the PROJECT during the consultation phase.

#### **6.4. Consultation records**

The organization of all the records to be made during the Significant Public Consultation process will be concentrated in the PROCASE II team, which will receive the relevant information from the various channels for structuring and consolidating the Significant Public Consultation Report, whether in passive, active or dialogical form.

The forms of records of the Significant Public Consultation process will involve photos, registrations, texts provided through the channels of manifestation with subsequent consolidation in an electronic file (Word, Excel, videos, audios).

The PROJECT's Significant Public Consultations Report will present the following items in a consolidated form:

- General description of the Project;
- Principles adopted in the consultations;
- Record of the announcement and call;
- Description of the transmission and consultation locations;
- Description of forms of participation;
- Characterization of the profile and participating public;
- Contributions and Manifestations (with respective replies);
- Conclusion;
- Records (photos, attendance lists, presentation material used, etc.).

If the feasibility of broadcasting these events online is confirmed, the audiences should be recorded on each platform used and screen recordings made during the broadcast, in order to record audience interaction, as well as the responses presented.

All the registration material will be consolidated in a Report on Consultations carried out during the preparation period for the Operation.

## 7. ATTENTION TO GENDER ISSUES, VULNERABLE GROUPS AND TRADITIONAL COMMUNITIES

With regard to the issue of gender, attention to vulnerable groups and traditional communities, seeking to promote the process of public consultation with stakeholders in a democratic, equal and participatory manner, some guidelines will be assumed throughout the mobilization, call and participation actions, according to the needs and difficulties mapped throughout the process of evaluation and analysis of priority issues affecting the availability, access and participation of women, LGBTQIAPN+, the elderly, traditional communities, etc. in the Public Consultation process.

The actions that will help promote the effective participation of these groups and will be adopted throughout the PROCASE II public consultation process are as follows:

- The mobilization process must consider and observe the role of the most disadvantaged groups. The first strategy is to involve them in the preparation phase, making them the protagonists in raising awareness and involving other families in the consultation process.
- In response to the need to guarantee participation, all work teams must be oriented to incorporate issues associated with gender, attention to attention to groups and traditional communities.
- The service will be provided *on site* or in a location that is as close as possible to the communities. communities, during the Public Consultation process, with a view to providing guidance to interested community members, especially women, pregnant women, the elderly, traditional communities and LGBTQIAPN+ people. and other vulnerable groups identified. This practice aims to meet the specific needs and difficulties that the community, especially vulnerable groups, may have in accessing the virtual consultation process - in view of possible limited access to telecommunications services (internet), or even to face-to-face events, for example due to overlapping domestic, family and professional demands.
- The planned times for collecting suggestions and comments on the environmental and social studies and the project in general will be extended, considering the reduced time due to overlapping household and family tasks, allowing the least favored and vulnerable groups to participate in the consultations.
- The physical spaces and collection of information, questions and considerations will be available to the population before and during the event, to overcome any difficulties in accessing the manifestations and responses that may still occur. These spaces and channels include:
  - Local spaces or remote service channels: these will be defined according to the specifics of each project.

PROCASE II's communication channels regarding the Complaints Mechanism.

- The effective participation of local representatives on gender issues, vulnerable groups and traditional communities will be encouraged through invitations to institutions and social organizations defending each group in the PROCASE II area of influence.

## 8. PLANNED ALLOCATED RESOURCES

The resources to be allocated for preparing, calling and executing the consultations are described below.

### 8.1. Dissemination, Calling and Social Mobilization

The Public Consultations will be publicized through various forms of communication, ranging from face-to-face meetings with the public directly affected and their representatives, to mass media and digital media. At this time, information will also be disseminated about the projects involved, the expected impacts and the measures to mitigate these impacts.

The **invitation to the Consultation** will be made through content produced by the PROCASE II communications team, in line with the state government's communications department, and disseminated through conventional media such as radio, television, news portals, social networks, chat apps and printed newspapers<sup>6</sup>.

The **mobilization of interested parties** is also reinforced in person, by the PROCASE II team, local associations/cooperatives/representative institutions, leaders and town halls, promoting links with key leaders and encouraging the dissemination of information.

The **mobilization of vulnerable and traditional profiles**<sup>7</sup> (such as: the elderly, LGBTQIAPN+, PCD<sup>8</sup>, low-income people, women heads of household, among others; and also traditional populations) will be mobilized through **direct communication**, in other words, face-to-face contact, with a visit **by the PROCASE II team or community representative/leader with the support of the municipal teams involved**, explaining, in addition to the basic information related to the project, impacts and mitigations, the importance of and access for all profiles to the consultation process, projects and documents. This audience will also be told about the actions to promote accessibility and opportunities for participation. This group will also be sensitized to participate through the available channels of expression and will also be encouraged to publicize and invite possible representations or affected individuals who have an interest in the consultation process. These groups will also be asked about the need for measures to encourage participation, which is a relevant question that will be assessed and applied as appropriate.

**Content about the PROJECT**, related impacts and planned mitigations will be made available on the institutional website <https://www.procasse.pb.gov.br>, and disseminated via links on the social networks *Instagram* and *Facebook*, as well as being sent out simultaneously via tools such as *WhatsApp*, at least 7 days before the event.

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<sup>6</sup> Public institutions (municipal, state and federal governments), as well as civil society organizations linked to the Sustainable Development of Family Farming, will be partners in the dissemination and social mobilization of the PROCASE II Virtual Plenary for Public Consultation and Participation.

<sup>7</sup> This mobilization strategy will target specific profiles, especially traditional communities.

<sup>8</sup> Strategies will be defined to reach the PCD niche, such as the adoption of sign language systems.

**An online contribution channel will be available** for interested parties during the **publicity and call period** - *WhatsApp*<sup>9</sup> which will be publicized in all the media used by the Public Consultation communication strategy, through social networks and the PROCASE II website.

For the Public Consultations, the communication strategy will be carried out through specific liaison with community leaders, as well as the publication of information materials sent to the press and disseminated on social media with the aim of raising awareness among the population and leaders in the area:

- what public consultations are, e;
- the role of the affected or interested community in this PROCASE II preparation phase.

In terms of engaging the affected communities, the role established must include their inclusion as part of the project, in order to give them the right to demonstrate and participate in the project implementation process, as well as imbuing the affected parties with a sense of belonging to the project and its benefits, and that in order to achieve the objectives set out in the project, the parties must work together. Stakeholders, on the other hand, are involved in the role of observer and promoter of the well-being of the community and the environment, as well as their role as collaborator or shaper of public opinion.

**Calling on the parties affected and interested in PROCASE II** will generally be done through a number of approaches:

- Active Contact (via phone/WhatsApp/E-mail);
- Press reports;

The forms of participation and expression in the consultation process are:

- **The parties will be able to take part in the consultation:**
  - i. in person at the locations provided for broadcasting the consultation meeting;
  - ii. remotely by accessing the consultation transmission channels via computer or cell phone;
  - iii. virtually, through the website with information and documentation on the project, impacts and measures.
- **The parties can also send their concerns:** through a statement made through the official channels established: WhatsApp/email to be informed in the call and dissemination communication pieces and vehicles, as well as in the consultation itself; through a form on the PROCASE II website.
- **Questions/issues will be answered through:**
  - i. clarifications and answers given at the time of the presentation and interaction at the Consultation meeting;
  - ii. through a consolidated publication of the questions and answers on the PROCASE II website.
  - iii. via email or WhatsApp.

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<sup>9</sup> System being evaluated for feasibility of applying the tool

## 9. COMPLAINTS MANAGEMENT AND INFORMATION DISSEMINATION MECHANISM FOR PUBLIC CONSULTATIONS IN THE PROCASE II PREPARATION PHASE

Following the requirements set out in the IDB/IFAD Standards, in the context of PROCASE II, mechanisms will be made available to deal with the population's doubts and complaints, making it possible to establish a flow of information between the executing agent and the affected local populations and enabling specific concerns about PROCASE II projects and sub-projects and impact control and mitigation measures to be addressed and resolved in a timely manner.

These resources will be structured and deployed in such a way as to accurately target communication, monitor the transmission of key messages and assess the reaction of stakeholders, anticipating obstacles or problems.

According to the IDB's PDAS 10<sup>10</sup>, the guiding principles of this mechanism are defined:

- To promptly and effectively resolve, in a transparent, culturally appropriate and accessible manner, all the concerns of any interested party, at no cost and without retribution;
- The operation of this mechanism will not prevent access to judicial or administrative remedies, or even to the IDB's Independent Consultation and Investigation Mechanism (MICI);
- All complaint channels and their respective access and feedback procedures will be promptly and continuously informed to the population;
- Responses to all complaints received will be made publicly available;
- Grievances will be handled in a culturally appropriate and discreet manner that is objective, sensitive and responsive to the needs and concerns of the parties affected by the project;
- The mechanism should also allow anonymous or confidential complaints to be raised and dealt with;
- The Borrower will address allegations of retaliation, abuse, or discrimination and take appropriate corrective action.

The effective functioning of this mechanism will depend to a large extent on inter-institutional coordination, not only to provide answers to the resulting questions directly related to the implementation of PROCASE II, but also those concerning the functioning of services and equipment that are often the subject of doubts and complaints from the population.

In this regard, the general objectives of the complaints and grievances management mechanism under PROCASE II are:

- subsidize the decision-making processes relating to the preparation and development of PROCASE II;
- serve as an instrument for the timely resolution of issues, avoiding the generation of social conflicts;

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<sup>10</sup> Stakeholder engagement and information disclosure

- serve as a mechanism of accountability, allowing people to seek redress when necessary.
- respond to the doubts/ dissatisfactions, suggestions and demands of complainants;
- monitor the level of satisfaction with the implementation of the Project;
- monitor the profile of complaints so that they can serve as input for strategic preventive actions to avoid and/or mitigate the reasons for dissatisfaction.

In view of these objectives, the complaints and grievances management mechanism (MQR/GRM) will be structured through the **Institutional Channels**: based on the appropriation and integration of the channels that already exist within PROCASE II.

These channels will receive complaints, doubts, concerns and claims from the various interested parties. Responses will preferably be sent through the same channels or preferred channel that the complainant indicates. The response time for each is detailed below. These channels are functional tools for monitoring the developments, impacts and expectations of the Project among the population.

### **9.1. Relationship, communication and service channels in the Public Consultation phase of the PROCASE II preparation stage**

In terms of complaints and information disclosure mechanisms, the PROCASE II structure already has relationship channels, communication channels and service channels that will be incorporated into the PROJECT's Complaints and Claims Management Mechanism.

The **relationship and service channels** are part of the set of instruments for communicating with the population that are available both within the PROCASE II structure and from the State Secretariat for Family Farming and Semi-Arid Development (SEAFDS), to which PROCASE II belongs, and comprises:

- 8 Regional Offices and their WhatsApp;
- PROCASE II telephone number: (83) 32149248
- SEAFDS service channel: Telephone: (83) 3214-9247 / E-mail: [agriculturafamiliar@seafds.pb.gov.br](mailto:agriculturafamiliar@seafds.pb.gov.br) ;
- General Ombudsman of the Paraíba State Government: Telephone: 0800-021-2310 | E-mail: [ouvidoriageral@casacivil.pb.gov.br](mailto:ouvidoriageral@casacivil.pb.gov.br) / Website: <https://ouvidoriapb.pb.gov.br/register>

The **communication channels** include:

- Internet and social media, such as *Facebook* - [www.procasse.pb.gov.br](http://www.procasse.pb.gov.br) , and *Instagram* <https://www.instagram.com/procassepb/>
- Communication Secretariat - SECOM, involving: Mass Media and Press Office (radio, press); Advertising; Digital Communication and Citizen Information System.

These channels will filter and channel complaints to the PROCASE II technical team, which will be responsible for managing the complaints.

### **Regional Offices**

Each of the 8 PROCASE II Regional Offices are strategically located in municipalities that have regional centralities in the Rural Territories, providing, in addition to face-to-

face service, a telephone number, WhatsApp and e-mail. All these channels will be incorporated as part of PROCASE II's Complaints Management Mechanism.

The following table shows the addresses and contact telephone numbers of all the regional offices:

**Table 7 - Possible locations of Regional Offices (URGP) - PROCASE II**

MUNICIPALITY	Address
João Pessoa	Avenida Rio Grande do Sul, nº 1.345, Bairro dos Estados, Edifício Evolution Business Center, 16º andar, CEP: 58.030-021
Campina Grande	Av. Jorn. Assis Chateaubriand, 2630, Estacao Velha, Edifício do CDRM, CEP: 58.105-421
Cuité	Av. Petrônio Figueiredo, 811-859, Jardim Planalto, Edifício da Casa da Cidadania, CEP: 58.175-000
Sumé	Rodovia BR-412, 425, Centro, Edifício do NEXT/UFCG, CEP: 58.540-000
Ducks	Rua João da Mata, 90, Centro, CEP: 58.700-080
Sousa	Rua Emídio Pires, 84, Centro, CEP: 58.802-270
Catolé do Rocha	Av. Deputado Américo Maia, 37, Centro, CEP: 58.884-000
Itaporanga	Rua Elvidio de Figueiredo, S/N, Margens PB 386, Bairro Loteamento João Silvino, CEP: 58.780-000

Source: PROCASE, 2024.

For face-to-face assistance at the Regional Offices, the response times are:

- Immediate: in the prompt clarification of doubts;
- Emergency: 48 hours, when the situation requires a rapid response and could cause a risk to the life or physical integrity of people or the infrastructure/project, or severe (irreversible) environmental damage;
- Up to 10 days for cases that cannot be answered promptly. In these situations, the questions will be forwarded to the PMU, which will contact the department responsible for responding and getting back to the complainant. If the responsible department still has no response, the PMU will assume responsibility and seek the necessary response or solution, clarifying the situation to the complainant and specifying how much more time will be needed to return with the definitive response.

### PROCASE website

The PROCASE II website (<https://www.procasse.pb.gov.br>) contains a number of channels for contacting people, providing information, expressions of interest and complaints.

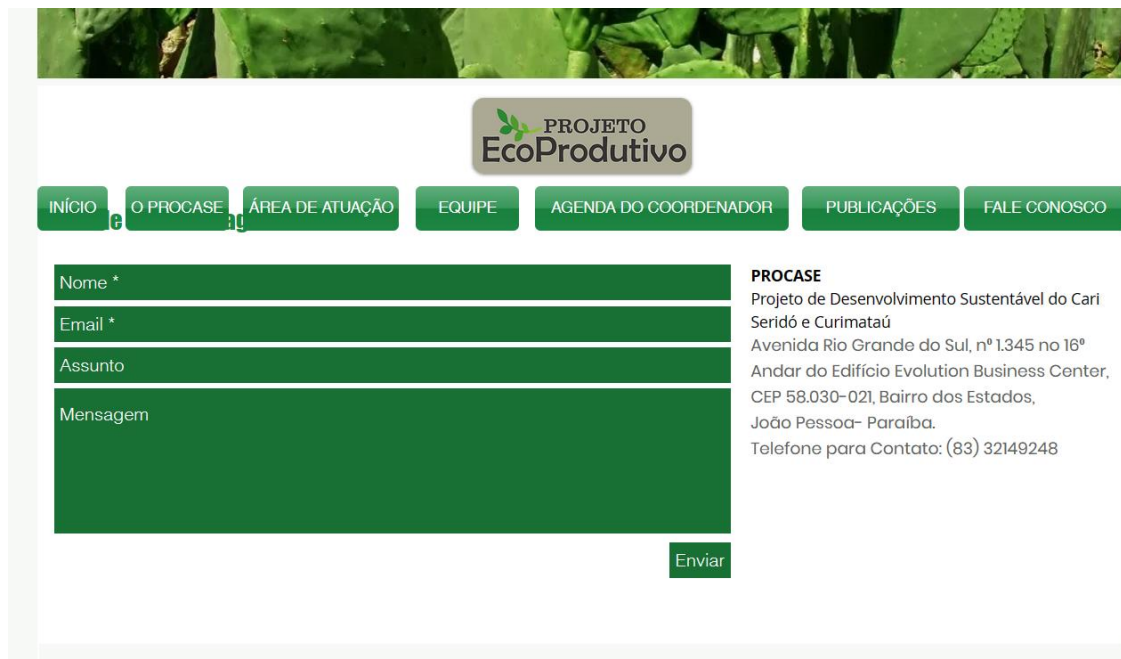
SEAFDS' "Contact Us" section provides specific channels for citizens in general, as well as a link to the State Ombudsman's Office (OGE).

Figure 38 - PROCASE II website



Source: <https://www.procasse.pb.gov.br/>

Figure 39 - PROCASE website: Contact Us



Source: <https://www.procasse.pb.gov.br/contato>



Figure 39 - SEAFDS website: Contact Us



Source: [http://www.sdr.ba.gov.br/fale\\_conosco](http://www.sdr.ba.gov.br/fale_conosco)

## Social Media - Facebook and Instagram

Social media is mostly used as a channel for disseminating information about developments, launches and events. As it allows interaction with the target audience, information on access to services is also provided.

Within the framework of PROCASE II, the operation of these platforms or any new profiles created specifically for the project or at local level by the municipalities should follow the same logic. When complaints or doubts about PROCASE II are identified, the managers of these networks must activate the complaints system through the official channels. In other words, no complaints or grievances can be dealt with or resolved on social media. These channels can receive and advise complainants on the correct channels for submitting their complaints.

**Figure 40 - Social Media**



Source: <https://www.instagram.com/procasepb/>

**Other communication and complaint channels:**

**Complaints channels - IDB**

The IDB's own channels are also part of the Complaints Mechanism:

- IDB Complaints Protocol: [quejas@iadb.org](mailto:quejas@iadb.org)
- Website: <https://www.iadb.org/pt-br/quem-somos/enviar-uma-alegacao/reclamacoes-ambientais-e-sociais>

**Independent Consultation and Investigation Mechanism (ICIM/MICI):**

The Independent Consultation and Investigation Mechanism (MICI) is a structure of the IDB Group, independent of the Bank's management and project teams, which deals with environmental and social complaints from communities potentially affected by the Group's operations. This independence allows it to act impartially and seek solutions with all the parties involved (the communities claiming affections; the IDB Group, as the financier of the operation; and the borrower (company or government) in charge of executing the project).

For more details, see: <https://www.iadb.org/pt/mici/o-que-e-o-mici>

Requests can be sent to the MICI Office in Washington, D.C. or to any IDB Representative Office (marked "For the attention of: MICI Office"), from where the request will be forwarded to the MICI Office.

MICI's address is:



- Independent Consultation and Investigation Mechanism, Inter-American Development Bank, 1300 New York Avenue, NW, Washington, D.C. 20577, United States.
- E-mail: mecanismo@iadb.org

Phone: 202-623-3952; Fax: 202-312-4057

## **10. EXPERIENCE IN PUBLIC CONSULTATION AND PARTICIPATION**

The PROCASE II team has several practices that involve the community to support the development of the project, the application of measures, compensation, benefits and planning processes. These practices involve participatory planning carried out through joint or even individual meetings with the public.

Among these actions, the Participatory Diagnosis stands out, identifying problems, causes, actions, with targets and deadlines, support partners and responsibilities, aiming at an adequate baseline for proposing solutions, timetables and actions.

## **11. ANNEXES**

## 11.1. ANNEX 1 - Stakeholder Matrix

**Table 8 - Stakeholder Matrix - Institutional**

Id	Name / Institution (some community members also sit on the board of local institutions)	Rural Territory	Type of Stakeholder (institutional, community representative)	Preferred form of invitation	Call consultation mechanism
1	Representative of the 223 Municipalities	All	Institutional	E-mail	Virtual
2	FUNAI	All	Institutional	E-mail	Virtual
3	Palmares Foundation	All	Institutional	E-mail	Virtual
4	SUDEMA - State Environmental Superintendence	All	Institutional	E-mail	Virtual
	SEMAS - State Secretariat for the Environment and Sustainability				
5	SEAFDS - State Secretariat for Family Farming and Semi-Arid Development				
	State Secretariat for Tourism and Economic Development				
	State Secretariat for Agriculture and Fisheries				
	State Secretariat for Human Development				
	CONSEA - State Council for Food and Nutrition Security				
	CEDRS - Paraíba State Council for Sustainable Rural Development				
	COPAM - State Council for Environmental Protection				
8	Basin Committee		Institutional	E-mail	Virtual
	CAGEPA - Paraíba Water and Sewage Company				
	Energisa - Paraíba State Electricity Company				
	ICMBio				
	NGOs				
	PPGEO/UFPE - Federal University of Pernambuco (?)				
	EMPAER - Paraibana Research, Rural Extension and Land Regularization Company				
	SEIRHMA - State Secretariat for Water Resources				
	SEMDH - State Secretariat for Women and Human Diversity				
	SENAR - National Rural Learning Service				
	Executive Productive Investment Management Committee (CEGIP)				
	INSA (National Semi-Arid Institute)				
	UFCEG (Federal University of Campina Grande)				
	UFPB (Federal University of Paraíba)				
	EMBRAPA Cotton				



<b>Id</b>	<b>Name / Institution (some community members also sit on the board of local institutions)</b>	<b>Rural Territory</b>	<b>Type of Stakeholder (institutional, community representative)</b>	<b>Preferred form of invitation</b>	<b>Call consultation mechanism</b>

**Table 9 - Stakeholder Matrix - Rural Communities and Organizations Possibly Eligible for the Project**

<b>ID</b>	<b>COMMUNITY</b>	<b>RURAL TERRITORY</b>	<b>MUNICIPALITY</b>	<b>COMMUNITY TYPOLOGY (Indigenous, Quilombola, Fisherwoman, Gypsy, Settler)</b>	<b>NUMBER OF FAMILIES IN THE COMMUNITY</b>
1	Community of Sítio Cardoso / Association of Small Rural Producers of Riacho do Algodão and Santa Rita	Western Cariri	Congo		
2	Cardoso Rural Community Development Association	Western Cariri	São José dos Cordeiros		
3	Community of Sítio Santana	Western Cariri	São Sebastião do Umbuzeiro		
4	Rural Productive Village Community Association - VPR LAFAYETTE	Western Cariri	Monteiro		
5	Community of Sítio Caiçara - Mata Settlement / Association of Rural Producers of Sítio Caiçara	Western Cariri	Amparo		
6	CAPRIBOM - Cooperative of Rural Producers of Monteiro, PB.	Western Cariri	Monteiro		
7	Parari Goat and Sheep Breeders and Producers Association (ACPCOP)	Western Cariri	Parari		
8	Community of Sítio Lagoinha / Community Association of Residents of Sítio Lagoinha	Western Cariri	Serra Branca		
9	COOPESCAF - Cooperative of Fishermen, Aquaculturists and Family Farmers of Camalaú and Region.	Western Cariri	Camalaú		
10	CAPRIBOM - Cooperative of Rural Producers of Monteiro, PB.	Western Cariri	Monteiro		

ID	COMMUNITY	RURAL TERRITORY	MUNICIPALITY	COMMUNITY TYPOLOGY (Indigenous, Quilombola, Fisherwoman, Gypsy, Settler)	NUMBER OF FAMILIES IN THE COMMUNITY
11	Cacimba Nova Community / Rural Quilombola Association of Cacimba Nova - São João do Tigre PB	Western Cariri	São João do Tigre		
12	Association of Settlers of the Eldorado dos Carajás Settlement - Camalaú PB	Western Cariri	Camalaú		
13	AAME SJC	Western Cariri	São José dos Cordeiros		
14	Community of Sítio Lagoinha / Community Association of Residents of Sítio Lagoinha	Western Cariri	Serra Branca		
15	Representative of the lace makers of São Sebastião do Umbuzeiro	Western Cariri	São Sebastião do Umbuzeiro		
16	Community Association of Rural Producers of Saco dos Goitis	Middle Hinterland	Saint Lucia		
17	Community Association of Small Rural Producers of Carneira Veríssimo	Middle Hinterland	Junco do Seridó		
18	Pitombeira Quilombola Community Association	Middle Hinterland	Várzea		
19	Rural Farmers' Association of Serra Branca, Jatobá, Queimadas and Morcego	Middle Hinterland	São Mamede		
20	Redinha Community	Middle Hinterland	São José do Sabugi		
21	Association of Goat and Sheep Breeders of the Municipality of Juazeirinho - ACCOMJ	Seridó	Juazeirinho		
22	Community Association of Sítio Cajueiro	Seridó	Pocinhos		
23	Santa Maria Residents' Community Association	Seridó	São Vicente do Seridó		
24	Serrote Redondo Community	Seridó	Pedra Lavrada		



ID	COMMUNITY	RURAL TERRITORY	MUNICIPALITY	COMMUNITY TYPOLOGY (Indigenous, Quilombola, Fisherwoman, Gypsy, Settler)	NUMBER OF FAMILIES IN THE COMMUNITY
27	Porteiras Association	Eastern Cariri	São Domingos do Cariri		
30	Ilha Grande Association	Eastern Cariri	Saint André		
31	ARTEZA- Ribeira de Cabaceiras	Eastern Cariri	Cabaceiras		
32	CASACO	Eastern Cariri	Boqueirão		
33	ACCOC	Eastern Cariri	Caraúbas		
35	Ilha Grande Association	Eastern Cariri	Saint André		
36	Ilha Grande Association	Eastern Cariri	Saint André		
	Riacho da Cruz Settlement	Curimataú	Barra de Santa Rosa		
	Riacho de Sangue Settlement	Curimataú	Barra de Santa Rosa		
	Rosa Luxemburg Settlement	Curimataú	Cotton from Jandaíra		
	Bom Sucesso Community	Curimataú	Peace and quiet		
	Mari Preto Community	Curimataú	Picuí		
	Quixaba Community	Curimataú	Picuí		
	Camará Black Community	Curimataú	Remígio		
	Oziel Pereira Settlement	Curimataú	Remígio		
	Plácido Clementino Community	Curimataú	Cotton from Jandaíra		
	Quixaba Community / Women's Association in Quixaba Picui and Region	Curimataú	Picuí		
	Rosa Luxemburg Community	Curimataú	Cotton from Jandaíra		





## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.5 Secap Targeted Adaptation Assessment**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT – PROCASE II

<p><b>TARGETED ADAPTATION ASSESSMENT</b></p> <p><b>TAA</b></p>
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**July 2024**

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## CREDITS

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**IFAD – INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**

**STATE OF PARAÍBA**

**Consultant**

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## SUMMARY

1. INTRODUCTION .....	6
2. PROJECT SUMMARY .....	6
2.1. Project Goals.....	6
2.2. Project Intervention Area .....	6
2.3. Project Description .....	8
3. INDICATION OF HAZARD, EXPOSURE, VULNERABILITY AND ADAPTABILITY	10
3.1. Current Weather.....	10
3.2. Future Climate.....	18
3.3. Impact and Vulnerability Assessment .....	21
3.3.1. Potential Effects of Climate Change.....	28
3.4. SUBPROJECTS VULNERABILITY .....	34
3.4.1. Resilient Investment Plans (RIPs).....	34
3.4.2. Business Plans (PN).....	37
3.4.1. Summary of Subproject Vulnerability .....	49
4. ADAPTATION ASSESSMENT.....	51
4.1. Identification of Measures to Adaptation for Possible Impacts of Climate Change .....	51
4.2. Evaluation and selection of adaptation options .....	59
4.3. Monitoring .....	71
5. COSTS AND BUDGET CONSIDERATIONS .....	71
6. BIBLIOGRAPHY .....	73

## LIST OF TABLES

Table 1 – Meteorological Stations considered in the State of Paraíba.....	13
Table 2 – Rainfall in the Meteorological Stations considered in State of Paraíba (mm). .....	16
Table 3 - Indicators used to define social vulnerability – susceptibility disasters to flood and drought .....	25
Table 4 – Phases of Infection and Climatic Factors. ....	48
Table 5 – Sectoral Risks .....	49
Table 6 – Free-Range Poultry.....	52
Table 7 – Dairy Cattle and goat farming.....	53
Table 8 – Productive Backyards .....	54
Table 9 – Agroforestry Systems – AFS .....	55
Table 10 – Agroecological cotton farming .....	55
Table 11 –Apiculture .....	56
Table 12 – Water Supply .....	57
Table 13 – Reuse of grey water and black water (Fossa Verde) .....	57
Table 14 –Renewable energy .....	58
Table 15 – Water Resources .....	58
Table 16 – Human Health .....	58
Table 17 – Excessive Increase in the Use of Pesticides .....	58

Table 18 – Criteria and Scoring Used .....	60
Table 19 – Adaptative Options Score and Classification .....	62
Table 20 – Budgetary considerations .....	72

## LIST OF FIGURES

Figure 1 – Project Coverage Area .....	7
Figure 2 – Limits of biomes on Paraíba state. ....	8
Figure 3 – Paraíba Climate Classification – Köppen .....	11
Figure 4 – Brazil’s Main Air Masses over Climate Zones .....	12
Figure 5 – Location of Paraíba Meteorological Stations .....	14
Figure 6 – Annual Average and Seasonal Temperature in the State of Paraíba.....	15
Figure 7 – Rainfall recorded in the Meteorological Stations considered in State of Paraíba (Average Annual Precipitation in mm).....	16
Figure 8 – Average Annual Rainfall (1962-2017) .....	17
Figure 9 – Changes projected by the multi-model set (CMIP5) (32 GCMs) in annual temperature (top) and precipitation (bottom) during 2040–2059 (left) and during 2080–2099 (right), regarding 1986–2005 baseline at RCP8 0.527.....	19
Figure 10 – Precipitation –SSP5-8.5 – 2020-2039 Scenario .....	20
Figure 11 – Precipitation –SSP5-8.5 – 2060-2079 Scenario .....	20
Figure 12 – Precipitation – SSP5-8.5– 1960-2020-2039 Scenario and Anomalies .....	20
Figure 13 – Average Surface Air Temperature – SSP5-8.5– 2020-2039 Scenario .....	21
Figure 14 – Mean Surface Air Temperature –SSP5-8.5– 2060-2079 Scenario .....	21
Figure 15 – Mean Surface Air Temperature – SSP5-8.5– 1960-2020-2039 Scenario and Anomalies.....	21
Figure 16 – Identified hazards – Paraíba .....	23
Figure 17 – Methodological Path - Atlas: Environmental Risks, Vulnerabilities and Disasters of Paraíba State .....	24
Figure 18 – Social Vulnerability – Floods and Droughts .....	26
Figure 19 – Flood Disaster Risk Index .....	27
Figure 20 – Climate Disaster Risk Index .....	28
Figure 21 - Impacts of climate change on the productivity of family and employer farming in Paraíba .....	29
Figure 22 – Impact of Rain – Current Scenario .....	30
Figure 23 – Impact of Rain – 2050 Scenario – Pessimistic .....	30
Figure 24 – Impact Risk Index for Rain – Food Security .....	31
Figure 25 – Impact of Drought on Food Security – Current Scenario .....	32
Figure 26 – Impact of Drought on Food Security – 2050 Scenario – Pessimistic.....	32
Figure 27 – Drought Impact Risk Index – Food Security .....	33
Figure 28 – Drought Impact Risk Index – Water Resources.....	34
Figure 29 – Example of Cistern Model .....	38
Figure 30 – Cistern construction .....	38
Figure 31 – Distribution of positive tests for DENV, CHIKV and ZIKV, by municipality of residence in Brazil, until SE 44/2022.....	43
Figure 32 – Distribution Maps of probable cases of main arboviruses – Paraíba (Jan. to May 2024).....	44
Figure 33 – Distribution of <i>Biomphalaria: B. glabrata, B. tenagophila, B. straminea</i> – Schistosomiasis vectors.....	46
Figure 34 – Distribution of municipalities with positive cases of Chagas Disease by Health Region. Paraíba, 2015 to 2021 .....	47
Figure 35 – Adaptation Categories.....	51

### ACRONYM LIST

AWPB	Annual Work Plan and Budget
CC	Climate Change
CDRI	Climate Disaster Risk Index
CHIKV	Chikungunya virus
CMIP6	<i>Coupled Model Intercomparison Project Phase 6</i>
CWSS	Collective alternative solution
DENV	Dengue virus
EFSA	Executive Agency for Water Management of the State of Paraíba
ENSO	El Niño-Southern Oscillation
FDRI	Flood Disaster Risk Index
HLCV	Cold Fronts, East Disturbances or East Waves and High-Level Cyclonic Vortices
IBGE	Brazilian National Institute for Geography and Statistics
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
INMET	Brazilian National Meteorological Institute
IPCC	Intergovernmental Panel on Climate Change
IRD	Disaster Risk Indices
ITCZ	Intertropical Convergence Zone
IWSS	Individual alternative solution
KM	Knowledge management
LGBTQIAPN+.	Lesbian, gay, bisexual, transgender, intersex, queer/questioning, asexual
M&E	Monitoring and evaluation
PCT	Traditional People and Communities
PERH	State Water Resources Plan
PIR	Resilient Investment Plan
PROCASE	Paraíba Sustainable Rural Development Project
SECAP	Social, Environmental and Climate Change Assessment Procedures
SSTC	South-South and Triangular
STA	Specialized technical assistance
TA	Technical Assistance
VRA	vulnerability and risk assessment
WSS	Water supply system
ZIKV	Zika virus

## 1. INTRODUCTION

This Targeted Adaptation Assessment for the **Paraíba Sustainable Rural Development Project – PROCASE II (Project, henceforth)** follows IFAD requirements as indicated in its Social, Environmental and Climate Change Assessment Procedures (SECAP<sup>1</sup>). For projects that are classified as "substantial risk" in the climate screening procedure, a Targeted Adaptation Assessment is required, with the identification of adaptation measures that may be necessary in the design of the project, to ensure that it is sustainable in the long term.

### Project Sheet:

<b>Project Title</b>	Paraíba Sustainable Rural Development Project – PROCASE II
<b>Territory where the Project will take place</b>	Paraíba, covering the 223 municipalities of the state's territory, which 194 are in Caatinga biome and 29 in Atlantic Forest biome
<b>Name of the Executing Entity</b>	Secretary of State for Family Agriculture and Development of the Semi-Arid Region (SEAFDS)
<b>Date of preparation of this Assessment</b>	This document was prepared between February and June 2024.

## 2. PROJECT SUMMARY

The Government of the State of Paraíba requested a loan to financing a specific investment loan Project (LON/ESP) to promote the sustainable development of the rural area in the State of Paraíba (covering Atlantic Forest and Caatinga biomes), focusing on low production, productivity problems and climate change vulnerability (CC) of family farming activities, environmental degradation and deforestation, insufficient drinking water supply services and sanitation lacks in rural communities.

### 2.1. Project Goals

The main goal of the Project is to contribute to reducing rural poverty levels, improving food and nutrition security, and the rural population adaptation for climate change.

The main specific goals are:

- Increase the adoption of agricultural technologies, including these to adaptation and mitigation for climate change;
- Improve productive and social inclusion of family farmers, prioritizing women, youth, Traditional People and Communities (PCT) and Persons with Disabilities;
- Improve the environmental conditions of rural communities and surroundings.

### 2.2. Project Intervention Area

The Project will cover the entire state of Paraíba, involving 223 municipalities, municipalities that are part distributed in Caatinga biome (194) and part in Atlantic Forest (29) biome. The Brazilian Census of Agriculture (IBGE 2017) highlights to 163,218 a total number of agricultural lands, 76.88% of which are Family Farming (FF), from which the Project will select its beneficiary population as describe in the next paragraph.

The Project will seek to benefit approximately 60,000 families directly, establishing a preferential focus on the following profiles: women, youth, Persons with Disabilities,

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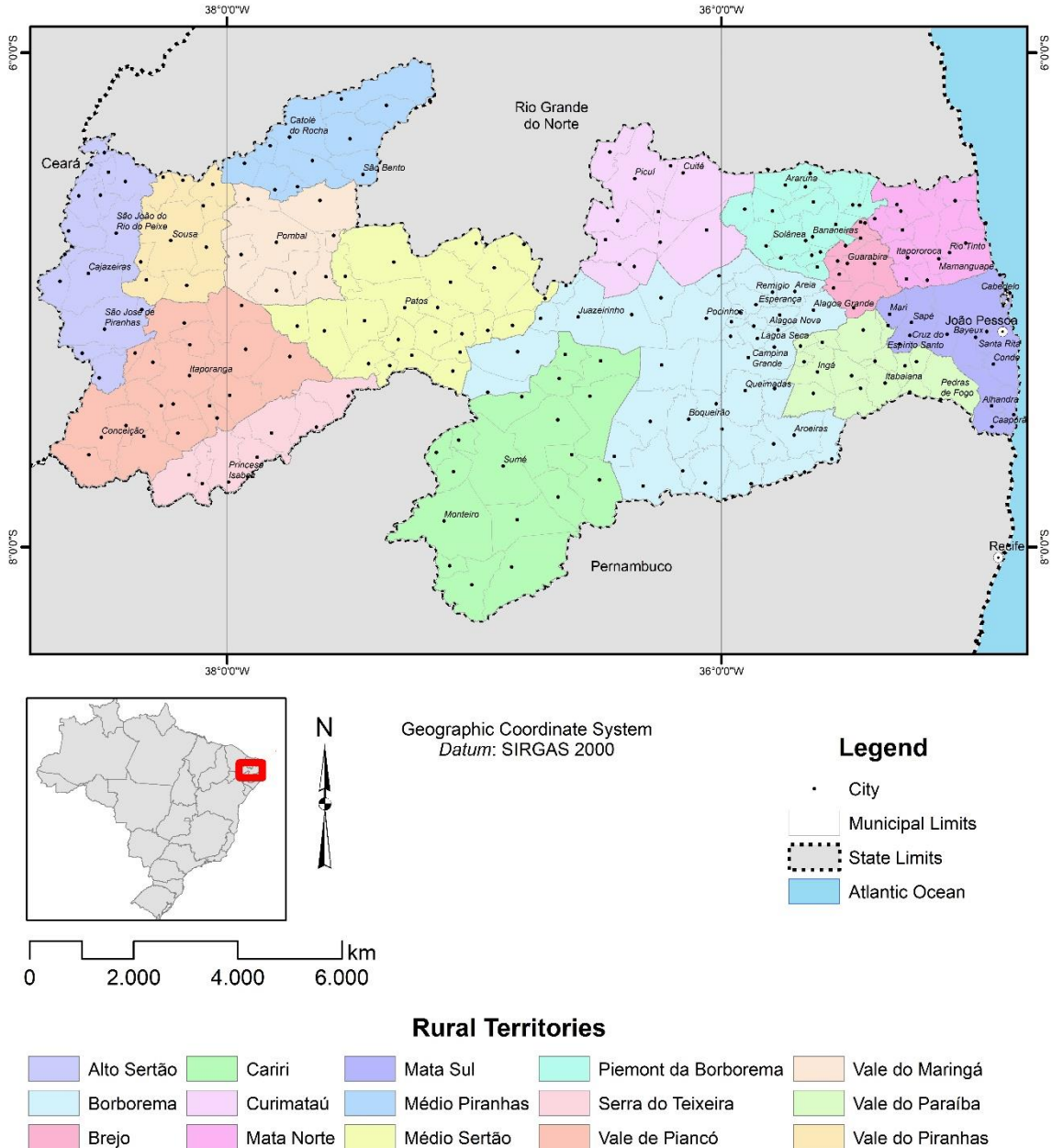
<sup>1</sup> Social Environment and Climate Assessment Procedures – IFAD (<https://www.ifad.org/en/-/social-environmental-and-climate-assessment-procedures>)



Traditional and Indigenous Peoples (including fishermen, gypsies and quilombolas). In any case, specific criteria will be defined for prioritization and selection of communities to be benefited.

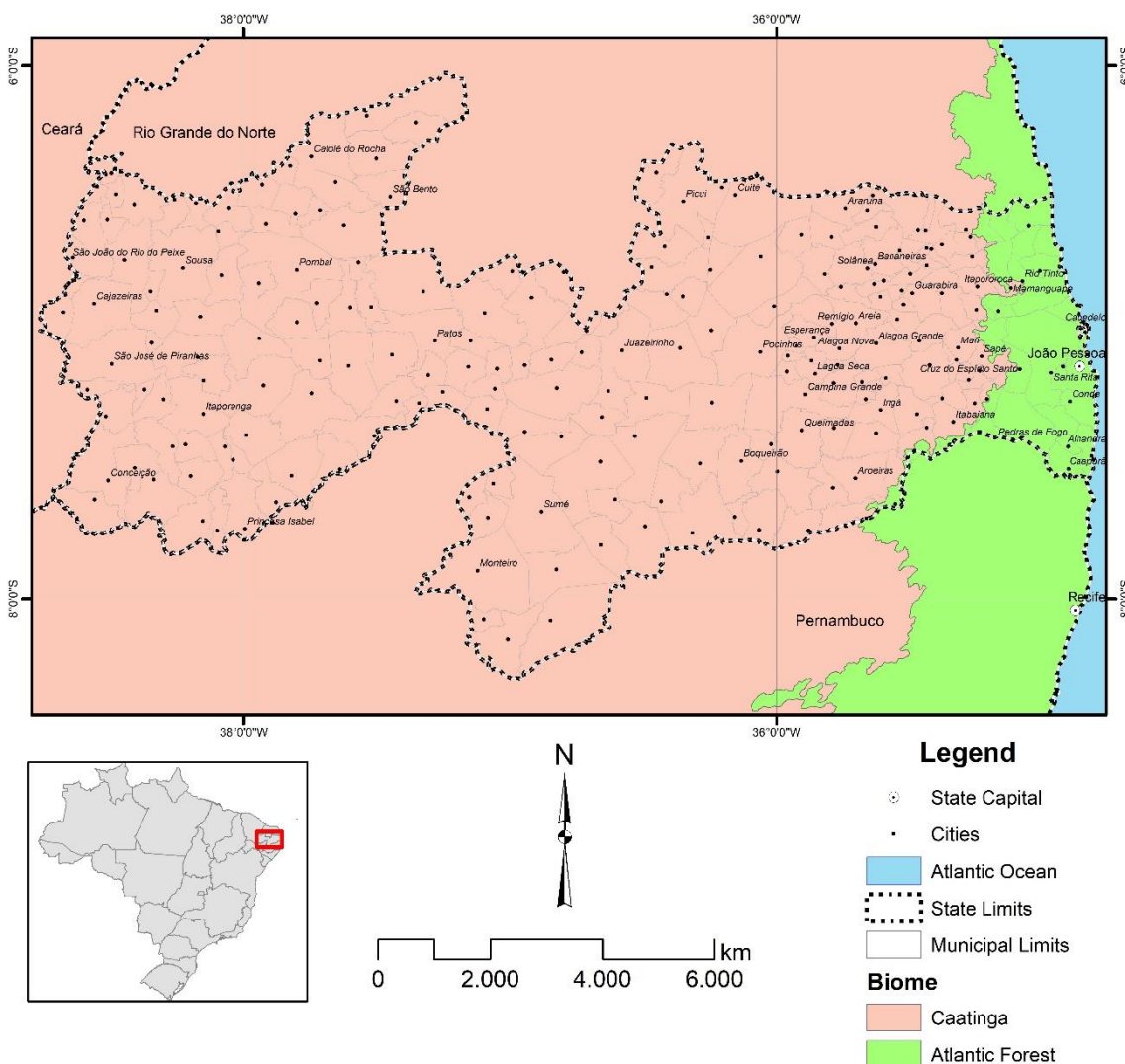
The following map shows the area of operation of PROCASE II.

**Figure 1 – Project Coverage Area**



The following map presents the area of incidence biomes on Paraíba state, highlighting the limits of Caatinga and Atlantic Florest.

**Figure 2 – Limits of biomes on Paraíba state.**



Source: IBGE, 2015; MMA, 2024

### 2.3. Project Description

The Project Components and their subcomponents are described below including key information.

#### Component 1. Resilient Production Systems to Face Rural Poverty

The objective of this component is to increase the adoption of agricultural technologies, including those for climate change adaptation and mitigation, in addition to improving the productive and social inclusion of family farmers, prioritizing women, youth, Traditional Peoples and Communities (PCT) and Persons with Disabilities.

The specific objectives of this Component 1 are:

- Transform existing systems by introducing innovative, more intensive and diversified agroecological practices;
- Seek greater resilience of production systems adapted to climate change;
- Promote the improved food and nutrition security;

- Improve the integration of producers in value chains, prioritizing women, youth, Persons with Disabilities, and Traditional Peoples and Communities (PCT);
- Invest in social technologies, ensuring more access to drinking water, reuse of water, and sustainable energy system;
- Support producer organizations (associations and cooperatives) to allow the development of production processing, providing added value and consequently the improvement of commercialization and market insertion through investments in machinery and small renovations;

Productive investments both community and cooperative level will be accompanied by Rural Technical Assistance (RTA<sup>2</sup>) and Specialized Technical Assistance (STA<sup>3</sup>) financed by Component 2, to ensure better management of business, marketing and sustainability.

Component 1 is organized into two subcomponents:

- 1.1: Implementation of Resilient Investment Plans; and;
- 1.2: Strengthening and diversification of commercialization.

## **Component 2. Strengthening of Family Farming and Organizations Capability, and Knowledge Management**

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The objective is to strengthen the individual and collective capacities of family farmers and their organizations, needed to increase the adoption of agricultural technologies that promote greater resilience of their systems, to improve the productive and social inclusion as well as the environmental and land conditions of rural communities and surroundings.

The capacities strengthened through the component will be an essential tool for the implementation of the investments and innovative practices promoted by Component 1.

For contribution to achieve of the main goals of Project, in this component will develop a set of activities with the following specific objectives:

- Strengthen the capacities of households and community organizations to implement production systems more resilient and productive, to better manage organizations, and to access public policies;
- Strengthen the capacities of rural organizations to develop their production and markets access;
- Strengthen the specific capacities of priority beneficiary public to promote empowerment of gender, youth, PCTs, Persons with Disabilities, LGBTQIAPN+.
- Promote land and environmental regularization of family farming land, agrarian reform settlements and quilombola communities.
- Implement a process of Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC) that allows for the generation, recording, sharing and use of relevant knowledge.

The following are the subcomponents involved in this C2:

- 2.1 – Capacity Development of Rural Community Organizations;
- 2.2 – Strengthening Family Farming Organizations for Market Access;

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<sup>2</sup> Rural Technical Assistance or TA– Assistência Técnica Rural in portuguese

<sup>3</sup> Specialized Technical Assistance or STA – Consultoria Técnica Especializada in portuguese

- 2.3 – Gender, Youth, Diversity, Nutrition and Food Security;
- 2.4 - Land and Environmental Regularization;
- 2.5 - Knowledge Management and South-South and Triangular Cooperation.

### **Project Management, Monitoring and Evaluation**

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This component aims to create an efficient mechanism for the management and control of the activities implemented by the Project, allowing full execution in line with the Project's intervention proposal, in addition to ensuring the implementation of the Annual Workplan and Budget (AWPB). It also aims to introduce technological innovations to ensure the monitoring and evaluation of activities, the registration and systematization of Knowledge Management, in addition to enabling transparent communication between stakeholders, including knowledge exchange actions.

To meet these objectives the component will act based on 2 subcomponents: (i) Project Management; and (ii) Monitoring and Evaluation (M&E).

### **3. INDICATION OF HAZARD, EXPOSURE, VULNERABILITY AND ADAPTABILITY**

The context of climate to the PROCASE II area is presented below, with the relevant climate variables to understand and evaluate the potential impacts on the Project's investments followed by the identification of the main hazards, exposure, vulnerability and adaptive capacity.

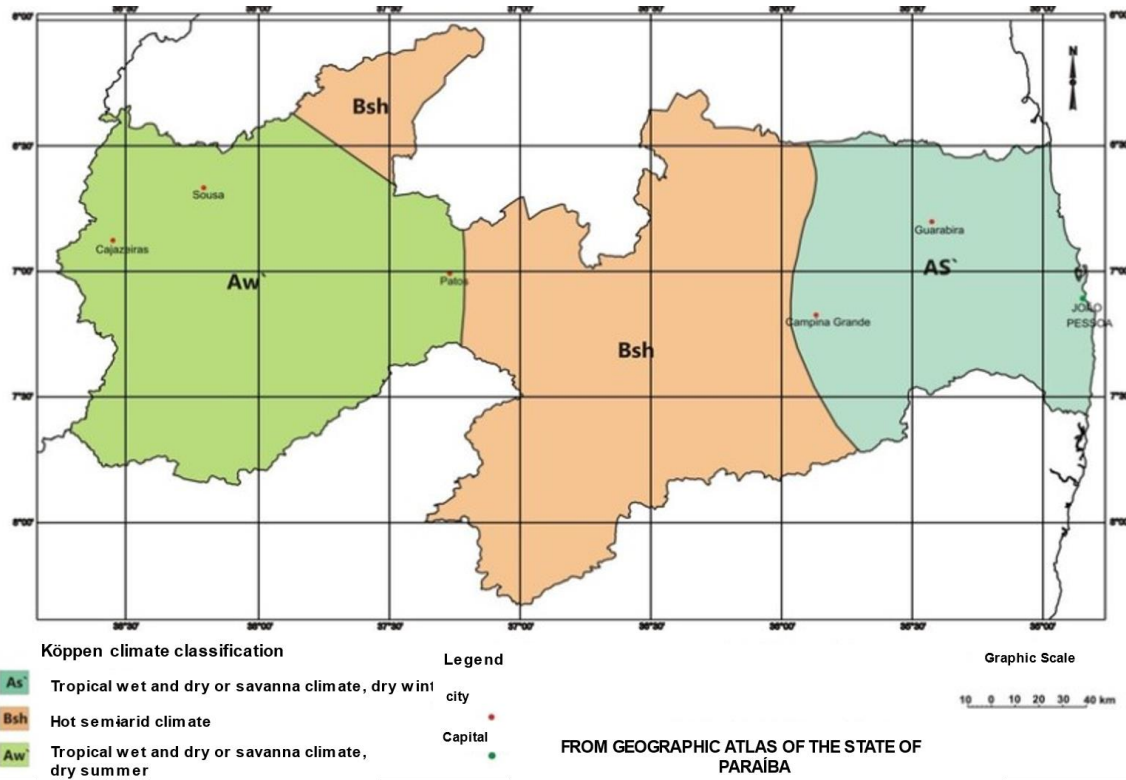
#### **3.1. Current Weather**

The climate classification expresses the average conditions of the Earth's atmosphere. These conditions, despite daily, monthly and seasonal experience variations are represented by climatic bands that remain reasonably uniform, within an average pattern of oscillation.

According to Köppen climate classification, the climate in the region of Paraíba State is shown below, encompassing the climates of type A (tropical climate) and B (dry climate). Within these two groups we can identify three subgroups in State of Paraíba:

- Hot and humid tropical climate, with a dry season in winter (As'), occurring in the eastern sector of Paraíba State. It is characterized by the absence of summer rainfall and its occurrence in the winter (regarding rainy season rather than winter period specifically), with rainfall rates around 1,600 mm per year.
- Hot semi-arid climate with summer rains (Bsh), present in the Borborema Plateau; it is characterized by scarcity of rainfall and irregularity distribution; low cloudiness; severe heat stroke; high evaporation rates; and high average temperatures (around 27°C). The relative humidity is usually low, and the low rainfall - from 250 mm to 750 mm per year - is concentrated in a short period of year, causing torrential floods. Even during the rainy season (November to April), the distribution of precipitation is irregular, may cease to occur for some years and causing droughts. The characteristic vegetation of this type of climate is xerophitic(Caatinga).
- Tropical, hot and semi-humid climate evolving summer and autumn rains (Aw'), occurring in the Sertaneja (Countryside) Depression, with dry winter. It has a rainy season in the summer, from November to April, and a dry season in the winter, from May to October (July is the driest month). The average temperature of the coldest month is over 18°C. Rainfall exceeds 750 mm per year, may reaching 1800 mm.

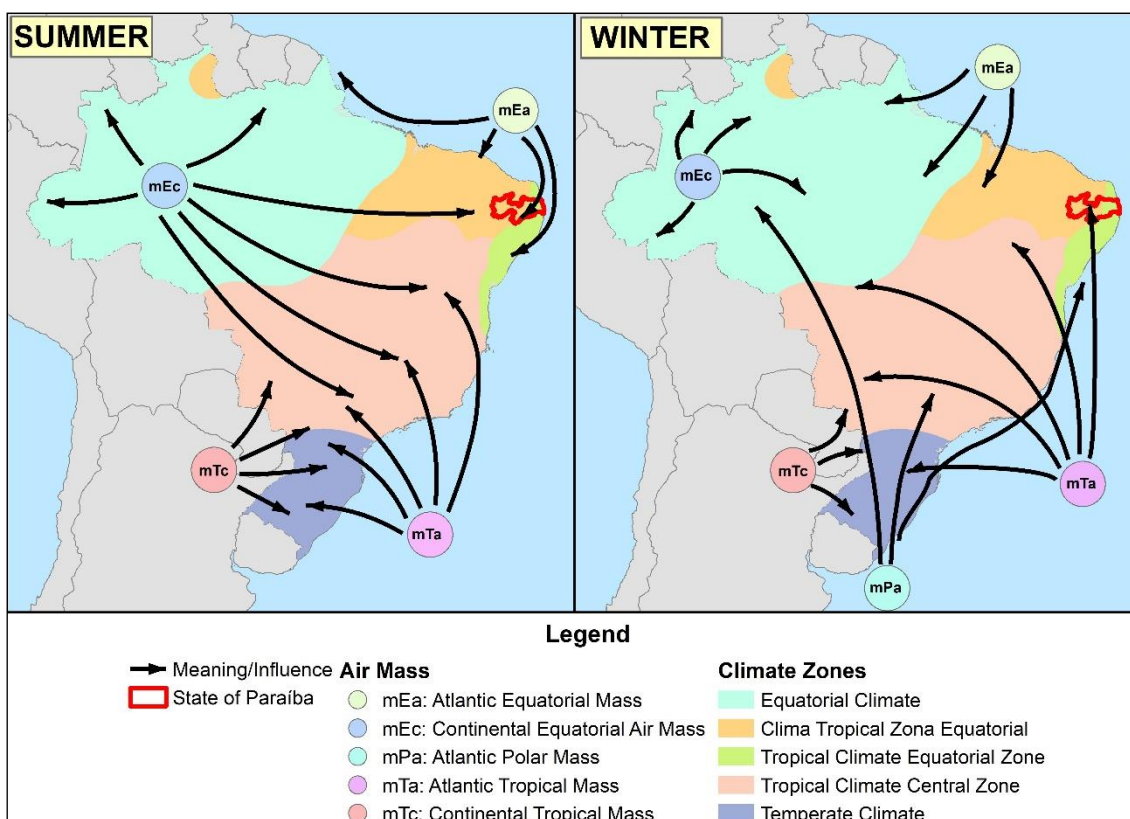
**Figure 3 – Paraíba Climate Classification – Köppen**



Source: Francisco, 2010 adapted from IBGE, 1985.

According to Nimer (1989), the main air masses that influence Brazil territory is shown in the following figure. It can see that Paraíba State is directly influenced by mEa/mEc during the summer and by the mTa/mPa during the winter.

Figure 4 – Brazil’s Main Air Masses over Climate Zones



Source: adapted from IBGE, 2017 and Nimer, 1989.

During the summer, the Continental Equatorial Air Mass (mEc) exerts influence on a large part of the Brazilian territory. In case of Paraíba, the mEc acts together with the mEa, increasing the rainfall during the summer keeping the temperature high.

However, the mEc is quite restricted during the winter and basically, it does not influence the region of Project. The mEa continues but loses moisture in the more coastal strips quickly – leaving the countryside drier. During this period, the influence of Atlantic Polar Mass (mPa) arises which brings down local temperatures in the coastal strip.

Paraíba is under the southeast trade winds, ensuring a stable weather that is interrupted by the arrival of disturbed marine currents: from the south, the cold fronts; from the North, the Intertropical Convergence Zone; from the East, disturbances from the Easterly Waves; and from the West, the lines of Intertropical and Tropical Instabilities (Nimer, 1989).

Climatologically, the main rainfall systems over the State of Paraíba are the Intertropical Convergence Zone and the Upper Air Cyclonic Vortices, which induce representative rainfall over the region and are responsible for approximately 80% of the total precipitation. In a second rainy season, there is the action of Eastern Wave Disturbances that favor the occurrence of more representative rains over the entire eastern sector of the State, especially in the coastal strip. This system contributes about 70% of the total precipitation over the region and configures a good part of the period (AESAs, 2009).

The State of Paraíba has lots of meteorological variations in measured parameters, both temporal and spatial distribution. Thus, orographic accidents may have an important participation in climate variation, and it is common to see humid mountains in the middle of the semi-arid area, with variations above 100% among situations. In relation to temporality, years are shown totally deviated from the historical pattern. These values are so anomalous that it can exceed 100% of the normal rate (EFSA, 2009).

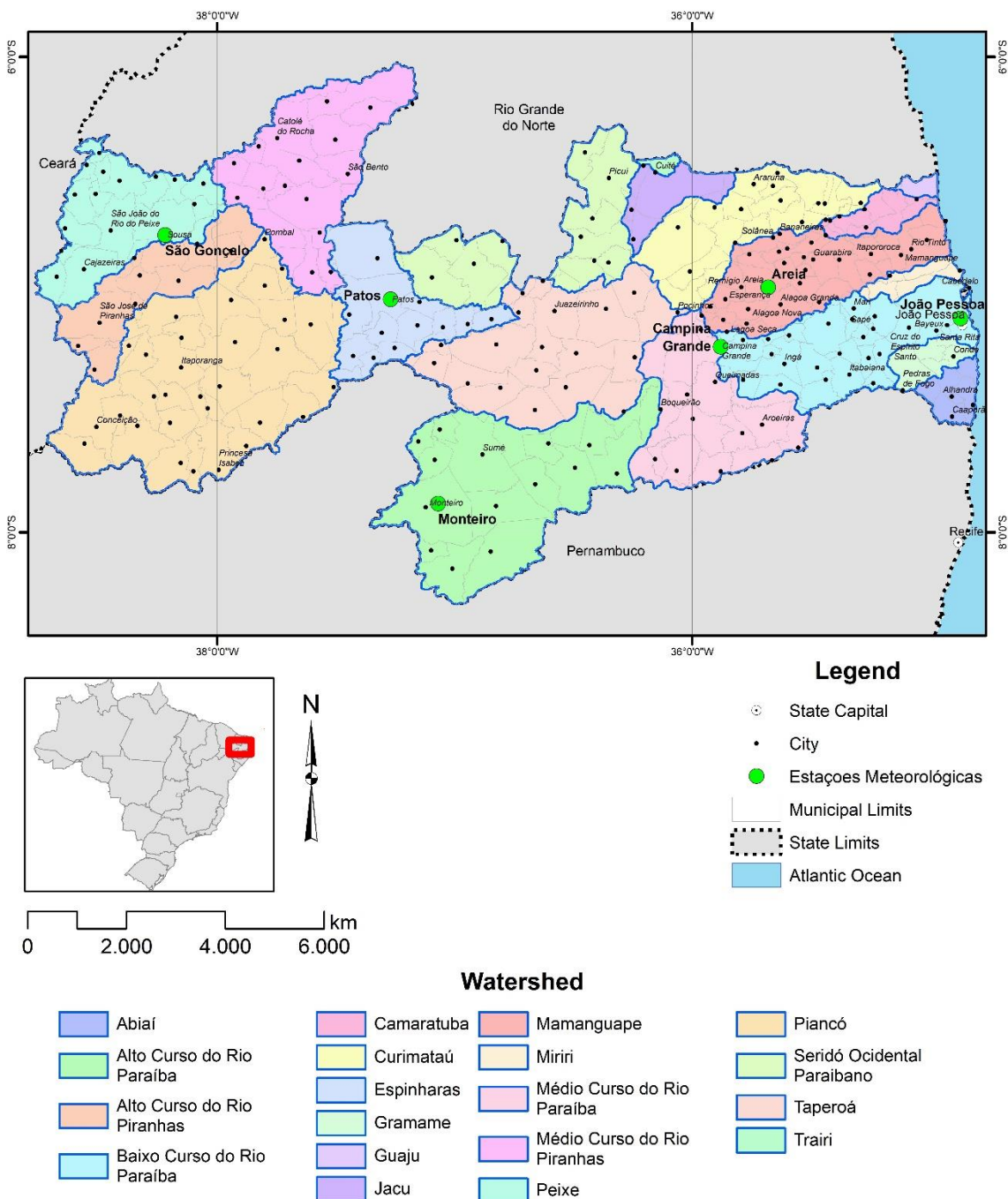
According the EFSA (2022) data to the adequate precipitation graphic for Paraíba State, based on Climatological Normal (INMET, 2018), 06 normal climatological stations were selected (see table below) distributed in the territory of the 20 hydrographic sub-basins (or 12 basins) for State of Paraíba (see figure below). The importance of these stations is their strategic distribution in main state regions (Litoral, Agreste, Brejo, Cariri and Sertão) and a series of large-period data, one of them in Mamanguape River Basin, three in the Paraíba River Basin and two in the Piranhas River Basin.

**Table 1 – Meteorological Stations considered in the State of Paraíba.**

State	Basin	Station	Code	Latitude	Longitude	Altitude (m)	Start of Operation
PB	Mamanguape	Areia	82696	-6,97	-35,68	574,62	01/01/1929
	Paraiba	Campina Grande	82795	-7,22	-35,88	547,56	01/01/1911
	Paraiba	Joao Pessoa	82798	-7,10	-34,87	7,43	01/01/1912
	Paraiba	Martin	82792	-7,88	-37,07	603,66	14/01/1940
	Piranhas	Patos	82791	-7,02	-37,27	249,09	17/10/1975
	Piranhas	Sao Gonçalo	82689	-6,75	-38,22	233,06	08/10/1938

Source: INMET, 2018 apud AESA, 2022

**Figure 5 – Location of Paraíba Meteorological Stations**

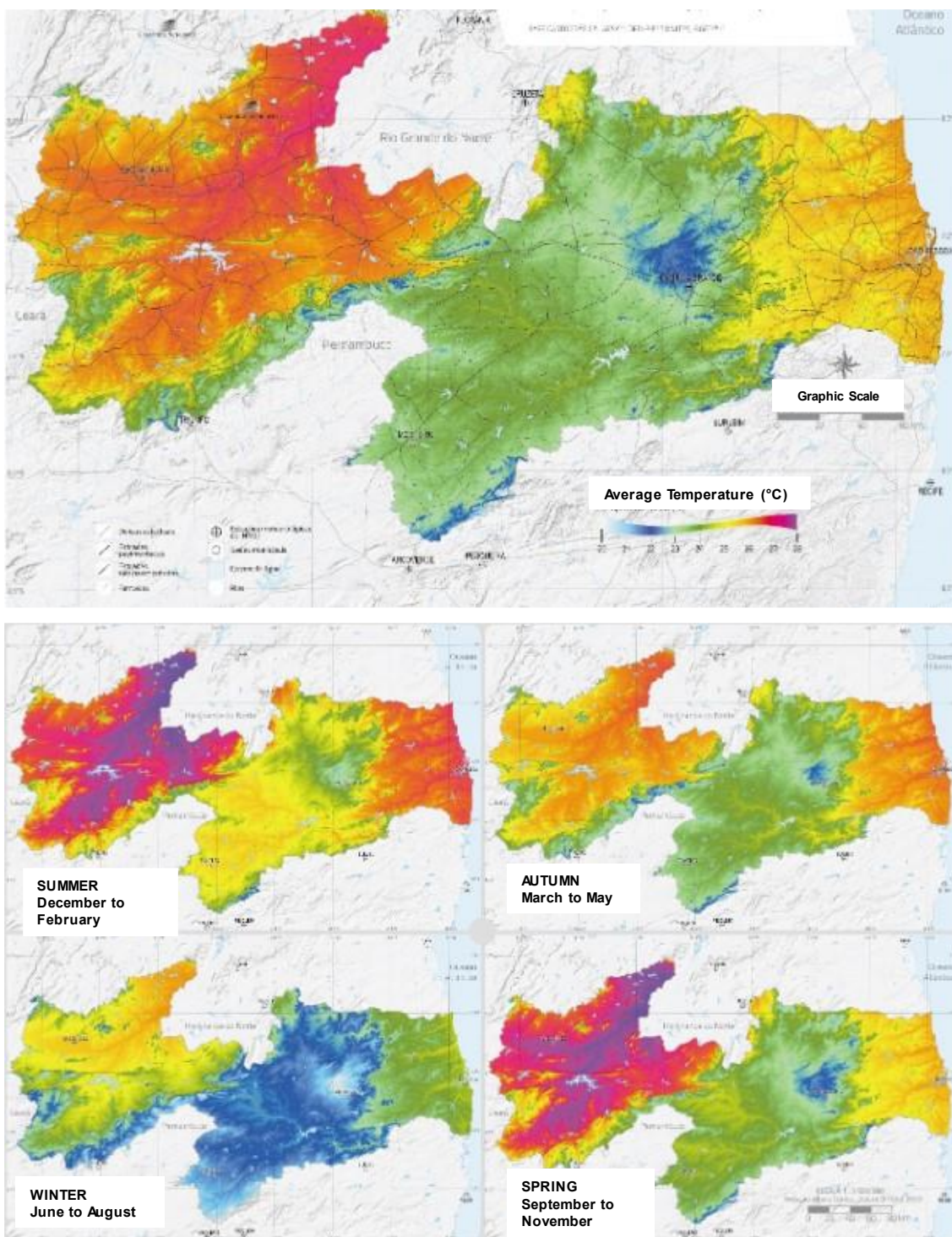


Source: INMET, 2018 apud AESA, 2022

Seasonality has low effect on the annual temperature range in the State of Paraíba, ranging from 20 °C in the central region during the winter to 27 °C in the coastal region during the summer. The region from Borborema lowlands until to the coast area has an annual average of 24°C to 26°C, with 4°C seasonal variability, while the region at the top of the plateau has 2°C variability. The west of the state has a greater amplitude, influenced by the irregularity of the masses that come from Amazon, ranging from 23°C in winter to 28°C in summer (figure below).



**Figure 6 – Annual Average and Seasonal Temperature in the State of Paraíba**



Source: *Wind Atlas of the State of Paraíba, 2017. (Climatological data from 1961 to 1990, INMET)*

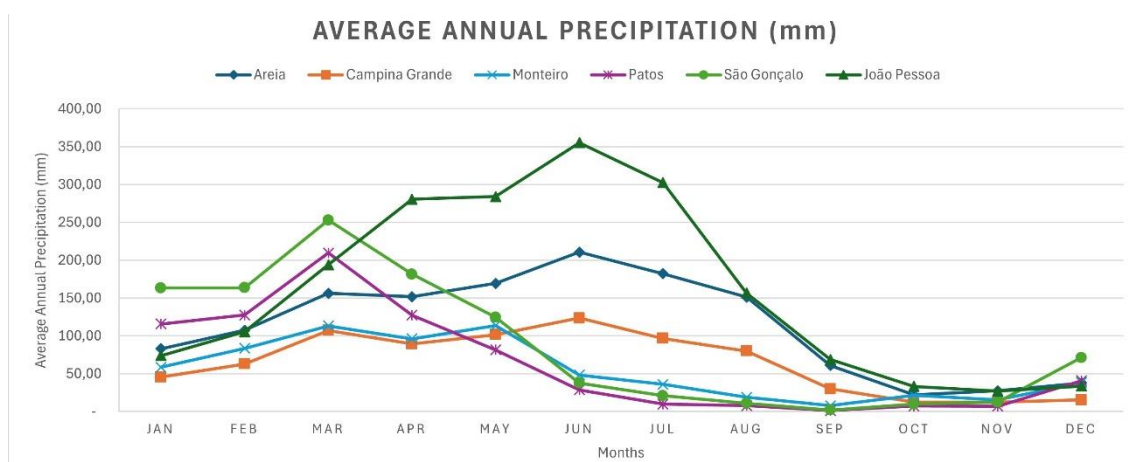
Rainfall in the State of Paraíba varies between 1.3 mm in September, at Patos station, to 355.2 mm in June at João Pessoa station (see Table below). Considering the annual scale, the rainfall in the State of Paraíba is around 1,086.1 mm, whereupon Monteiro station registered the lowest annual rainfall score, and João Pessoa station registered the highest score. The tempore variation of rainfall in each climatological season can be seen in the following figure.

**Table 2 – Rainfall in the Meteorological Stations considered in State of Paraíba (mm).**

Station	Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Set	Out	Nov	Dez	Year
Sand	83,0	107,4	156,3	151,7	169,2	210,7	182,2	151,2	60,9	21,8	27,5	37,8	1.359,7
Campina Grande	45,6	62,8	107,1	89,3	101,7	123,6	96,7	80,1	30,0	12,5	12,3	15,3	777,0
Joao Pessoa	73,9	105,4	193,9	280,4	284,0	355,2	302,4	156,4	68,6	33,1	27,0	33,7	1.914,0
Martin	58,7	83,5	113,3	96,0	113,8	48,2	36,0	18,8	7,8	21,6	15,6	38,2	651,5
Pathos	115,7	127,5	209,5	127,4	81,6	28,7	9,8	7,8	1,3	7,2	7,1	40,8	764,4
Sao Gonçalo	163,2	163,5	252,9	181,4	124,4	37,8	21,0	10,7	2,0	9,9	12,2	71,2	1.050,2

Source: INMET, 2018 apud AESA, 2022

**Figure 7 – Rainfall recorded in the Meteorological Stations considered in State of Paraíba (Average Annual Precipitation in mm).**



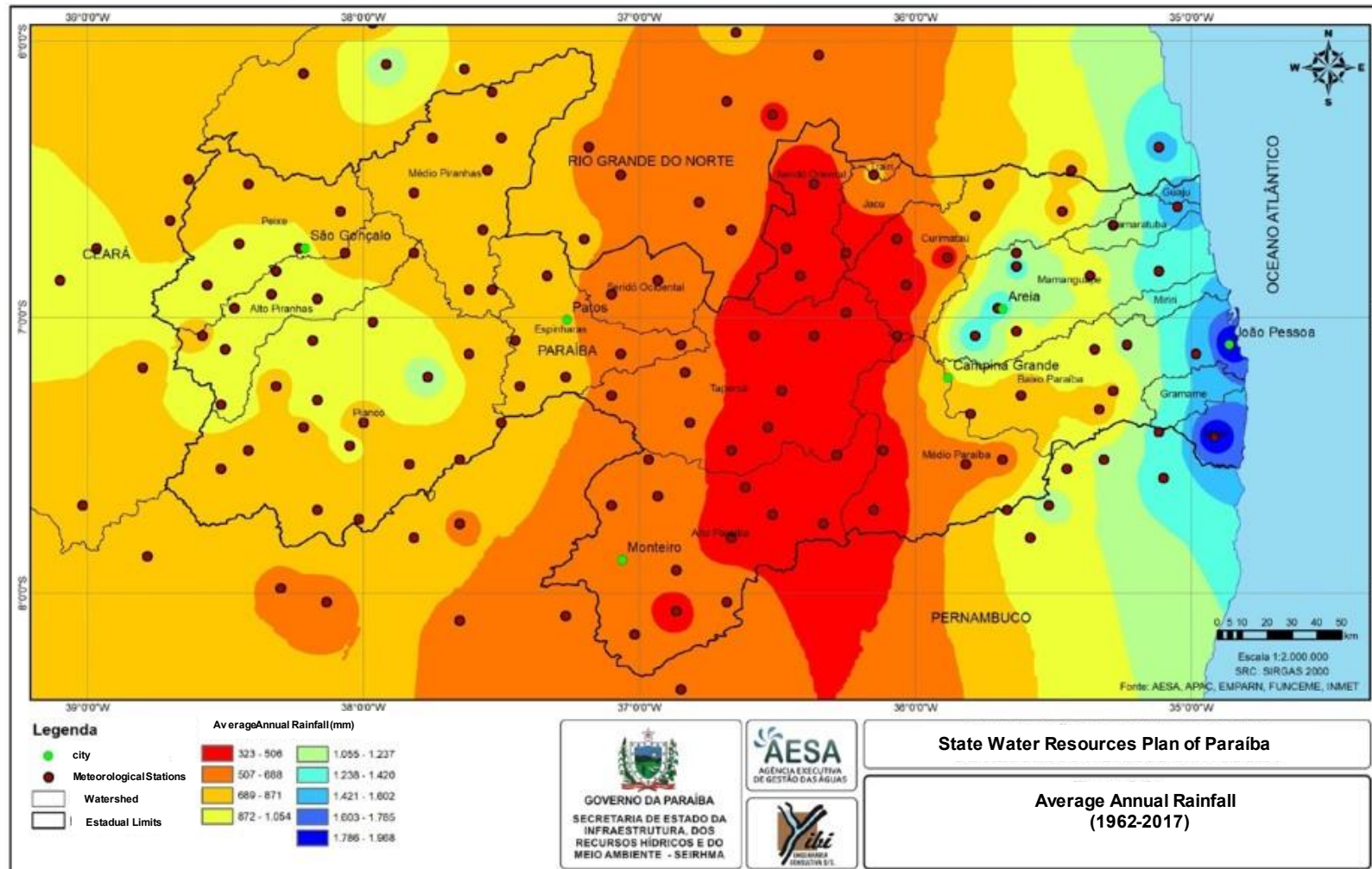
Source: INMET, 2018 apud AESA, 2022

Based on State Water Resources Plan of Paraíba - PERH-PB (AESA, 2022), and for a detailed spatial representation of precipitation in the state of Paraíba, a database with daily rainfall data monitored was organized, which a total of 137 monitoring precipitation stations.

Corrected and homogenized precipitation data from the 137 previously selected rainfall stations in a total period of 56 years (1962-2017) were used to trace the isoietes of the average annual precipitation. From each daily rainfall data accumulated by each year, the annual average rainfall was then determined, and, using the inverse distance squared method, and the annual precipitation data were interpolated as shown in the figure below.

Francisco and Santos (2017) identify two rainfall regimes that characterize the State of Paraíba: the first one occurring from February to May, on Alto Sertão, Sertão and Cariri/Curimataú regions; and the second occurring from April to July, on Agreste, Brejo and Litoral regions. The systems responsible for rainfall regimes are Intertropical Convergence Zone (ITCZ), Cold Fronts, East Disturbances or East Waves and High-Level Cyclonic Vortices (HLCV). There is an increase in rainfall in the west/east direction throughout the year. The central portion of the state has the lowest rainfall values, ranging between 300mm and 700mm per year. On the other hand, the coastal region of state is the sector that rates rainfall is highest, reaching values around 1950mm.

Figure 8 – Average Annual Rainfall (1962-2017)



Source: EFSA, 2022 (<http://www.aesa.pb.gov.br/aesa-website/wp-content/uploads/2022/10/RF-02-A-DIAGN%C3%93STICOS-vol-1.pdf>)

### 3.2. Future Climate

This item was prepared based on data from the *World Bank's* Climate Change Knowledge Portal<sup>4</sup>, and the climate projection data were modeled from the compilations of global climate models of CMIP6 (*Coupled Model Intercomparison Project Phase 6*), overseen by the World Climate Research Program. The CMIPs form the basis of IPCC Assessment Reports. There was also used information from the World Bank's Climate Risk Country Profile: Brazil report (2021), which is based on CMIP5.

According to a report by the World Bank (2021), Brazil's average annual temperatures are expected to increase between 1.7°C and 5.3°C until the end of the century. The most significant increases are expected to occur in the months of January and July. The study indicates that greater warming is expected in the western region of the country up to the eastern coast. Central regions are expected to experience the most significant temperature increases. The interior of the country is predicted to warm at a faster rate than the coastal areas, however, rising sea surface temperatures may have a negative impact on the normally cooled ocean airflow in coastal regions. The frequency and duration of heat waves in Amazon are expected to increase on 214 additional days until 2090.

Precipitation is very variable throughout Brazil, as well as the projections seasonal and geographic level. However, by the end of the century, annual rainfall is expected to increase in the northern, central-western and southern areas in Brazil. Decreases are expected for the northeastern, central and southwestern areas of the country. The dry season in Amazon is likely to get longer as precipitation values decrease, notably for the traditional dry season (August to November).

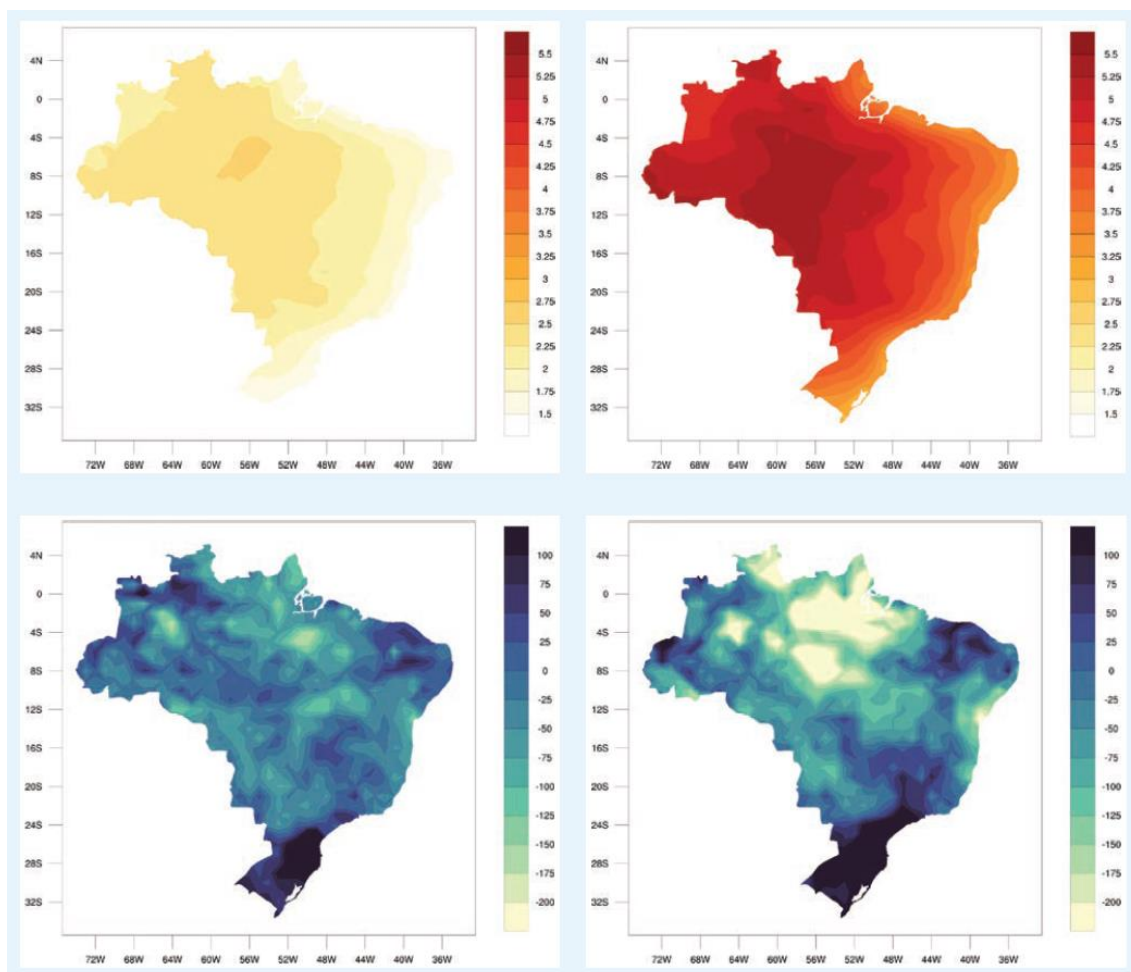
ENSO events<sup>5</sup> bring heavier and more frequent precipitation events, with greater probability to longer drier periods among them. The humid tropical region of the country is also projected to experience a significant increase in dry spells. The Figure below shows the variation in the average annual rainfall projected to Brazil. Solutions for water resources management can be very varied, depending on whether periods of precipitation occur frequently or not. On a national scale, it is expected that average annual rainfall remains similar to historical observations, but based on emissions scenarios, vary slightly over the century (World Bank, 2024 – consultation).

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<sup>4</sup> <https://climateknowledgeportal.worldbank.org/country/brazil/climate-data-projections>

<sup>5</sup> refers to situations in which the equatorial Pacific Ocean is warmer (El Niño) or colder (La Niña) than the historical normal average.

**Figure 9 – Changes projected by the multi-model set (CMIP5) (32 GCMs) in annual temperature (top) and precipitation (bottom) during 2040–2059 (left) and during 2080–2099 (right), regarding 1986–2005 baseline at RCP8 0.527**



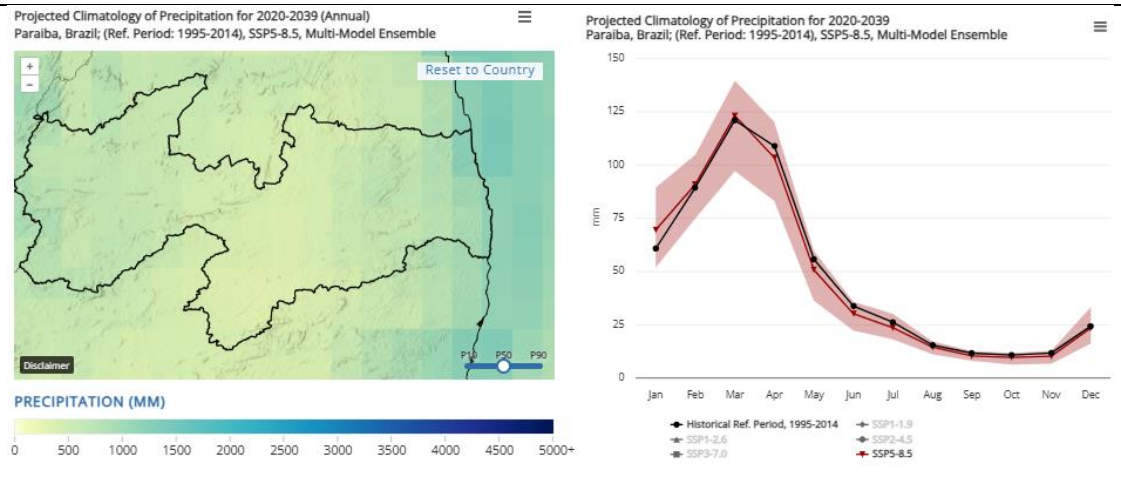
Source: World Bank's Climate Change Knowledge Portal (consultation in 2024) – Brazil

Focusing on state of Paraíba, as shown in the figure below, in the SSP5-8.5 scenario<sup>6</sup> for 2020-2039 period, large differences are not identified in the general averages of precipitation, and there is an indication that the period between January and February will have higher volumes than the historical series. However, between September and November there will be lower volumes of rainfall. This situation is marked in the period of 2060-2079 with more expressive volumes at the beginning of the year and a reduction in volumes in the last year quarter (which is usually wet).

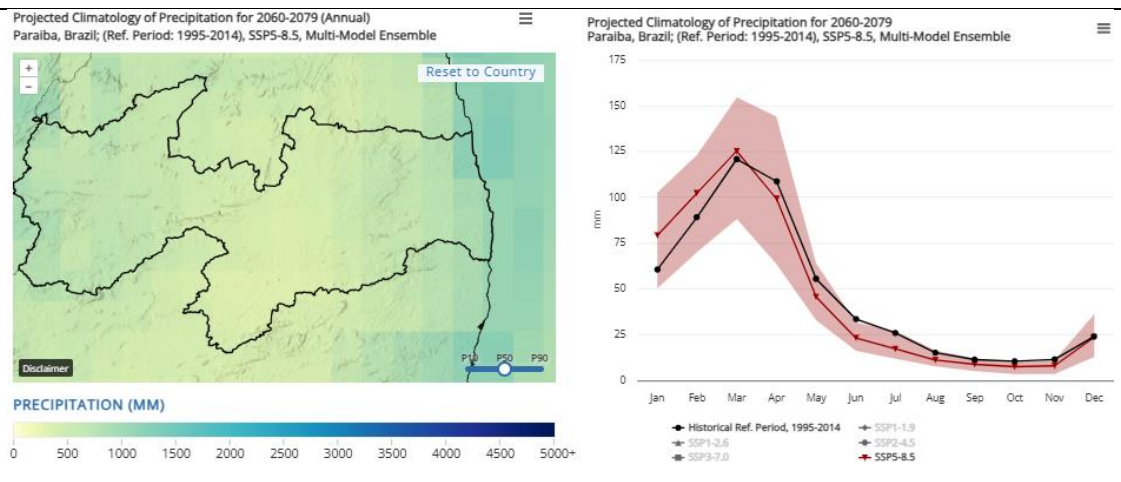
It is also important to observe the Projected Precipitation Anomaly graph where the highest volumes of rainfall in January and February (+30mm) are evident, and a reduction between October and November (-10 to -20mm).

<sup>6</sup> SSP5-8.5 is a high reference scenario with no additional climate policy. Emission levels as high as SSP5-8.5 are not obtained by Integrated Assessment Models (IAMs) under any of the SSPs other than the fossil fueled SSP5 socioeconomic development pathway.

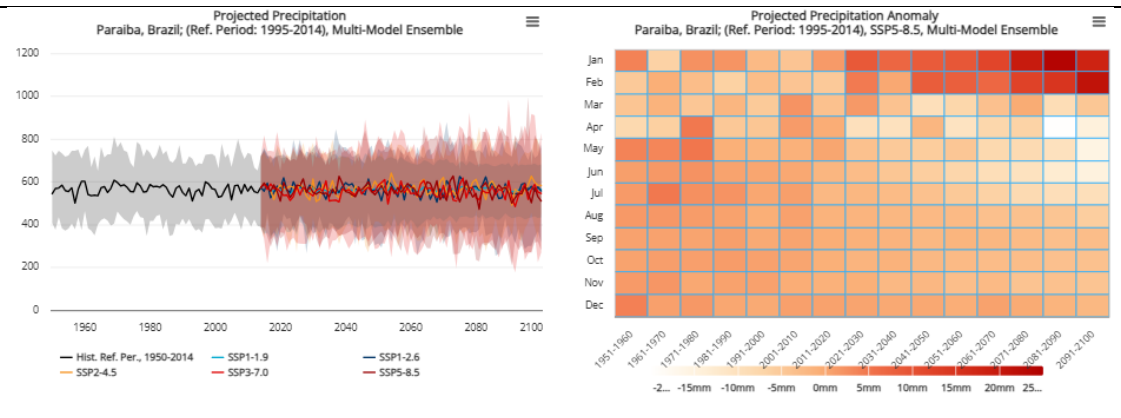
**Figure 10 – Precipitation –SSP5-8.5 – 2020-2039 Scenario**



**Figure 11 – Precipitation –SSP5-8.5 – 2060-2079 Scenario**

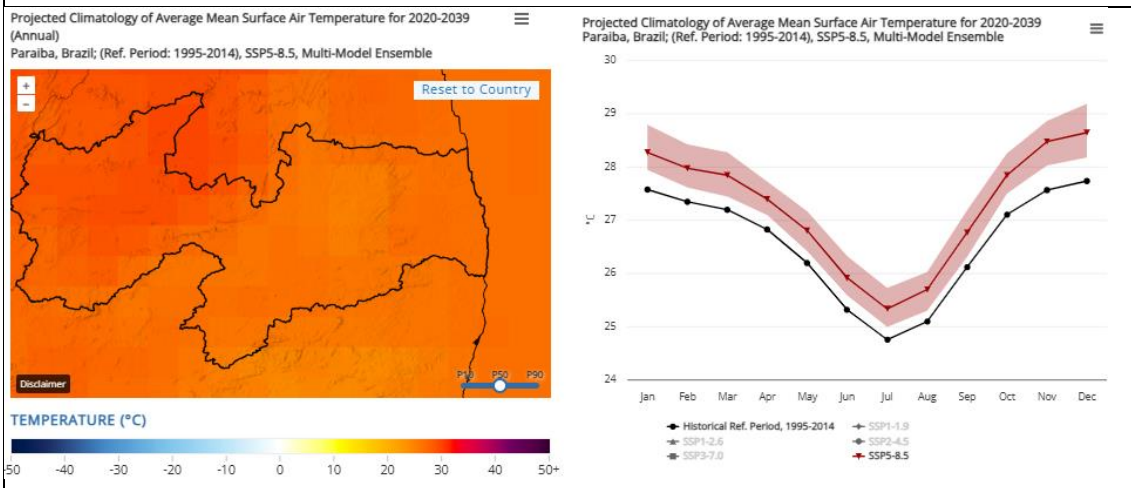


**Figure 12 – Precipitation – SSP5-8.5– 1960-2020-2039 Scenario and Anomalies**

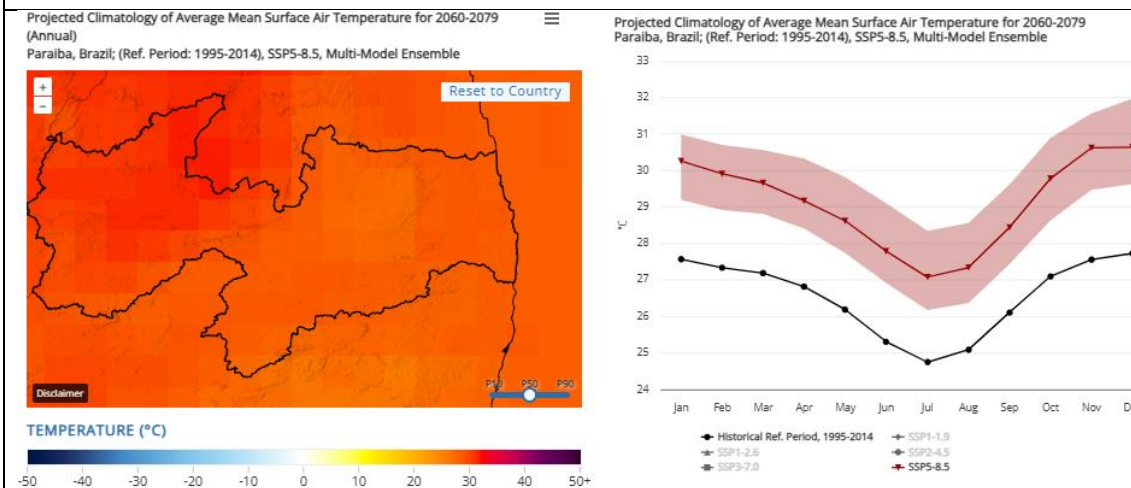


According to the figure below, there should be temperature increases in the order of 1 to 1.5 degrees in the period of 2020-2039, while in the period of 2060-2079 the increases are among 3 and 4.5 degrees, with greater anomalies precisely in October and November (note above that this period presents a reduction in rainfall volumes).

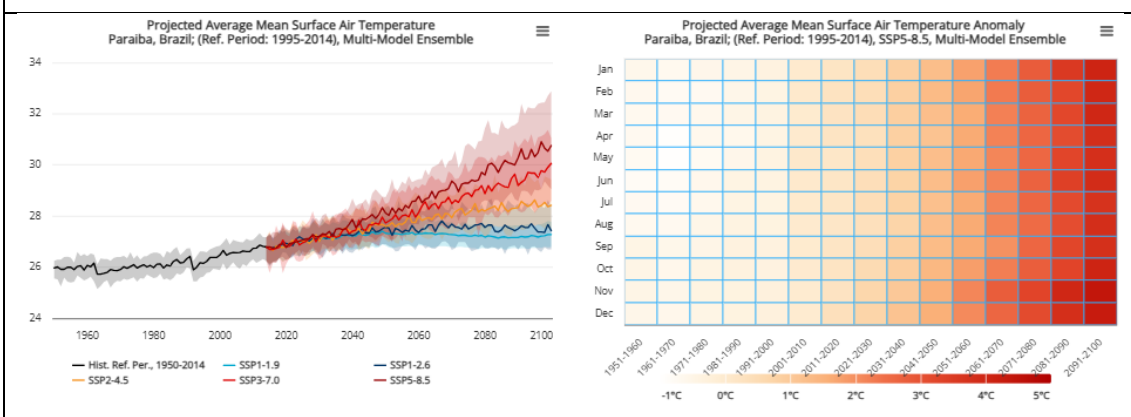
**Figure 13 – Average Surface Air Temperature – SSP5-8.5– 2020-2039 Scenario**



**Figure 14 – Mean Surface Air Temperature –SSP5-8.5– 2060-2079 Scenario**



**Figure 15 – Mean Surface Air Temperature – SSP5-8.5– 1960-2020-2039 Scenario and Anomalies**



Source: World Bank, consultation in 2024 in <https://climateknowledgeportal.worldbank.org/country/brazil/climate-data-projections>

### 3.3. Impact and Vulnerability Assessment

The Brazilian territory is quite diverse, with a variety of natural hazards that affect different parts of this territory and its population. In general, the main natural hazards are floods, droughts, extreme temperatures, landslides, tropical cyclones and infectious

diseases. Its location in the tropics, with high temperatures and high evaporation potential, facilitates large amounts of rainfall.

*Drought and excessive rainfall resulting in recurrent floods and landslides are the most frequent and disruptive risk events with important impacts on urban areas. Floods, landslides, and droughts have occurred regularly over the past century accompanied by significant mortality and social losses. Floods comprise more than 65% of natural hazards and heavy rainfall events which triggered flash floods and landslides accounted for 74% of disaster-related deaths in the period of 1991-2010 (World Bank, 2020)*

Climate change is expected to increase the risk and intensity of water scarcity and drought across the country, with the main exception of the increase in precipitation experienced in the extreme south-central area of Brazil, from the south of São Paulo. The main sectors affected are water, agriculture and livestock, forestry, and infrastructure.

According to the World Bank report (2020), by the end of the century, annual rainfall is expected to increase in the northern, central-western and southern areas in Brazil. Declines are expected for the Northeast, Center and Southwest regions of the country. Probably, the dry season in Amazon will get longer as precipitation values decrease, notably for the traditional dry season (August to November). ENSO events bring heavier and more frequent precipitation events, with a higher likelihood of longer drier periods among them.

As heavy precipitation events become more common, they will increase risks of flooding, both fluvial and sudden. Such floods have the potential to leach and/or erode soils and damage crops due to excess water, harming production and increasing food insecurity, particularly in subsistence farmers. On the other hand, such intense precipitation events are expected to occur in short periods, prevailing large periods of drought. In fact, the Northeast region of Brazil has experienced some of the worst droughts in history, affecting more than 4 million people and 1,400 municipalities<sup>7</sup>. In the case of Paraíba, there is a chance of up to 20% of droughts occurring in the next 10 years<sup>8</sup>.

Extreme temperatures, harmful to people's lives and agricultural activities, have increased the loss of soil moisture, leading to greater aridity, affecting livestock and crops, promoting economic losses, damage to agricultural land and infrastructure, as well as human communities. According to Thinkhazard (2020), almost all of Paraíba has a medium danger level for extreme heat, meaning that there is already a more than 25% chance that at least one period of prolonged exposure to extreme heat will occur in the next 5 years. It is important to consider that situations of extreme heat and water scarcity have the potential to increase situations involving forest fires, which can affect crops and water resources protection areas (riparian forests, gallery forests).

The following figure presents a sequence of danger levels for Paraíba in terms of floods, water scarcity, extreme heat and forest fires.

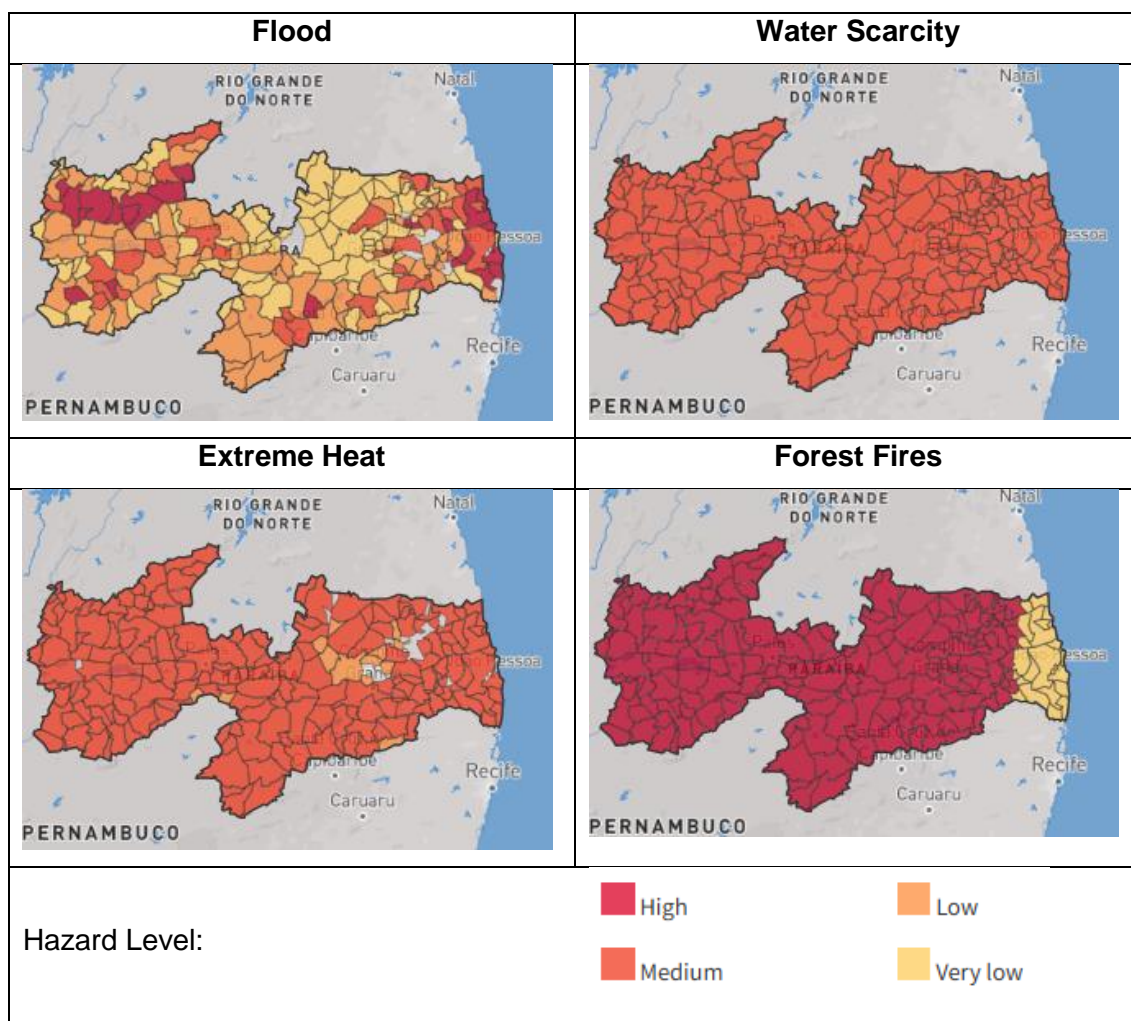
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<sup>7</sup> Brazil (2020). Fourth National Communication of Brazil to the UNFCCC. Email: <https://unfccc.int/sites/default/files/resource/4a%20Comunicação%20Nacional.pdf>

<sup>8</sup> ThinkHazard! (2020). Brazil, State of Paraíba — Water scarcity. Address: <https://thinkhazard.org/en/report/679-brazil-paraiba/DG>



**Figure 16 – Identified hazards – Paraíba**

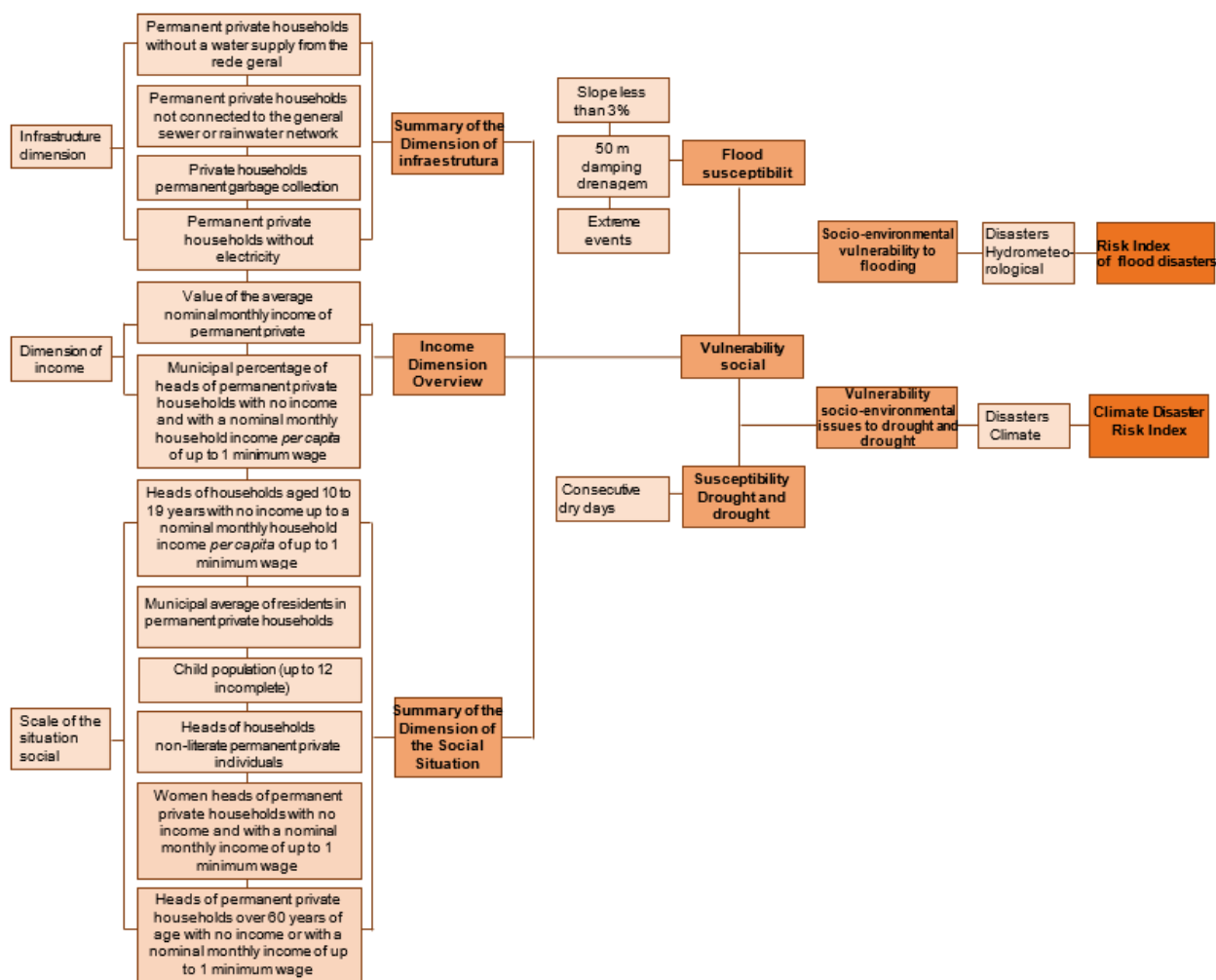


Source: ThinkHazard! (2020), consulted in 2024 in <https://thinkhazard.org>

It is important to note that smallholders are more sensitive to the impacts of disasters (floods, dry periods, forest fires) because they have limited resources to influence and increase their responses to these risks. In addition, land degradation and soil erosion exacerbated by recurrent floods and droughts affect negatively agricultural production and thus the livelihoods of the most vulnerable rural communities.

It is important to consider the **Atlas: Environmental Risks, Vulnerabilities and Disasters of State of Paraíba** (Cunico *et al.*, 2023) that provides an important insight into the risks and vulnerabilities of municipalities in Paraíba. This study consisted of elaboration of mapping of the Disaster Risk Indices (IRDs) for Paraíba state considering two scenarios of environmental and climatic susceptibility: areas susceptible to flooding and areas susceptible to climatic disasters (drought/drought). The methodological path presented in the following figure was carried out.

**Figure 17 – Methodological Path - Atlas: Environmental Risks, Vulnerabilities and Disasters of Paraíba State**



Source: Cunico et al., 2023

It is interesting to highlight that the Disaster Risk Indices for both drought and floods were designed with emergencies and public calamity states declared by municipalities between 2003 and 2016, which gives greater robustness results. These data must be correlated to social vulnerability, which presents an important indicator about communities' capacity to cope disasters that eventually can devastate the territory.

Social Vulnerability is the result of combination dimensions of infrastructures, incomes and social situations that corroborate the identification of areas with higher or lower capacities to cope with adverse situations, including environmental disasters.

The following table presents the indicators used to define social vulnerability, considering susceptibility to flood and drought disasters.

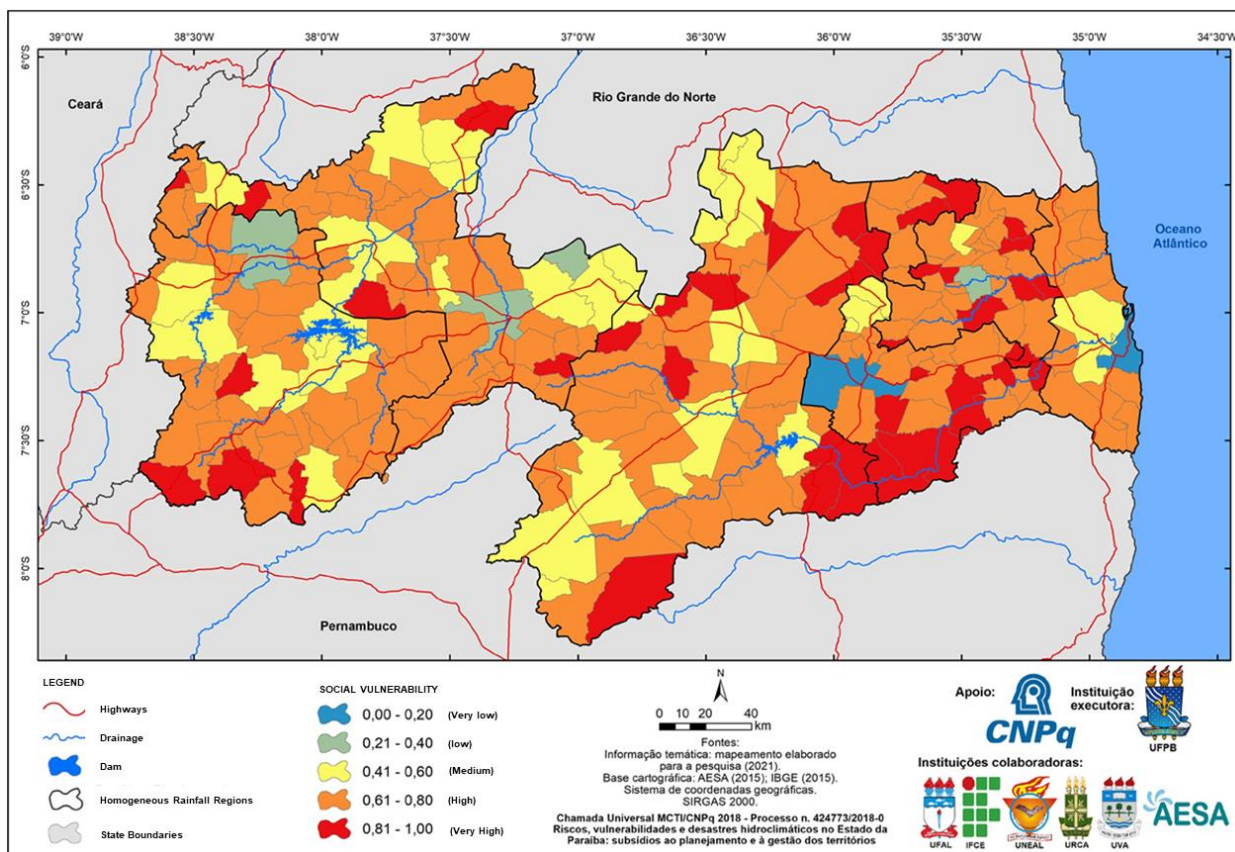
**Table 3 - Indicators used to define social vulnerability – susceptibility disasters to flood and drought**

Dimension	Indicator Description
Infrastructure	Percentage of inadequate permanent private households –no street lighting.
	Percentage of inadequate permanent private households –no manhole.
	Percentage of inadequate permanent private households –no afforestation.
	Percentage of inadequate permanent private households –open sewage.
	Percentage of inadequate permanent private households –garbage accumulated in the backyards.
Income	Value of the average monthly nominal income of persons heads of permanent private households.
	Percentage of responsible persons with a nominal monthly income of up to 1 minimum wage.
	Percentage of responsible persons with no nominal monthly income.
Social situation	Percentage of the child population (up to 12 years old).
	Percentage of heads of permanent private households aged 10 to 19 years old.
	Percentage of the elderly population (over 60 years old).
	Percentage of heads of permanent private households over 60 years old.
	Percentage of heads of permanent private households who are illiterate.
	Percentage of responsible persons with a nominal monthly income up to 1 minimum wage, female.
	Percentage of responsible persons with no nominal monthly income, female.
	Percentage of residents in permanent private households without water supply from public supply network.
	Percentage of residents in permanent private households without bathroom or toilet for exclusive use of residents.
	Percentage of residents in permanent private households with no garbage collected.
	Percentage of residents in permanent private households with garbage thrown into rivers, lakes, or seas.
Percentage of residents in permanent private households without electricity.	

Source: Cunico et al., 2023

The following figure shows the maps resulting from the Social Vulnerability of the Paraíba municipalities. According to the authors, *"the predominance of high and very high vulnerability classes is clearly noticeable, totaling 83% of cities (184 cities which includes 44% of the population of Paraíba)"*. Social vulnerability is high and occurs in a significant part of the state territory.

**Figure 18 – Social Vulnerability – Floods and Droughts**

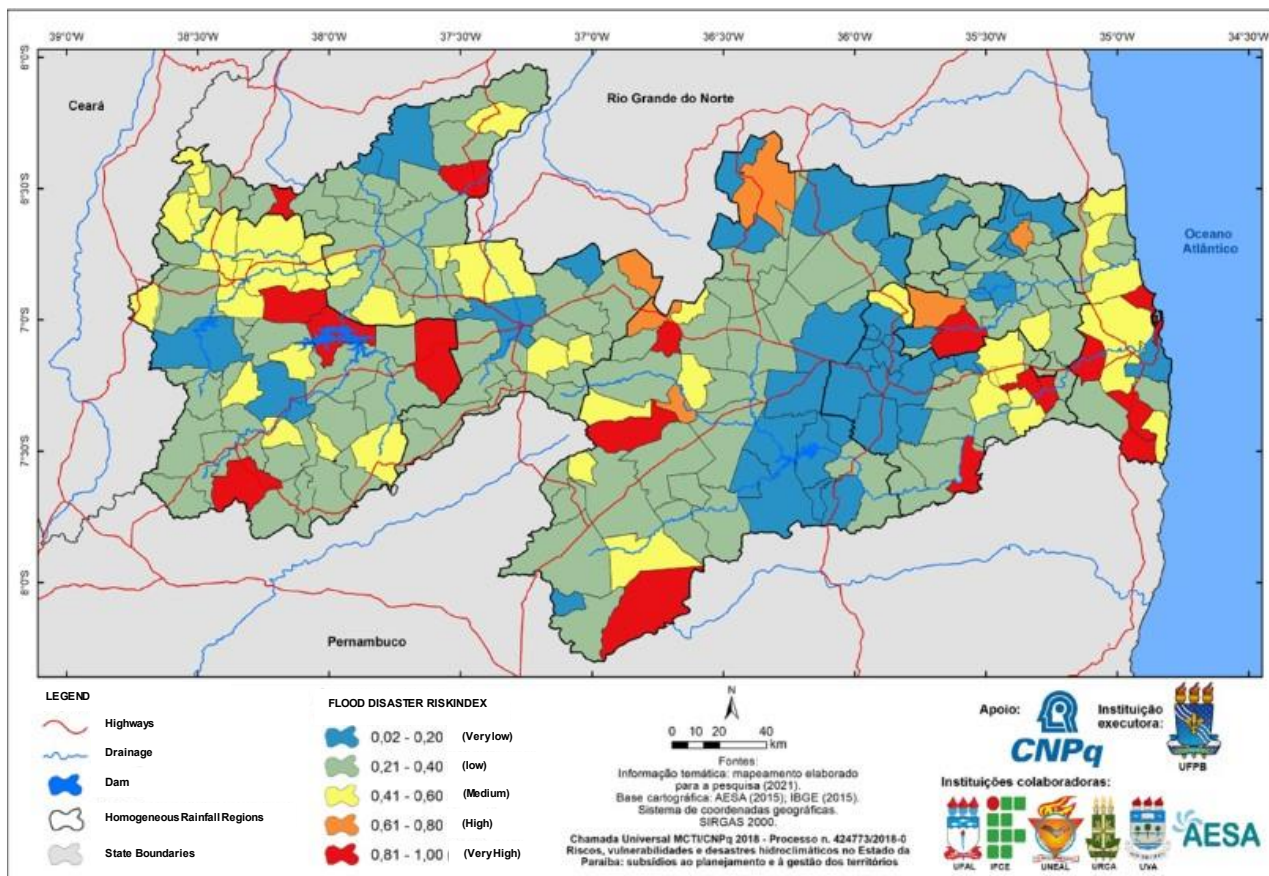


Source: Cunico et al., 2023

The Flood Disaster Risk Index (FDRI) for the state of Paraíba (figure below) is a result corresponding to the socio-environmental vulnerability to flooding, integrated with the hydrometeorological disasters recorded in the state (from 2003 to 2016).

This mapping reveals that 24 municipalities in the state have a Very High or High risks index to flooding. According to the authors, "These two classes correspond to 11% of the entire state and comprise 9% of the population of Paraíba" (Source: Cunico et al., 2023).

**Figure 19 – Flood Disaster Risk Index**

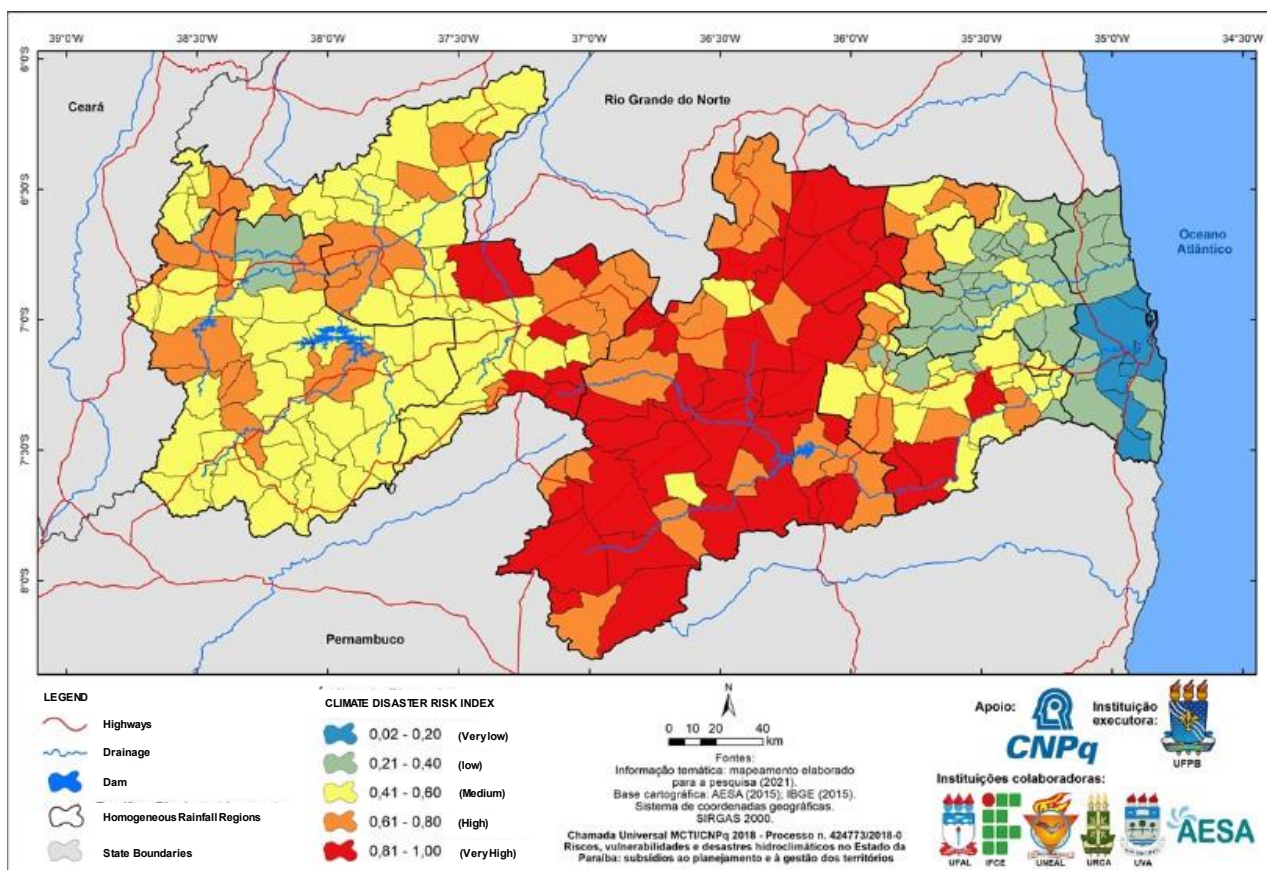


Source: Cunico et al., 2023

Finally, the Climate Disaster Risk Index (CDRI) for the state of Paraíba (figure below) is composed for socio-environmental vulnerability to dry and drought integrated to climate disasters recorded in the state.

As it is in regions of the Brazilian semi-arid region, the state presents 42% of its territory under the condition of High or Very High CDRI, (93 municipalities), spatially concentrated in the central portion of Paraíba and affecting 23% of the population of Paraíba.

**Figure 20 – Climate Disaster Risk Index**



Source: Cunico et al., 2023

### 3.3.1. Potential Effects of Climate Change

Changes in weather patterns generate consequences that directly affect natural and human systems (IPCC, 2013). These changes are part of the natural variability of the climate or may be a response to anthropogenic actions (greenhouse gas emissions and land use changes), resulting in climate change. Often, these changes are related to the precipitation regime, and can cause negative impacts depending on their intensity. Regarding the occurrence of dries and droughts, trends of decreasing precipitation have been frequent and severe in different parts of the world. Climate simulations based on global atmosphere circulation models have offered more extreme climates predictions for the future, sometimes with abundant and short-lived rainfall, sometimes with long dry periods (IPCC, 2012).

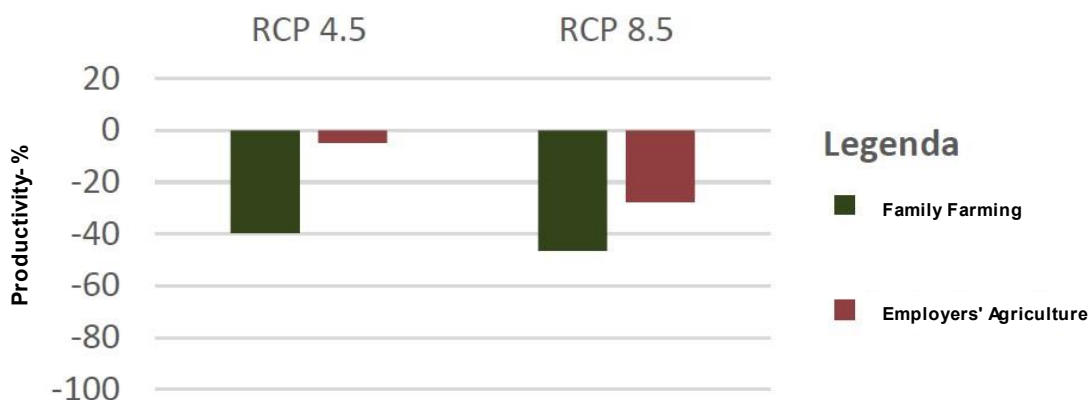
This is the risk of climate change impact on socio-ecological systems resulting interaction among climatic events and components of vulnerability and exposure of this systems.

*Gori Maia et al. (2018) concluded that temperature increases and drought episodes in the period from 1974 to 2014 reduced livestock productivity (milk and beef from cattle, sheep and goats) of family farmers in the Brazilian semi-arid region. The historical reduction in rainfall has had more negative effects on family farming, bearing in mind that the poorer the farmer is, greater is the impact. According to authors, family livestock in the region is more vulnerable, as it has fewer financial conditions to protect itself by investing, for example, in the "replacement of natural pasture with other forages (silage) as needed in more extreme climatic conditions" (MAIA et al., 2018, p. 747). – in Impacts of*

Climate Change on Family Farming in the North and Northeast Regions of Brazil (Cunha, D.A and Oliveira, L. R, 2023)

In fact, as shown in the figure below, Cunha and Oliveira (2023) demonstrate the potential effects of climate change in the RCP 4.5 and RCP 8.5 scenarios for agricultural productivity in Paraíba.

**Figure 21 - Impacts of climate change on the productivity of family and employer farming in Paraíba**



Source: Cunha, D.A and Oliveira, L. R, 2023

For the studied area, It was used data from the AdaptaBrasil platform<sup>9</sup> which presents a very extensive set of indices and indicators involving issues such as social vulnerability, infrastructure and government actions that can bring efficiency in prophylactic and control actions during extreme events (like plans and programs, better designed infrastructure, adherence to programs such Resilient Cities, and others).

In the analyses the following scenarios were consulted: Current and 2050 (pessimistic).

### Impact of Rain

Rain Impact Risk Index for food security, according to Adapta Brasil:

*Heavy rainfall is considered a climate threat when its frequency and duration cause flooding, inundation, and landslides, for example. The negative and harmful effects on the socio-ecological system can range from material damage and/or death of people in susceptible areas to accumulation and temporary flow of surface water, death of animals, crop losses due to excess water, and others.*

Source: MARENGO, J. A. *Climate Change, Extreme Weather Conditions and Climatic Events in Brazil*. In: FBDS (org). *Climate Change: Extreme Events in Brazil*. p: 04-19. FBDS & LLOYD'S. 2010.

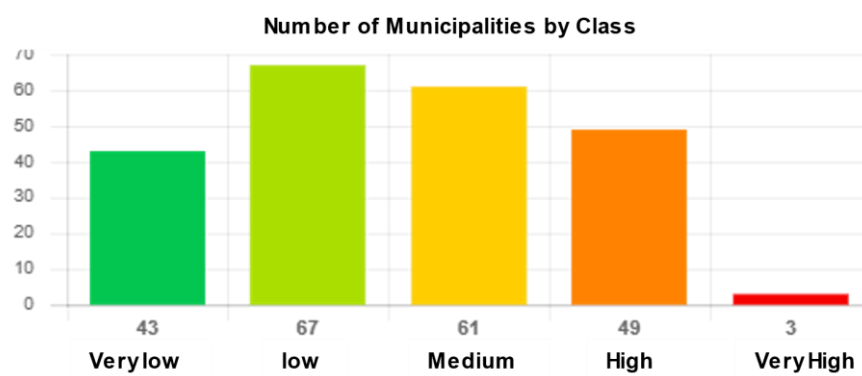
The results of AdaptaBrasil indicate that in the current scenario there is a medium risk prevailing in the coastal portions of Paraíba, and the central territory still has most of its

<sup>9</sup> The Information and Analysis System on the Impacts of Climate Change (AdaptaBrasil MCTI) was established by the Ministry of Science, Technology and Innovations, through Ordinance No. 3,896, of October 16, 2020, with the objective of consolidating, integrating and disseminating information that enables the advancement of the analysis of the impacts of climate change, observed and projected in the national territory, providing input to the competent authorities for adaptation actions.

area with low or very low risk. For 2050 scenario (pessimistic) is expected a significant increase in very high risk closer to the coastal strip besides expansions to medium risk in the west of Paraíba State. The central portion of State has a medium risk.

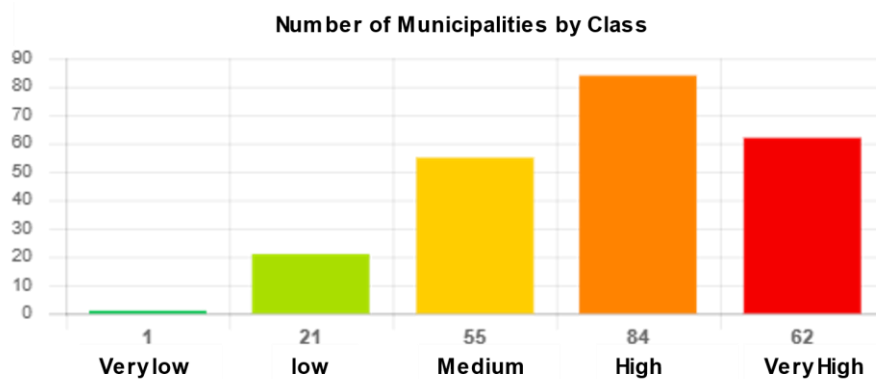
The following figures present the number of municipalities in the current scenario and 2050 – pessimistic.

**Figure 22 – Impact of Rain – Current Scenario**



Source: *Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).*

**Figure 23 – Impact of Rain – 2050 Scenario – Pessimistic**

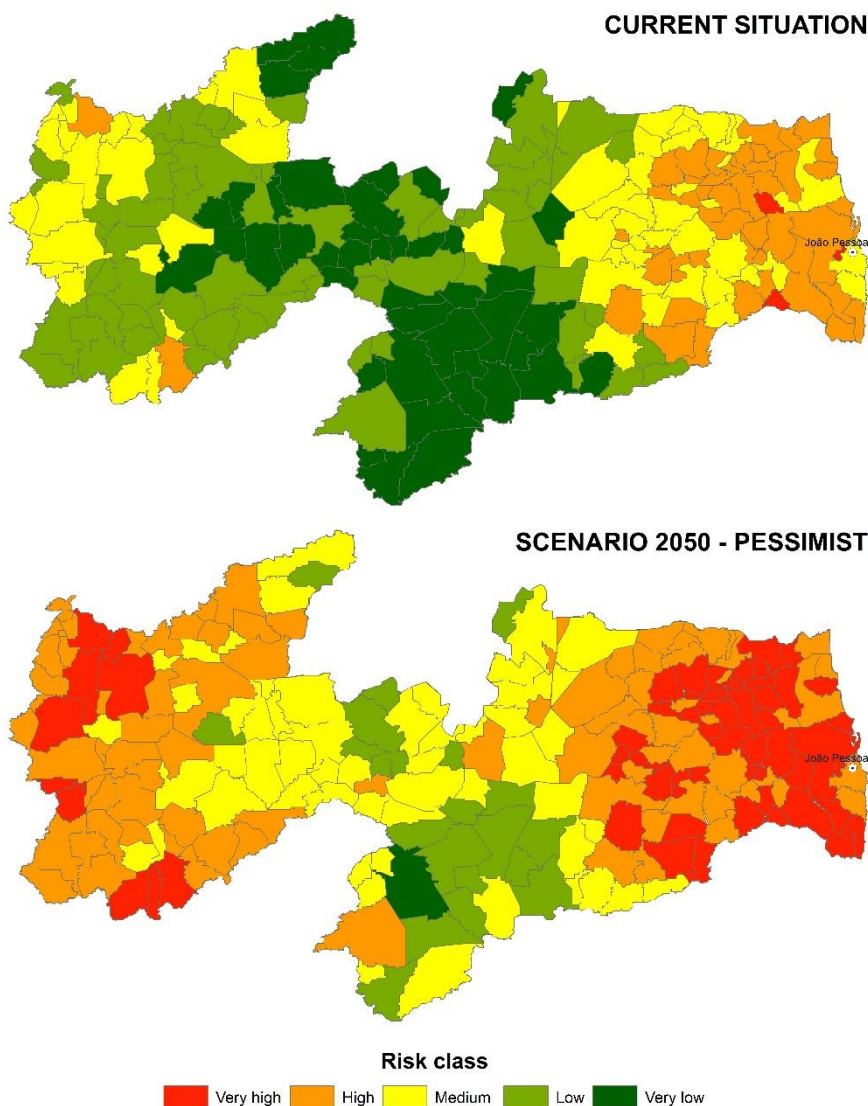


Source: *Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).*

The following figure presents the current and future situation for the impact of rainfall.



Figure 24 – Impact Risk Index for Rain – Food Security



**RISK OF RAIN - FOOD SAFETY**

Source: Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).

**Impact of Drought**

Drought Impact Risk Index for food security, according to Adapta Brasil:

*Risk of climate change impacts on socio-ecological systems resulting from the interaction among climatic events related to drought vulnerability and exposure of these systems. Drought is considered as prolonged period — a season, a year, or several years — of deficient rainfall compared to the statistical multiannual average for some region that results in water scarcity for some environmental activity, group, or sector.*

Source: FOOD AND AGRICULTURE ORGANIZATION/NATIONAL DROUGHT MITIGATION CENTER - FAO/NDMC. *The Near East Drought Planning Manual. Food and Agriculture Organization of the United Nations (FAO): Rome: Italy, 2008.*

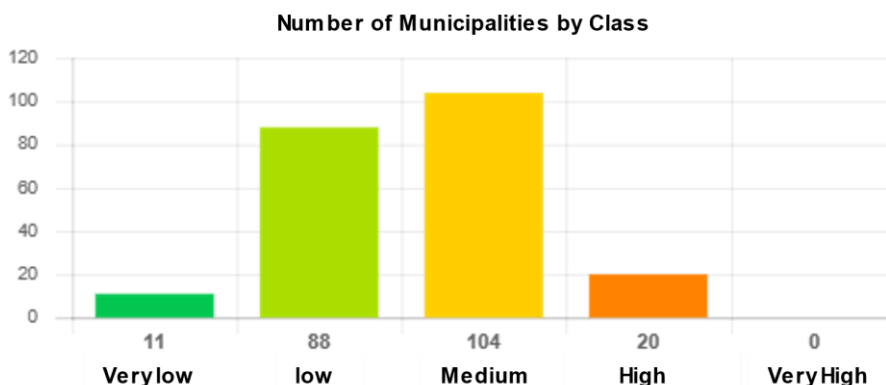
On Drought issue, we can cite the INDEX OF VULNERABILITY TO NATURAL DISASTERS RELATED TO DROUGHTS IN THE CONTEXT OF CLIMATE CHANGE (MMA, 2017):

*First, it is necessary to emphasize that drought is a relative phenomenon that depends on the context in which analysis it is inserted. Therefore, any discussion about deficit precipitation must be referred to conditions of a given region (CASTRO et al., 2003). Periods with abnormal precipitation deficits are defined as meteorological droughts and can have consequences for agricultural activities or the hydrological cycle (IPCC, 2012). In a socioeconomic disaster's perspective, drought is more dependent on vulnerabilities that affected social groups than climatic conditions themselves.*

According to AdaptaBrasil platform, in the current scenario that involves a significant portion of the study area, low or medium risks occur. In part of the western portion of State territory, there are some municipalities in high impacts drought risks on food security. In the 2050 Scenario, the incidence of medium and high risks starts to prevail in the Paraíba territory.

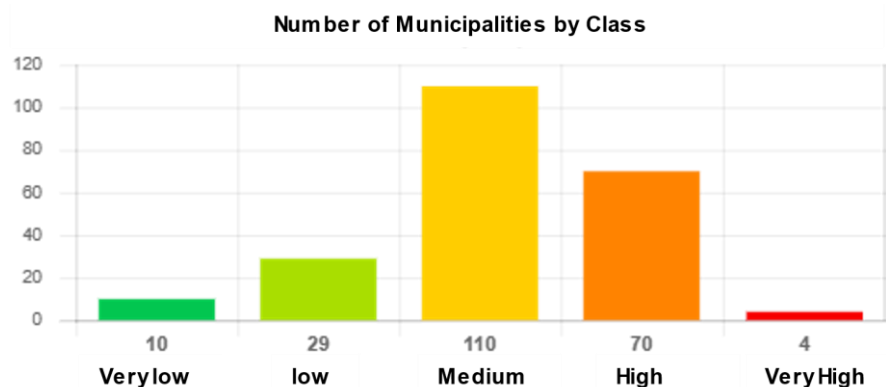
According to the figures below, between the current scenario and 2050 (pessimistic) scenario, there will be a jump on the upper classes, which will be from 20 to 70 municipalities.

**Figure 25 – Impact of Drought on Food Security – Current Scenario**



Source: Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).

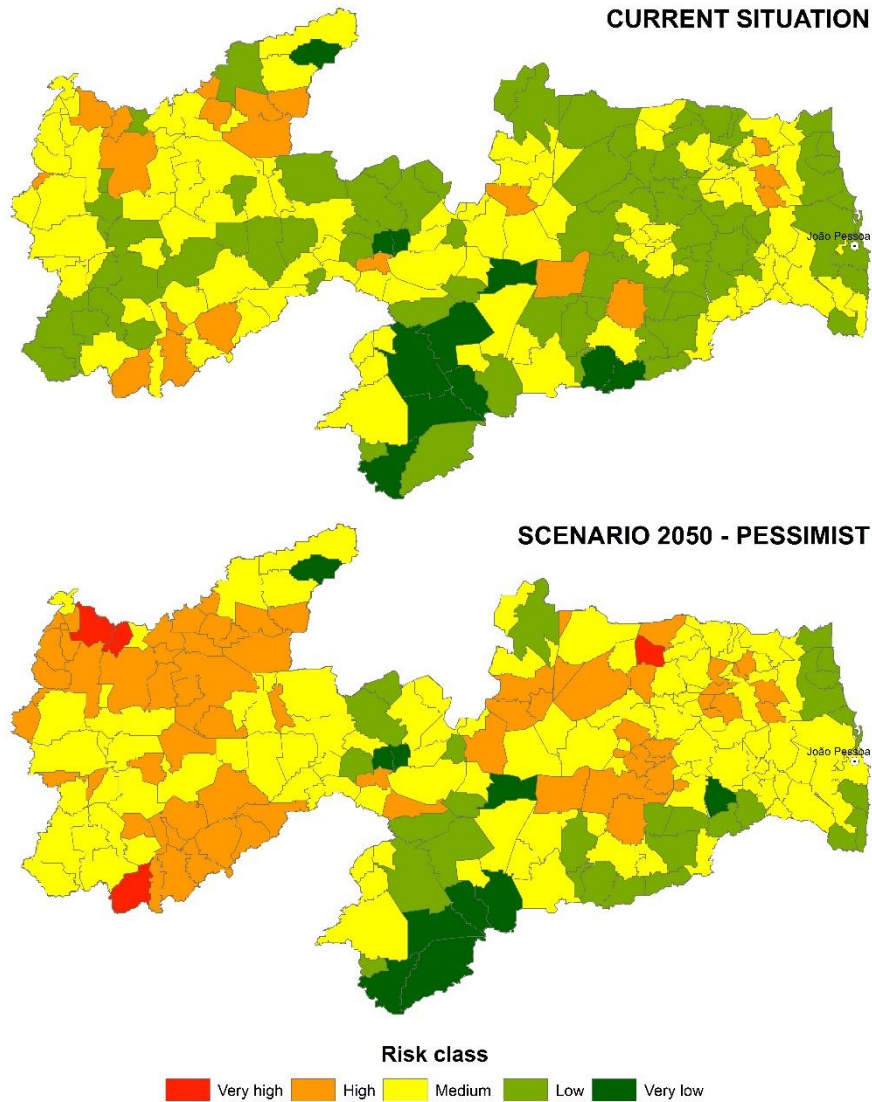
**Figure 26 – Impact of Drought on Food Security – 2050 Scenario – Pessimistic**



Source: Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).

The following figure presents the current and future situation for the impact of rainfall.

**Figure 27 – Drought Impact Risk Index – Food Security**

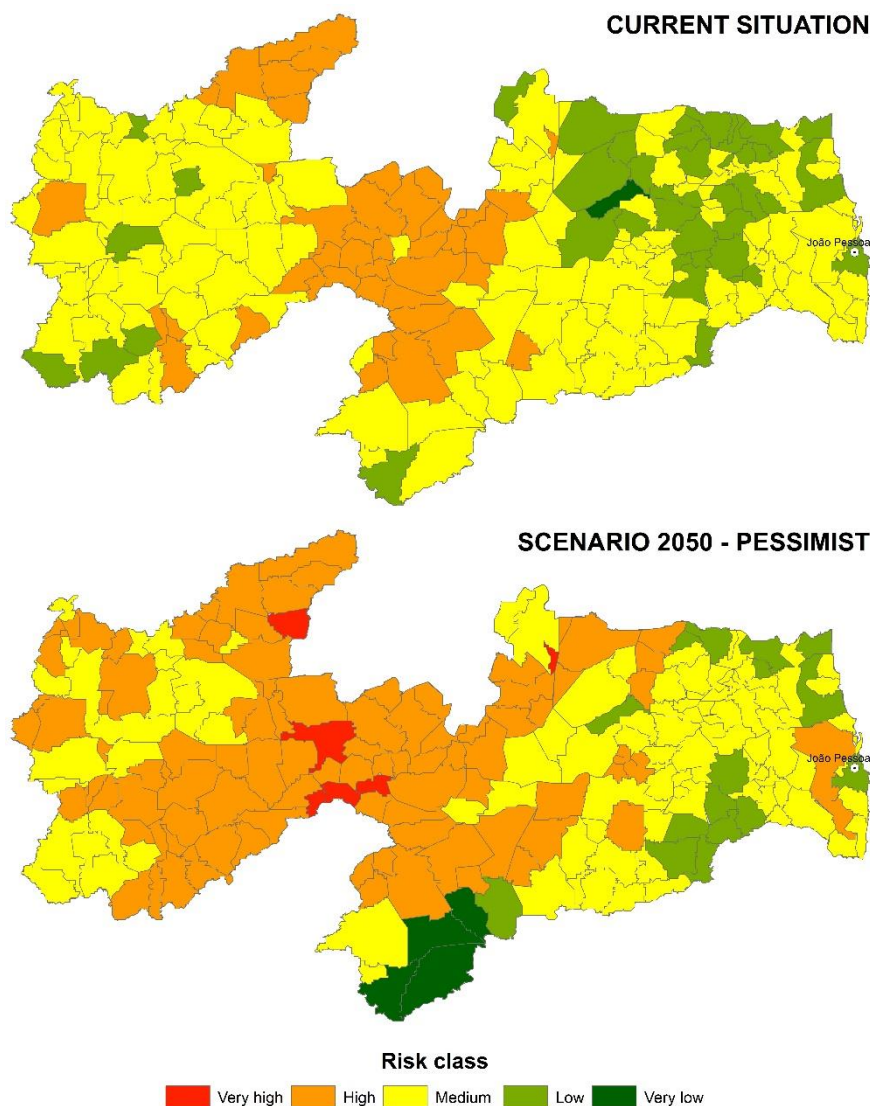


**DROUGHT RISK – FOOD SAFETY**

Source: *Adapta Brasil – Ministry of Science, Technology and Innovation, 2023 (consultation).*

The following figure presents the impact of drought specifically on local water resources.

**Figure 28 – Drought Impact Risk Index – Water Resources**



**DROUGHT RISK - WATER RESOURCES**

Source: *Adapta Brasil – Ministry of Science, Technology and Innovation, 2024 (consultation).*

**3.4. SUBPROJECTS VULNERABILITY**

The following is a prognosis of vulnerability of subprojects with a short description of these subprojects and implications related to the local climate for current and future times.

**3.4.1. Resilient Investment Plans (RIPs)**

The vulnerabilities to Resilient Investment Plans are addressed below.

**Free-Range Poultry**

In the case of free-range poultry farming, for being an open breeding and does not have many birds in confined spaces (like conventional farms situations), there is a lower risk of birds dying due to excess heat or lack of water, especially if the breeding is in an area that allows shade for the birds. In this case, as presented in the Resilient Investment

Plan (PIR Free-Range Poultry) the main difficulties related to environmental aspects are the lack of technical knowledge of farmers to correctly the practices of zootechnical, reproductive, food and sanitary control, and one of the main reasons for this situation is the lack of more frequent technical assistance on the properties.

Considering climate change, there may be an increase in pests that can bring consequent increase the use of pesticides, affecting poultry farming, being the greatest vulnerability identified.

In general, part of solution is related to adequate management of free-range birds and the insertion of Agroforestry Forage Support Systems areas, which prevent the degradation of native vegetation, the restoration of degraded areas and potential water sources in addition to other environmental results. There will be recovered vegetation areas using native and adapted species. It is important to consider that the PIR provides for individual investment for the implementation of a Forage Agroforestry mini-system (AFS-F 900<sup>m2</sup>), aiming expansion of food reserves to grazing birds and to prepare an alternative feed.

Main Vulnerabilities:

- Lack of rainfall;
- Excess heat;
- The above items generate a lack of food, with impacts on milk production.

### **Dairy Cattle and Goat Farming**

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Dairy activities present a good local opportunity on semi-arid places, however It faces technical issues that need to be worked well, so two distinct RIPS were considered for cattle and goat farming. It is important to highlight that in the cases analyzed, it was clear that the farmer´s Associations are not ready to support their members in the development of collective actions that contribute to improving access to public policies, commercialization, logistics, among others.

Issues like the power of industries to determine over milk prices, the limited storage and conservation capacity of small producers, and lack of equipment bring low financial returns to local producers and reducing their ability to improve procedures that can make them more resilient to climate change and, on the other hand, consequently making them less harmful to the local environment.

Main Vulnerabilities:

- Lack of rainfall;
- Excess heat;
- The above items generate a lack of food and water, with impacts on milk production.

### **Productive Backyards**

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The Productive Backyards PIR aims implement vegetable and fruit sustainable production systems and adapted to climate change, besides to generate work and income for women and youth, increase food security and promoting more social integration among families.

In this case, the biggest problem is low production due to scarcity of water for crop production and the potential rise of evapotranspiration. Climate change can impact negatively the agriculture in regions where weather conditions are currently good for production. The following presents some climate change impacts for these cases.

- Plant development can be damaged by failures on pollination during flowering on very hot days (> 35°C), with excessive rainfall or other extreme events. Increased winter temperatures often take poor pollination, staggered flowering, reduced fruiting and poor fruit quality.
- Changes in the existing pest's distribution, diseases and weeds besides increased threat of new insects and diseases.
- Increased incidence of physiological disorders such as burnt tips and blossom rot.
- Increased potential for downgrading product quality, e.g. due to increased incidence of sunburn on fruits or leaves.
- Increased risk of spread and proliferation of soil-borne diseases from heavier rainfall events (along with warmer temperatures).
- Increased risk of soil erosion and off-farm effects of nutrients and pesticides from extreme precipitation events.
- Increased costs of production, especially from large use of fertilizers and pesticides due to soil leaching and the appearance of pests.

It is important to highlight that the priority of Productive Backyards PIR has the focus in collective areas in community use, therefore, deforest any additional area is not need. It is also planned to introduce innovative and better practices for beneficiaries. These include the potential to preserve the environment. The intensification of production in determined places should reduce the pressure in another areas, reducing needed to use new areas specially in which there is native forest. The native species of region will be used, avoiding introduction of new exotic species, and include simple techniques to enhance the efficiency production like implementation of fences and windbreaks to protect the cultivation area and contribute to reduction of evapotranspiration and decreasing consequently the water consumption.

Main Vulnerabilities:

- Excessive rainfall in short period.
- Lack of rainfall.
- Excess heat.
- Irregularity in the annual heat-cold system.
- Excessive winds.

### **Agroforestry Systems – AFS**

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Agroforestry systems bring several benefits to small producers, contributing to better control of the microclimate, stabilization of temperature, relative humidity and soil moisture, in addition to providing protection against more intense rains and winds. In the case of PROCASE II, the goal is to assist free-range poultry (AFS-F 900m<sup>2</sup>), besides dairy cattle and goat farming. Despite the focus in livestock, the AFS that benefits the increase of forest was also considered appropriate to apply in river PPAs.

The implementation of this subproject will introduce innovative practices and less environmentally aggressive techniques for beneficiaries, which include potential to preserve the natural environment. The intensification of production in specific places on propriety involving sustainable practices, should reduce pressure in another areas (avoiding needed to into new areas for production and in specific areas that present native vegetation). Native species present in the region will be used in these systems, avoiding the introduction of new exotic species.

The expected effects may be enhanced by the action of ATER<sup>10</sup> that will support to producers for introduction agroecological practices in a transition perspective, aiming reduction use of chemical pesticides or synthetic fertilizers and substituting these by natural inputs (like biocaldas, composts, biopesticides, mechanized mowing, etc.), expected positive effects on the soil, water and commercialized productions.

In fact, the AFS presents an important alternative to bring greater resilience to small producers should be able to face the effects of climate change, although they are not invulnerable to be affected by climate effects like water scarcity, the entry of new pests, edge effect problems and forest fires problems in several heat and drought periods sequentially. Problems like that can affect the development and health of AFS or reduce the effectiveness of the system.

Main Vulnerabilities:

- Excessive rainfall in short periods.
- Lack of rainfall.
- Excess heat.

### 3.4.2. Business Plans (PN)

The following presents the vulnerabilities for Business Plans.

#### **Agroecological Cotton Farming - Social Technologies**

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##### **Water Supply**

PROCASE II will benefit families who are in technical and geographical unfeasibility areas (remote areas), where the better alternative to water supply is the implementation of Plate Cisterns for human consumption. That is distributed in 04 Microregions of Water and Sewage (MWS) on the State of Paraíba, and it must follow preliminarily criteria established<sup>11</sup>.

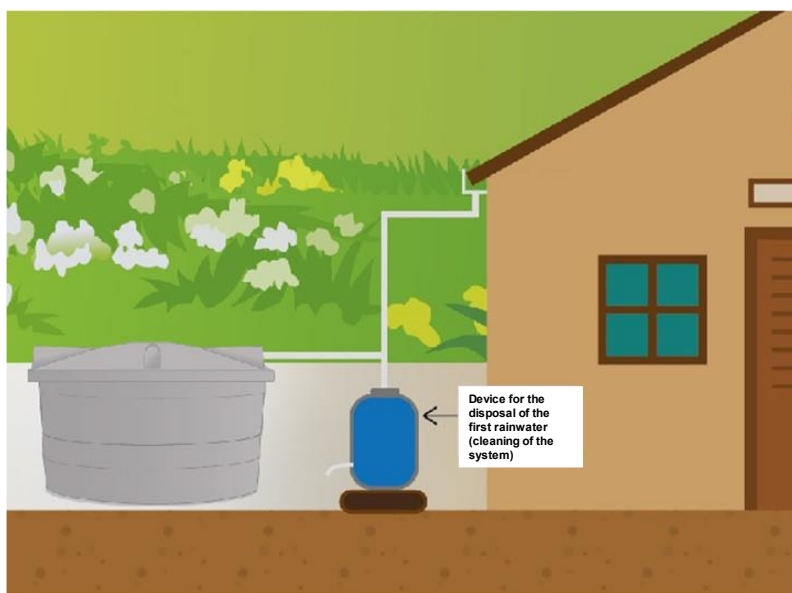
The cisterns will be built using precast plates, including 16,000 liters of capacity, and based on social technology developed in the Northeast and for family domestic use. This social technology allows the capture and storage of rainwater from rural house roofs.

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<sup>10</sup> Technical Assistance and Rural Extension

<sup>11</sup> These criteria are still being reviewed by technical team of PROCASE II

**Figure 29 – Example of Cistern Model**



Source: Embasa - Manual de Tecnologia Apropriada, 2022

**Figure 30 – Cistern construction**



Source: Cisterns Program<sup>12</sup> – 16 thousand Liter Plate Cisterns

The production water supply will be used for agrarian activities and animal thirst. Its implementation must be associate technical training and water management, benefiting families that was contemplated with Plate Cisterns for human consumption or families contemplated with water supply systems (WSS, CWSS or IWSS), and it should cover the 04 MWS in Paraíba that involve water scarcity and regular lack of water. The technologies adopted for this purpose are:

- 52-thousand-liter plate boardwalk cistern: social technology that should guarantee access to rainwater from a 200 m<sup>2</sup> boardwalk for food production and/or animal watering. The reservoir with a radius of 3.2 m and a depth of 1.8 m has the capacity to store approximately 52 m<sup>3</sup> of rainwater. It will be covered and closed to protect

<sup>12</sup>[https://www.mds.gov.br/webarquivos/arquivo/seguranca\\_alimentar/cisternas\\_marcolegal/tecnologias\\_sociais/IOESAN\\_n2de882017.pdf](https://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/cisternas_marcolegal/tecnologias_sociais/IOESAN_n2de882017.pdf)



from evaporation and contamination caused by animal waste and other impurities carried by the wind. The rainwater catchment area called the boardwalk has its area delimited by a curb and it is on a higher plane than the reservoir endowed with a small slope to conduct water to a settling box and from this to the reservoir. (Annex to IN SESAN, March 2023);

- 52 thousand liters Flood Cistern: social technology that should guarantee access to rainwater from the bed of runoff for the production of food and/or animal thirst to families to be benefited by PROCASE II. capable of storing 52 m<sup>3</sup> of rainwater collected in the runoff axis;
- Underground Dam: social technology that should guarantee access to rainwater from the bed of runoffs for food production and/or animal watering. The underground dam is a transversal dam inserted into the bed of runoffs, streams and temporary rill, by fixing a flexible plastic blanket in a trench excavated until it meets the crystalline or impermeable thickening, which is a rocky layer characteristic of the soils of a large part of the Brazilian semi-arid region. Its function is to retain rainwater that drains above and in the soil interstices, providing the formation or elevation of the water table. There are two dam models:
  - a) Submerged dam: when the dam is on the same level as the ground and does not have a spillway. This model is indicated when the dam is built on the bed of temporary rills;
  - b) submersible dam: when the dam extends above ground level and accumulates a water blade on the surface for a short period of time, usually around two or three months after rain ends. In this type of dam, a masonry spillway is built to drain the excess water and preserve the slope above ground, usually 0.6 m high. (Annex to IN SESAN, May 2023);
- “Barreiro trincheiro”: a social technology that guarantees access to rainwater from the bed of runoffs for food production and/or animal thirst. Its dimensions can prevent the action of wind and sun and minimizing the effects of evaporation in periods of drought.
- Stone Tank: social technology that should guarantee access to rainwater from the bed of runoffs for food productions and/or animal thirst. It is used to store rainwater in rocky outcrops which are sized to avoid evapotranspiration and the accumulation of rainwater in the dry season that they are reinforced with walls to ensure the ideal height and crack waterproofing to prevent infiltration. It is a technology that provides access to water for food production and animal husbandry like a micro-dam.

The vulnerabilities of water supply system are mainly regard to excessive rainfall, in situations that may involve mass landslides or floods that may eventually reach the structures. Secondly, the lack of rainfall can be cited which should cause an increase on demand above the storage capacity.

Main Vulnerabilities:

- Excessive rainfall (for specific situations of structures location).
- Lack of rainfall (mainly in surface catchments and increased water consumption).
- Excess heat (increased water consumption).

### **Reuse of gray water and black water (Green Septic Tank)**

Domestic sewage encompasses countless peculiarities and specificities that influence the choice of appropriate treatment which depends on the intended purpose, that should be dispersed in the soil, in the water body and/or reused.

Observed the list of Social Technology adopted by Federal Government, the following sanitary sewage technologies are in line with PROCASE II: reuse of gray water (considering physical and biological treatment - use of earthworms<sup>13</sup>) and reuse of black water (Green Septic Tank), both don't need pre-treatment or post-treatment units for discharges into the soil or water body.

- **Greywater reuse:** treats wastewater that does not come from toilet. The treatment of these effluents through the reuse system consists in a filtration process of biological and physical impediment mechanisms. Initially, the gray water rich in chemical and organic residues, is directed to a filter where the organic matter is biodegraded by microorganisms' and earthworms (*Eisenia fetida*), resulting in main pollutants removal (Annex, IN SESAN/MDS nº 36, March 2024). This treatment consists in Vermifilter type<sup>14</sup>. In addition, the Banana Tree Circle can also be used, which is specified in academic works<sup>15</sup>, but it is not regularized in the Normative Instructions of the Federal Government specifically to gray or black water, being necessary install a pre-treatment for black water.
- **Reuse of black water:** It treats specifically toilet water, using the evapotranspiration basin (Green Septic Tank; Ecological Cesspool), which is regulated by Normative Instruction of the Federal Government and does not require sewage pre-treatment.

The vulnerabilities of water sewage systems are mainly the excessive rainfall in situations that may involve mass landslides or floods that should eventually reach the structures. Secondly, the lack of rainfall can affect the operation of the systems (lack of sewage).

Main Vulnerabilities:

- Excessive rainfall (for specific situations of structures location).
- Lack of rainfall (reducing flows and affecting systems operation).

### **Renewable energy**

For renewable energy use to strengthen the objectives of PROCASE II focusing in reduce rural poverty levels and produce actions to confront and mitigate climate change, three proposals were selected: i) photovoltaic energy; ii) biodigester and iii) eco-cookers.

- **i) Photovoltaic Energy:** or solar energy can be used directly in the Social Technologies of production water, with the exception of 52-thousand-liter plate cisterns, when installing wells pumps to support agricultural activities. This can also

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<sup>13</sup> Sustainable Oriented Technical Consulting and Training – ATOS, in partnership with the Federal Rural University of the Semi-Arid Region, the International Fund for the Development of Agriculture – IFAD and the Dom Helder Câmara Project, which resulted in the Manual for the implementation and management of the family biowater system: reuse of domestic gray water for food production in family farming in the Brazilian semi-arid region.

<sup>14</sup> Vermifilter can be used for black water, domestic sewage, but it is necessary a pre-treatment technology using Septic Tank

<sup>15</sup> Banana Tree Circle is not contemplated in Brazilian standards, but it is suggested by Funasa (FUNASA, 2015 and 2018) and has its effectiveness proven by academic research (FIGUEIREDO, in press) and by its current use in permaculture and agroecology projects (Book Domestic Sewage Treatment UNICAMP, 2018)

directly benefit the agricultural activities of interdependent associations from Component 1;

- **(ii) Biodigester:** Domestic sewage effluent treatment unit and biofertilizer production unit supplied with residues from plant or animal production (urine and animal manure). The use of Biodigester for domestic treatment must be accompanied by sewage post-treatment units that ensure the disposal of treated effluent in the soil or in the water body. There is a production of biogas and biofertilizer. Considering the sanitary sewage deficit in rural areas and the characteristics of benefited families by water supply for human consumption, the biodigester implementation for domestic effluent treatment does not become effective due to the several variables necessary for its use, especially regarding the uniformity of sanitary sewage flow in the benefited areas, such as execution, renovation or expansion of toilets and/or sewage treatment units. Therefore, the Biodigester will be implemented with residues from plant or animal production.
- **(iii) Eco-Cookers:** The ecological stove uses sticks, corn cobs and tree barks as fuel, distinct from wood stove, that is powered only by firewood.

Main Vulnerabilities:

- Excessive rainfall (for specific situations of structures location).
- Lack of rainfall (reducing flows and affecting the functioning of biodigester systems).
- Excess Heat (Affecting photovoltaic panels)

## **Transverse Themes**

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### **Water Resources**

The main consequences of climate change related to water resources are the increase temperature, higher evaporation rates, changes in precipitation patterns, and increase frequency of floods and droughts. Climate change will have a significant impact on agriculture by increasing water demand, limiting crop yields and reducing available water in areas where irrigation is most needed or has comparative advantages.

It is important to note that a broad part of Paraíba territory is under the semi-humid (Aw) and arid (Bsh) climatic regimes, so the water resources tend to suffer greater heat and recurrent droughts, especially from climate change, with the risk of being deeply affected by the lack of rainfall in large periods, with high rates of evapotranspiration and reduced recharge in aquifers.

Main Vulnerabilities:

- Lack of rainfall.
- Excess heat.

### **Human Health**

The main conclusions of IPCC's sixth report (2023) about climate changes showed aspects of climate change's impacts on human health highlighting that the hazards and associated risks expected in the short term include increased heat-related human mortality and morbidity (high confidence), food, waterborne and vector-borne diseases (high confidence), and mental health challenges.

It is important to highlight that climate change will cause differentiated impacts according to regional and/or local characteristics and variations in the communicable disease vectors behavior. Several diseases can be exacerbated or have their regional boundaries expanded.

As Soares (2021) highlights :

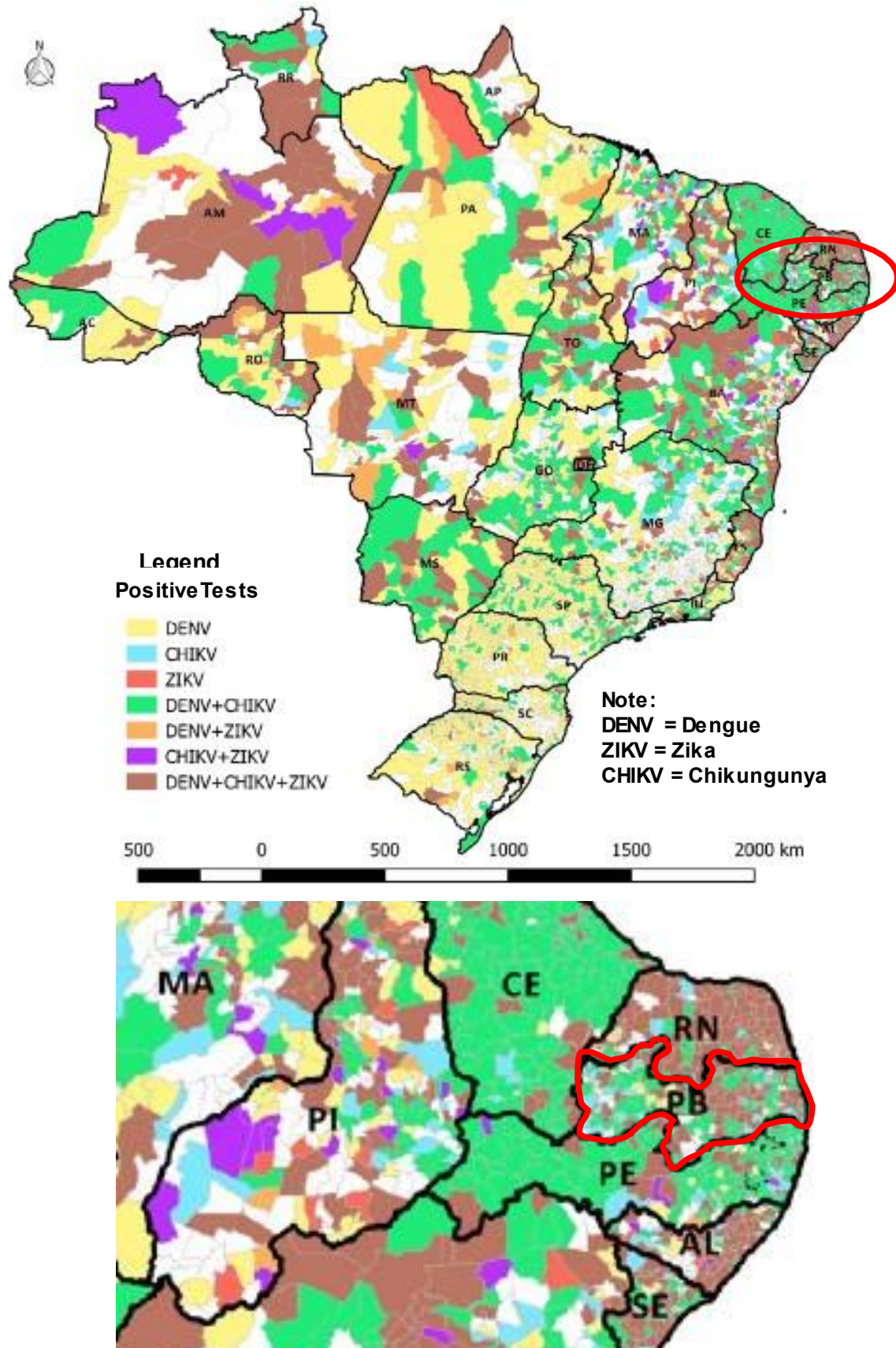
*Studies show that air temperature interferes with dengue transmission, as it affects several aspects of the mosquito's life, such as the blood meal of females, their longevity and the extrinsic incubation period of the virus (Donalísio et al., 2002; Beserra et al., 2014). It is a fact that high levels of precipitation, high air temperature, proximity to urban peripheries and low income of the population are factors that promote the spread of disease (Sobral and Sobral, 2019).*

*The epidemic diseases most affected by climatic events are malaria, dengue, cholera and other waterborne infections (WWF, 2015). In Brazil, the most relevant cases associated to climatic extremes are malaria and dengue. Although there is "evidence of climate influence on the occurrence of some diseases, not all climate-sensitive diseases are yet known" (Sousa et al., 2018, p. 2).*

It is assumed that besides Dengue and Malaria, diseases such as Yellow Fever, Zika and Chikungunya may be affected by climate change and affect more regions and more communities, since these arboviruses need mosquitoes to be transmitted.

As presented in the figure below, there are several municipalities showing positive tests for Dengue, Chikungunya and Zika.

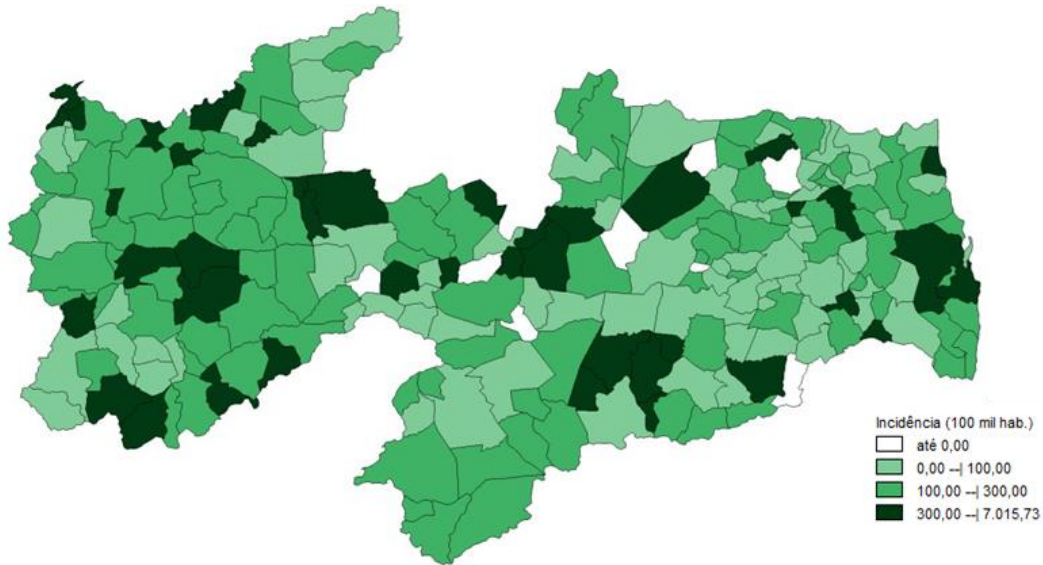
Figure 31 – Distribution of positive tests for DENV, CHIKV and ZIKV, by municipality of residence in Brazil, until SE 44/2022



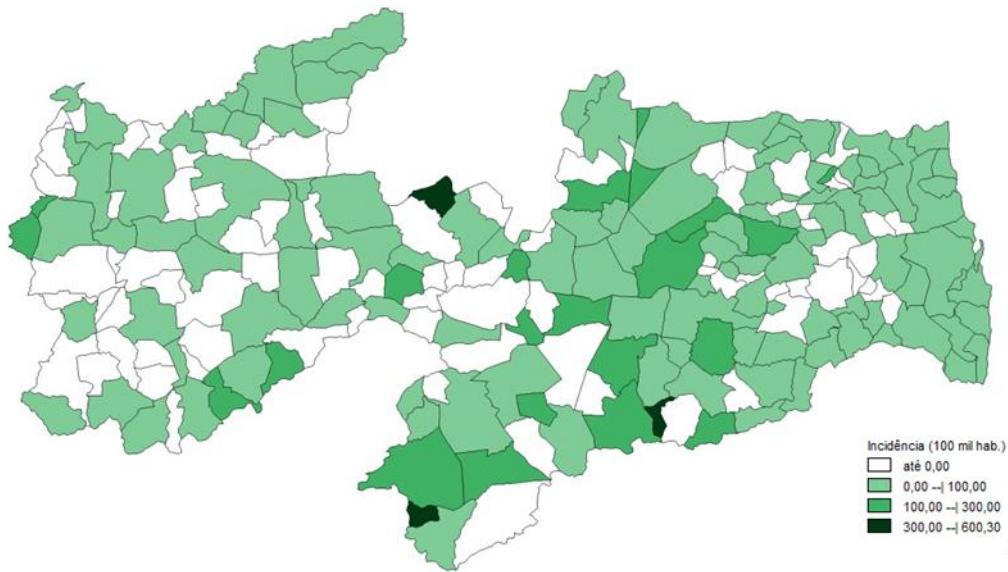
Source: Ministry of Health / Health Surveillance Secretariat / Epidemiological Bulletin 43 (Nov.22)

**Figure 32 – Distribution Maps of probable cases of main arboviruses – Paraíba (Jan. to May 2024)**

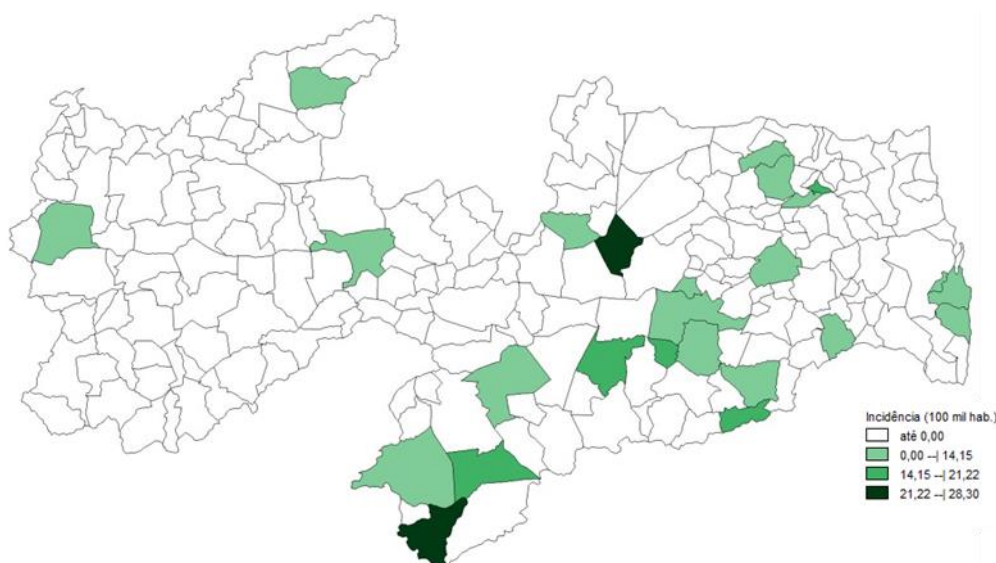
Dengue fever



Chikungunya



## Zika



Source: Paraíba State Department of Health, *Epidemiological Bulletin of Arboviruses - No. 06, 2024*

Two key issues must be considered in the process of monitoring, controlling and combating communicable diseases: those that already exist in the region covered by PROCASE II and that may affect more communities, and those that do not currently exist in the territory and may expand due to climate change affecting new places.

Schistosomiasis is a parasitic disease, that *Schistosoma mansoni* of Schistosomatidae family can be found in Brazil. The disease has a low lethality, and the main causes of death are related to severe clinical forms. The intermediate host in Brazil are a kind of genus snails of Biomphalaria: *B. glabrata*, *B. tenagophila*, *B. straminea*, responsible for transmission

BARCELLOS (2017)<sup>16</sup> indicates that climate change may favor the disease, since the heaviest rains generate various overflows in streams and lagoons, being a vehicle for snails:

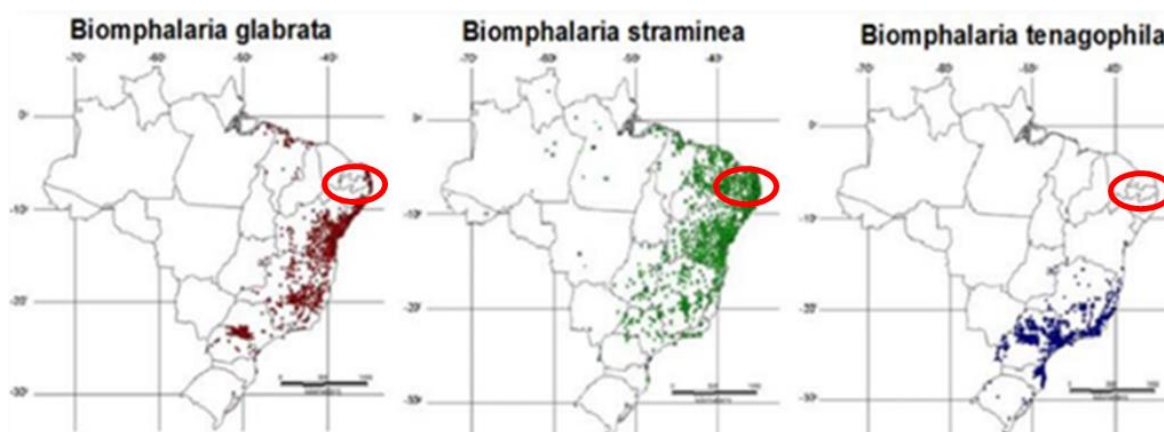
*The vector presents a determined seasonal behavior, and it is generally associated with greater rainfall periods when the breeding sites present a better situation for vector reproduction and contagion by the parasite. Rainfall patterns can directly influence the maintenance of abiotic factors (temperature, pH, salinity) related to breeding sites, providing ideal conditions.*

Schistosomiasis exist in the most of Brazilian states, especially in the Northeast and Southeast regions. The states of Alagoas, Bahia, Pernambuco, Rio Grande do Norte, Paraíba, Sergipe, Espírito Santo, Maranhão and Minas Gerais are endemic areas, with established transmission. It is estimated that millions of people live in areas at risk of disease infection (figure below).<sup>17</sup>

<sup>16</sup> BARCELLOS, C. et al. Climate and Health Situation Analysis. National Observatory of Climate & Health, October, 2017 in: [https://climaesaude.icict.fiocruz.br/sites/climaesaude.icict.fiocruz.br/files/analisedesituacaoems\\_audecursoopasfiocruzatualizado\\_0.pdf](https://climaesaude.icict.fiocruz.br/sites/climaesaude.icict.fiocruz.br/files/analisedesituacaoems_audecursoopasfiocruzatualizado_0.pdf)

<sup>17</sup> Ministry of Health, Health Surveillance Secretariat, Epidemiological Bulletin 43 (Nov.22) available at:

**Figure 33 – Distribution of *Biomphalaria*: *B. glabrata*, *B. tenagophila*, *B. straminea* – Schistosomiasis vectors**



Source: BARCELLOS, C. et al (October/2017)

[https://climaesaude.icict.fiocruz.br/sites/climaesaude.icict.fiocruz.br/files/analisedesituacaoemsaudecursoopasfiocruzatualizado\\_0.pdf](https://climaesaude.icict.fiocruz.br/sites/climaesaude.icict.fiocruz.br/files/analisedesituacaoemsaudecursoopasfiocruzatualizado_0.pdf)

Another disease that can affect communities is "Chagas disease" (American trypanosomiasis). It is transmitted by the insect vector known as 'kissing bug' and that can cause serious health problems if not diagnosed and treated early. It is estimated that there are about 1 million people infected in Brazil. Currently, it is the disease that occupies the fourth cause of death among infectious and parasitic diseases in the country, accounting about 4.5 thousand deaths per year. In addition to socioeconomic and cultural factors, environmental factors perform an important role in determining Chagas disease. Climate change, deforestation and disorderly urbanization can alter the natural habitats of vectors, increasing the populations to *Trypanosoma cruzi*<sup>18</sup> exposure.

According to the figure below, Chagas disease in Paraíba does not differ from national scenario, and there is still a risk of vector transmission due to the existence of autochthonous triatomines with high potential colonization, presence of *Trypanosoma cruzi* reservoirs and the frequent approach of human populations to these environments<sup>19</sup>.

Regarding notifications confirmed on figure below, from 2015 to 2021 until SE 2021 there were 445 notifications distributed in 29 municipalities, of which 48 were confirmed cases, presenting an average of 6.85 cases per year. Over the years mentioned above, the cases occurred in 21.5% (48/223) of the municipalities. The Sanitary Districts (RE) with the highest number of cases were: 3rd RE - 15 cases, distributed in the municipalities of Alagoa Grande, Areia, Campina Grande, Livramento, Riacho de Santo Antônio, Santo André and Tenório; 5th RE - 09 cases, distributed in the municipalities of Amparo, Camalaú, Coremas and Prata; and the 11th RE - 08 cases, distributed in the municipalities of Água Branca, Juru, Princesa Isabel and Tavares.

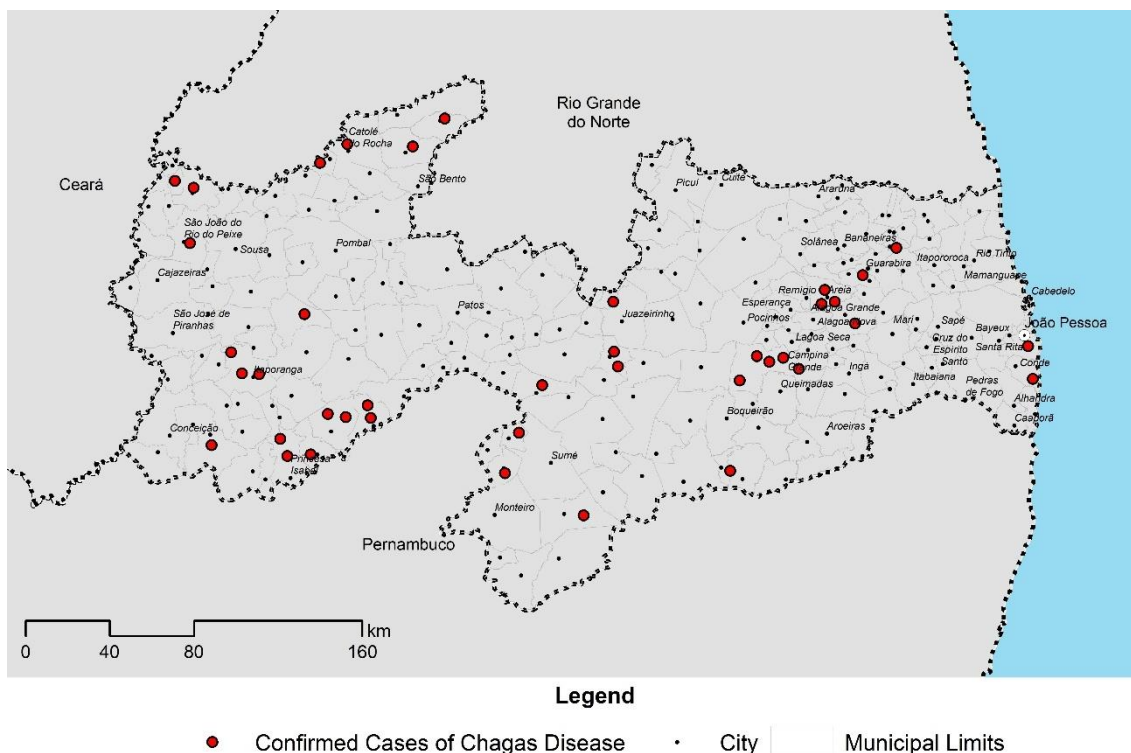
<https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/edicoes/2022/boletim-epidemiologico-vol-53-no43/view>

<sup>18</sup> MS, 2023 - <https://www.gov.br/saude/pt-br/assuntos/noticias/2023/junho/doencas-socialmente-determinadas-saiba-mais-sobre-a-doenca-de-chagas#:~:text=Al%C3%A9m%20dos%20fatores%20socioecon%C3%B4micos%20e,das%20popula%C3%A7%C3%B5es%20ao%20Trypanosoma%20cruzi.>

<sup>19</sup> Paraíba State Department of Health, Epidemiological Bulletin 01, 2021.



**Figure 34 – Distribution of municipalities with positive cases of Chagas Disease by Health Region. Paraíba, 2015 to 2021**



Source: Paraíba State Department of Health, Epidemiological Bulletin 01, 2021.

Main Vulnerabilities:

- Excessive rainfall.
- Lack of rainfall.
- Excess heat.

**Excessive Increase in Pesticides Use**

Diseases that can affect cultivated plants are the result of the interaction between pathogens and hosts. Angelotti<sup>20</sup> (2024, consultation) points out that

*The environment acts in host plant, pathogen and in the host-pathogen interaction. Thus, the severity of disease, its distribution and incidence are conditioned by the direct action of environment on pathogen and indirectly of environment on host plant. In this way, environmental factors play an important role in increasing or limiting development diseases, acting in the different phases of the disease cycle such as spore germination, infection, incubation, incubation period, symptom development, dispersion and survival of the pathogen.*

The following table presents an example of the phases of plant infection and the climatic factors associated that may contribute to limit the development of infection.

<sup>20</sup> EMBRAPA Semi-Arid Region, Climate Change and Phytosanitary Problems, Lecture in <https://ainfo.cnptia.embrapa.br/digital/bitstream/CPATSA-2010/41820/1/OPB2581.pdf>

**Table 4 – Phases of Infection and Climatic Factors.**

Phase	Climatic factor
Infection	Leaf wetness (rain, dew); temperature
Incubation, latency and growth of lesions	Air and leaf temperature
Sporulation <sup>21</sup>	Leaf wetness and/or high relative humidity; Temperature, Light, Radiation
Dispersion	Wind speed, temperature, relative humidity, leaf wetness, rainfall, or sprinkler irrigation (splashing)
Survival	Temperature and relative humidity, radiation

Source: Embrapa Semi-Arid (FRIESLAND; SCHRODER -1988) – consultation in 2024

Angelotti (2023) also points out that some studies in Brazil indicate that diseases can be reduced, for example the case of black Sigatoka from the banana tree, through the elaboration of distribution maps of disease made based on future climate scenarios available by IPCC, verifying that there will be a reduction in disease favorable country area. On the other hand, geographic distribution maps were also prepared to predict the number of annual generations of nematodes<sup>22</sup>, verifying that there may be an increase infestation, due to the monthly number.

In this way, climate change will exert a strong influence on pests that affect cultivars and may result in exponential situations that cause excessively increase of pesticides use for local farmers, creating various problems for the plants, fauna, water and to the communities health.

It is also important to note that farmers with limited resources are often unwilling or unable to purchase the appropriate personal protective equipment (PPE). Therefore, it is important to be aware of the climatic risks that can increase the use of pesticides in the agricultural sector as well as the risks to human health that this increase in use can provide.

Main Vulnerabilities:

- Excessive rainfall.
- Lack of rainfall.
- Excess heat.
- Irregularity in the annual heat-cold system.
- Excessive winds.

<sup>21</sup> It consists of information of spores, specialized cells surrounded by a cell wall that ensures the protection of structure. The spore, when it finds a suitable environment for its development, germinates and originates another being

<sup>22</sup> Nematodes are microscopic worms and are generally abundant in soil, freshwater, and salt water and often they are parasites of animals, insects, and plants (Embrapa portal, 2023)

### 3.4.1. Summary of Subproject Vulnerability

Table 5 – Sectoral Risks

Climate	Sector Risks											
	Free-Range Poultry	Cattle and Dairy Goat Farming	Productive Backyards	Agroforestry Systems – SAF	Agroecological cotton farming	Apiculture	Water Supply	Reuse of greywater and black water (Fossa Verde)	Renewable energy	Water Resources	Human Health	Excessive Increase in the Use of Pesticides
Instability in Rainfall	Reduction in food supply due to irregular rainfall (excess/under).	Reduction in food supply due to irregular rainfall (excess/under).	Plant development impaired by irregular rainfall (excess/under).	Plant development impaired by irregular rainfall.	Plant development impaired by irregular rainfall (excess/under).	Plant development hindered by irregular rainfall (excess/lack), affecting pollination and pollen collection, reducing the honey production capacity in hives.	-	Excess water in sewage treatment systems.	-	Excessive reduction in river flows, affecting the biota and dependent communities.	Increase in communicable diseases such as arboviruses or waterborne diseases.	Increased frequency of pesticide use (leaf wetting).
	-	-	Increased incidence of physiological disorders such as burnt tips and blossom rot.	Excess moisture in the SAF.	Excessive rainfall when the fruits are open, affecting the fibers by fungi that attack the surface of the cotton, making them gray and weak, making it impossible to market.	Excess use of Pesticides.	-	-	-	-	-	-
	-	-	Increased risk of soil erosion and off-farm effects of nutrients and pesticides from extreme precipitation events.	Increased risk of spread and proliferation of soil-borne diseases as a result of heavier rainfall events (along with warmer temperatures).	-	-	-	-	-	-	-	-
	-	-	Increased production costs, especially for fertilizers and pesticides due to soil leaching and the appearance of pests.	-	-	-	-	-	-	-	-	-
	-	-	Increased risk of spread and proliferation of soil-borne diseases as a result of heavier rainfall events (along with warmer temperatures).	-	-	-	-	-	-	-	-	-
	-	-	Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.	-	-	-	-	-	-	-	-	-

Climate	Sector Risks											
	Free-Range Poultry	Cattle and Dairy Goat Farming	Productive Backyards	Agroforestry Systems – SAF	Agroecological cotton farming	Apiculture	Water Supply	Reuse of greywater and black water (Fossa Verde)	Renewable energy	Water Resources	Human Health	Excessive Increase in the Use of Pesticides
Increased intensity and frequency of extreme weather events	Health and integrity of herds.	Health and integrity of herds.	Flooding/crop damage due to flooding, with the potential to destroy entire cultivars.	SAF integrity (floods, landslides).	Flooding/crop damage due to flooding, with the potential to destroy entire cultivars.	Health and integrity of creations.	Risks to structures.	Risks to structures.	Risks to structures.	-	Risks of contamination by waterborne diseases.	-
Longer and more intense periods of drought	Health and integrity of creations.	Health and integrity of creations.	Crop failure due to lack of rainfall.	Resilience threshold of SAF reached by drought for a very long period.	Plant development hindered by lack of irrigation.	Plant development impaired by drought, affecting pollination and pollen collection, reducing the honey production capacity in hives.	Limit of the collection and reservation systems reached.	Lack of water in treatment systems.	Reduction in the production capacity of the plates, due to lack of washing.	Reduction in the amount of water in rivers and streams.	-	-
Increasing Frequency of Droughts	-	-	Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.	Risk of fire.	Risk of fire.	-	-	-	-	Reduction in the amount of water in rivers and streams.	-	-
Excess Heat Flashes	-	-	pollination failures during flowering on very hot days (> 35°C).	-	-	Increased heat can kill the hives.	Increased water consumption.	-	Increased heat in the solar panels reducing their performance.	Increased surface water temperature, affecting aquatic biota.	Increase in arboviruses due to changes in mosquito reproductive cycles.	Increase in pests requiring a greater quantity of pesticides.
	-	-	Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.	-	-	-	-	-	-	-	-	-
Excess Heat Stroke	-	-	Increased potential for product quality downgrading, e.g. due to increased incidence of sunburn on fruits or leaves.	-	Too much sunshine can burn leaves and fruits, making it easier for pests to enter	-	-	-	-	-	-	-
Instability in the annual cold heat system	-	-	Impaired flowering and fruiting.	Impaired flowering and fruiting.	-	-	-	-	-	-	-	-
Excessive and strong winds	-	-	-	-	Increased dispersal of pests (e.g. ramulosis).	Carrying pesticides from cultivation areas to bee pollination sites	-	-	-	-	-	Increased dispersal of pests (by spores).
	-	-	-	-	Drop the cotton to the ground before harvesting.	-	-	-	-	-	-	-

#### 4. ADAPTATION ASSESSMENT

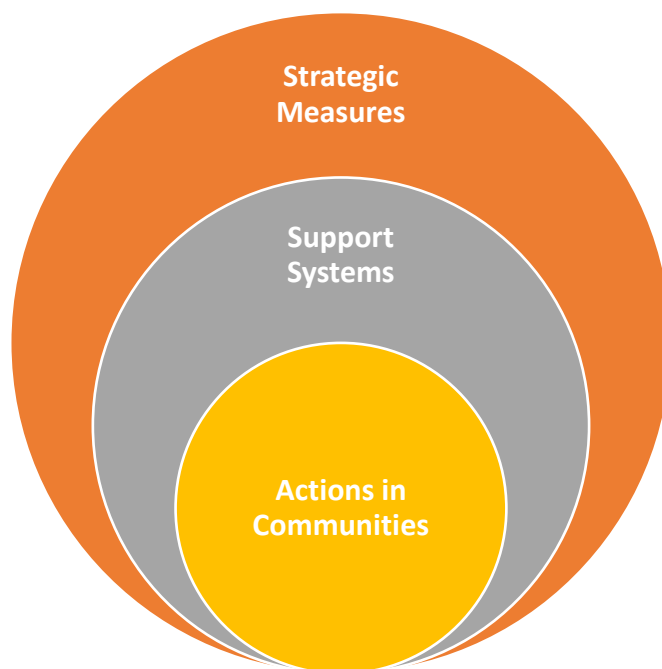
"Climate change adaptation relates to the process of natural and human systems adjustment related to behavior of climate in present and future. In human systems, adaptation seeks to reduce and avoid potential harm or exploit beneficial opportunities arising from climate change. In natural systems, human intervention attempts to support the adjust of these systems to the current and future climate and its effects" (IPCC, 2014).

Thus, this chapter presents the main adaptation measures for the possible impacts identified. It is important to highlight that there is a high degree of uncertainty about when and how strong impacts could be. Therefore, all proposals of adaptation measures should have monitoring that shall indicate any additional needs for the adaptation process to continue efficaciously.

##### 4.1. Identification of Measures to Adaptation for Possible Impacts of Climate Change

Adaptation measures can vary significantly in relation to the issue of climate change. Usually there will be strategic measures (e.g., represented by national plans), and support systems (e.g., warning systems for critical events). Lastly there are local actions that will be employed by communities (modification of plantations, land care, watering, etc.). There needs to be synergy among various categories of adaptation.

Figure 35 – Adaptation Categories



Source: Consultancy, 2023

Both strategic measures and support systems need to be considered by communities in decisions (e.g., We will participate in ProAgro Mais23? Or following the Inmet's

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23 The Agricultural Activity Guarantee Program (Programa de Garantia da Atividade Agropecuária - Proagro) guarantees the exoneration of financial obligations relating to rural credit operations, the settlement of which is hindered by the occurrence of natural phenomena, pests and diseases affecting livestock and crops, in the manner established by the National Monetary Council (Conselho Monetário Nacional - CMN). Proagro was created by Law 5.969/1973 and governed by Law 8.171/1991, both regulated by Decree 175/1991 and Federal Law 12.058/2009. Its rules are approved by the National Monetary

SISDAGRO to find out the best time to planting or harvesting?). For that, it is important to provide support from TA – Technical Assistance, within the scope of the Project for communities to understand how to use existing national and/or state programs as well as to keep up with the information available in monitoring systems and be able for make appropriate decisions.

The following are some strategic measures and support systems that should be considered in the PROCASE II. The next tables present the triggers and risks/impacts associated as well as the adaptation measures for each model Plan prepared for PROCASE II preparation stage.

- National Plan for Adaptation to Climate Change (PNA).
- Inmet – Decision Support System in Agriculture – SISDAGRO (<http://sisdagro.inmet.gov.br/sisdagro/app/index>)
- Inmet – Fire Risk (<https://portal.inmet.gov.br/paginas/incendio>).
- Embrapa (technical support) – working together with ATER.
- SISZARC – Climate Risk Agricultural System and Zoning<sup>24</sup>
- ProAgro and ProAgro Mais<sup>25</sup>.

**Table 6 – Free-Range Poultry**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall regime	<ul style="list-style-type: none"> <li>• Reduction in food supply due to irregular rainfall (excess/under).</li> </ul>	<ul style="list-style-type: none"> <li>• Use of AFSs, Adequate storage of forage.</li> </ul>
Increased intensity and frequency of extreme weather events, Periods of Drought and Excess Heat	<ul style="list-style-type: none"> <li>• Health and integrity of husbandry.</li> </ul>	<ul style="list-style-type: none"> <li>• Simple forms of protection for breeding should be observed (protections with straw, not very high perches and installation of physical barriers to prevent access to unwanted places).</li> <li>• Refuges need to bring protection, thermal comfort and be clean to avoid the appearance of diseases and pests.</li> <li>• Adequate and balanced food, as well as adequate clean water supply.</li> <li>• Proper cleaning of refuges to avoid attracting rats or harmful insects, as well as predators that may be hungrier, due to reduced natural food supply.</li> </ul>

Council (CMN) and codified in the Rural Credit Manual (MCR-16), which is published by the Central Bank of Brazil.

<sup>24</sup> Developed with objective of producing Ministerial Ordinances that guide the cultivar-producing community and stakeholders, regard to the periods of year and regions of country that are suitable for orderly planting and offering less climatic risk of crop losses, always based on the study of agricultural zoning carried out by consultancies hired by MAPA, as well as providing systemic resources capable of analyzing the studies produced, processing and criticizing it, producing different means of queries as well as reports that aim to add value to the work development under Coordination of Agricultural Zoning of the Ministry of Agriculture responsibility.

<sup>25</sup> Actions aimed to support financial and payment capacity of rural producers, faced to fluctuations market of product prices. The Crop Guarantee, which also includes a specific type of Agricultural Insurance for Family Farming, is a strategy for the productive sector, seeking provide guarantee to the producer in the face of crop losses caused by climatic events.

Trigger	Identified Risks/Impacts	Adaptation Measures
		<ul style="list-style-type: none"> <li>The herd needs to go through adequate sanitary actions, together with the TA team.</li> <li>Restoration of water sources, Permanent Preservation Areas (APPs) and other degraded areas, to increase water supply and thermal comfort.</li> <li>Integrated Pest Management.</li> </ul>
Increased Frequency of Droughts	<ul style="list-style-type: none"> <li>Excess use of Pesticides.</li> </ul>	<ul style="list-style-type: none"> <li>Use of biomixtures, compounds, bio-pesticides, mechanized mowing, etc., to the detriment of chemical pesticides.</li> <li>Installation of physical barriers to prevent access to unwanted places).</li> </ul>

Source: <https://sebrae.com.br/sites/PortalSebrae/artigos/saiba-como-manejar-uma-criacao-de-galinha-caipira.e6c89e665b182410VgnVCM100000b272010aRCRD> and

<https://ainfo.cnptia.embrapa.br/digital/bitstream/item/213153/1/SPOCriacaoGalinhasCaipiras2018.pdf>

**Table 7 – Dairy Cattle and goat farming**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall	<ul style="list-style-type: none"> <li>Reduction in food supply due to irregular rainfall (excess/under).</li> </ul>	<ul style="list-style-type: none"> <li>Use of AFS, adequate storage of forages (e.g. forage palm).</li> <li>Adequate water reserve for animal thirst.</li> </ul>
Increased intensity, frequency of extreme weather events, Periods of Drought and Excess Heat	<ul style="list-style-type: none"> <li>Health and integrity of husbandry.</li> </ul>	<ul style="list-style-type: none"> <li>Simple forms of protection for breeding should be observed (protections with straw and installation of physical barriers to prevent access to unwanted places).</li> <li>Pigsties and sheepfolds need to bring protection, thermal comfort and be clean to prevent the appearance of diseases and pests.</li> <li>Adequate and balanced food, as well as adequate clean water supply;</li> <li>Adequate protection to prevent access of predators that may be hungrier, due to reduced natural food supply.</li> <li>For shelters intended exclusively for shading, where there is no limitation of space on the sides for the movement of animals, the best orientation is north-south. In this way, the animals move with the displacement of the shelter's shade, allowing greater exposure of the floor to the sun, reducing the formation of mud and keeping it drier.</li> <li>The creation needs to go through adequate sanitary actions, together with the TA team.</li> <li>Restoration of water sources, Permanent Preservation Areas (APPs) and other degraded areas, to increase water supply and thermal comfort.</li> <li>Integrated Pest Management.</li> </ul>
Increased Frequency of Droughts	<ul style="list-style-type: none"> <li>Excess of Pesticides.</li> </ul>	<ul style="list-style-type: none"> <li>Use of biomixtures, compounds, bio-pesticides, mechanized mowing, etc., to the detriment of chemical pesticides.</li> <li>Installation of physical barriers to prevent access to unwanted places).</li> </ul>

Source: ABC Series of Family Farming – Goats and Sheep Breeding, consulted in 2024, in: <https://ainfo.cnptia.embrapa.br/digital/bitstream/item/11945/2/00081710.pdf> and Collection 500 questions, 500 answers – Dairy Cattle (3rd edition), consulted in 2024, in: <https://ainfo.cnptia.embrapa.br/digital/bitstream/item/89669/1/24399.pdf>

**Table 8 – Productive Backyards**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall	<ul style="list-style-type: none"> <li>Plant development impaired by irregular rainfall (excess/under).</li> <li>Increased incidence of physiological disorders such as burnt tips and blossom rot.</li> <li>Increased risk of soil erosion and off-farm effects of nutrients and pesticides from extreme precipitation events.</li> <li>Increased production costs, especially for fertilizers and pesticides due to soil leaching and the appearance of pests.</li> <li>Increased risk of spread and proliferation of soil-borne diseases as a result of heavier rainfall events (along with warmer temperatures).</li> <li>Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor rainfall forecasting systems (INMET or Regional).</li> <li>Use of simple roofs and systems to reduce direct rainfall, if necessary.</li> <li>Work the soils with adequate drainage and cover with local material (antlers, leaves, pebbles) to reduce leaching and prevent the appearance of erosion.</li> <li>Take immediate care of any source of erosion that arises.</li> <li>Soil care actions to reduce the spread of diseases in the soil, carry out constant visual control and inspection.</li> <li>Structuring community seed banks to bring greater resilience in case of losses.</li> <li>Enlist the support of ATER.</li> <li>Avail the protections of ProAgro and ProAgro Mais.</li> </ul>
Increased intensity and frequency of extreme weather events	<ul style="list-style-type: none"> <li>Flooding/crop damage due to flooding, with the potential to destroy entire cultivars.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor rainfall forecasting systems (INMET or Regional).</li> <li>Implement adequate drainage systems to prevent the accumulation of water in crops.</li> <li>Be careful with the location of crops in places that naturally already flood or are easily flooded by very nearby rivers.</li> <li>Use of screens or other protection in case of hail.</li> </ul>
Longer and more intense periods of drought	<ul style="list-style-type: none"> <li>Crop failure due to lack of rainfall.</li> </ul>	<ul style="list-style-type: none"> <li>Use of reserved water.</li> <li>Look for crops that are better suited to warmer climates, including improvements developed by Embrapa.</li> <li>Use of hydrogel to support root systems during drought periods in addition to adequate irrigation practices (e.g. micro dripping).</li> <li>Increase soil organic matter content to improve soil structure and water and nutrient retention capacity.</li> <li>Crop diversification.</li> </ul>
Increased Frequency of Droughts	<ul style="list-style-type: none"> <li>Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.</li> </ul>	<ul style="list-style-type: none"> <li>Water reserve.</li> <li>Manual controls for weeds.</li> <li>Use of biomixtures, compounds, bio-pesticides, mechanized mowing, etc., to the detriment of chemical pesticides.</li> </ul>
Excess Heat	<ul style="list-style-type: none"> <li>pollination failures during flowering on very hot days (&gt; 35°C).</li> <li>Changes in the distribution of existing pests, diseases, and weeds, and increased threat of new insects and diseases.</li> </ul>	<ul style="list-style-type: none"> <li>Look for crops that are better suited to warmer climates, including improvements developed by Embrapa.</li> </ul>
Excess Heat Stroke	<ul style="list-style-type: none"> <li>Increased potential for product quality downgrading, e.g. due to increased incidence of sunburn on fruits or leaves.</li> </ul>	<ul style="list-style-type: none"> <li>Use of physical protections to avoid excessive sunshine.</li> </ul>



Trigger	Identified Risks/Impacts	Adaptation Measures
		<ul style="list-style-type: none"> <li>Look for crops that are more suitable, including improvements developed by Embrapa.</li> </ul>
Instability in the annual cold heat system	<ul style="list-style-type: none"> <li>Impaired flowering and fruiting.</li> </ul>	<ul style="list-style-type: none"> <li>Work together with ASF to assist in temperature regulation.</li> <li>Look for crops that are better suited to warmer climates, including improvements developed by Embrapa.</li> </ul>

**Table 9 – Agroforestry Systems – AFS**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall regime	<ul style="list-style-type: none"> <li>Plant development impaired by irregular rainfall.</li> <li>Excess moisture in the AFS.</li> <li>Increased risk of spread and proliferation of soil-borne diseases as a result of heavier rainfall events (along with warmer temperatures).</li> </ul>	<ul style="list-style-type: none"> <li>Monitor rainfall forecasting systems (INMET or Regional).</li> <li>Soil protection measures to reduce the spread of diseases in the soil, carry out constant visual control and inspection.</li> <li>Work on the SAF so that there is adequate ventilation.</li> <li>Enlist the support of ATER.</li> </ul>
Increased intensity and frequency of extreme weather events	<ul style="list-style-type: none"> <li>AFS integrity (floods, landslides).</li> </ul>	<ul style="list-style-type: none"> <li>Monitor rainfall forecasting systems (INMET or Regional).</li> <li>Implement adequate drainage systems to prevent the accumulation of water in crops.</li> <li>Be careful with the location of crops in places that naturally already flood or are easily flooded by very nearby rivers.</li> </ul>
Longer and more intense periods of drought	<ul style="list-style-type: none"> <li>Resilience threshold of AFS reached by drought for a very long period.</li> </ul>	<ul style="list-style-type: none"> <li>Use of reserved water.</li> <li>Social technologies to increase water availability, such as subterranean dams.</li> <li>Water reuse systems.</li> </ul>
Increasing Frequency of Droughts	<ul style="list-style-type: none"> <li>Risk of fire.</li> </ul>	<ul style="list-style-type: none"> <li>Follow Inmet (Fire Risk).</li> <li>Maintain a community system of warning and support in the event of fires (community brigade).</li> <li>Maintain firefighting systems and equipment (dampers, protection, water sprinklers, etc.).</li> </ul>
Instability in the annual cold heat system	<ul style="list-style-type: none"> <li>Impaired flowering and fruiting.</li> </ul>	<ul style="list-style-type: none"> <li>Look for plants that are better suited to warmer climates, including improvements developed by Embrapa.</li> </ul>

**Table 10 – Agroecological cotton farming**

Trigger	Agroecological cotton farming	Adaptation Measures
Instability in Rainfall regime	Plant development impaired by irregular rainfall (excess/under).	<ul style="list-style-type: none"> <li>Manage soils with adequate drainage and cover with local material (antlers, leaves, pebbles) to reduce leaching and prevent the appearance of erosion.</li> <li>Do the proper irrigation.</li> </ul>
	Excessive rainfall when the fruits are open, affecting the fibers by fungi that attack the surface of the cotton, making them gray and weak, making it impossible to market.	<ul style="list-style-type: none"> <li>The proper cultivation window for cotton should be observed, seeking to reduce the possibility of situations of excessive rainfall</li> </ul>

Trigger	Agroecological cotton farming	Adaptation Measures
Increased intensity and frequency of extreme weather events	Flooding/crop damage due to flooding, with the potential to destroy entire cultivars.	<ul style="list-style-type: none"> <li>Work the soil to avoid accumulation of water in the crop.</li> <li>Do not plant crops in flooded areas.</li> <li>The proper cultivation window for cotton should be observed, seeking to reduce the possibility of situations of excessive rainfall.</li> </ul>
Longer and more intense periods of drought	Plant development hindered by lack of irrigation.	<ul style="list-style-type: none"> <li>Do the proper irrigation.</li> <li>Increase soil organic matter content to improve soil structure and water and nutrient retention capacity.</li> </ul>
Increasing Frequency of Droughts	Risk of fire.	<ul style="list-style-type: none"> <li>Observe the periods most prone to fires.</li> <li>Do not use fire to clean areas, without proper preparation and support staff for any eventuality; do not burn in periods of strong winds.</li> <li>Study the implementation of firebreaks for the protection of the plantation.</li> <li>Maintain a community system of warning and support in the event of fires (community brigade).</li> </ul>
Excess Heat Stroke	Too much sunshine can burn leaves and fruits, making it easier for pests to enter	<ul style="list-style-type: none"> <li>Try to use the most resistant plants for the region.</li> </ul>
Excessive and strong winds	Increased dispersal of pests (e.g. ramulosis).	<ul style="list-style-type: none"> <li>Maintain the health of the crops, monitor the occurrence of pests and extirpate immediately in needed.</li> <li>Seek support from ATER.</li> </ul>
	Drop the cotton to the ground before harvesting.	<ul style="list-style-type: none"> <li>Harvest at the right time, reducing the risk of losing cotton.</li> </ul>

**Table 11 –Apiculture**

Trigger	Apiculture	Adaptation Measures
Instability in Rainfall regime	Plant development hindered by irregular rainfall (excess/lack), affecting pollination and pollen collection, reducing the honey production capacity in hives.	<ul style="list-style-type: none"> <li>Use of beekeeping close to suitable AFS.</li> <li>Study the possibility of maintaining areas known to be pollinated with irrigation, when possible.</li> <li>Set up the hive areas near areas with some regularity of humidity.</li> </ul>
	Excess use of Pesticides.	<ul style="list-style-type: none"> <li>Do not use pesticides near hives or in pollination areas.</li> <li>Maintain contact with neighbors to be warned of periods of pesticide use, to close the hives during the period of greatest application.</li> <li>Map producers with the use of pesticides, trying to keep the apiary as far away as possible from these areas.</li> </ul>
Increased intensity and frequency of extreme weather events	Health and integrity of husbandry.	<ul style="list-style-type: none"> <li>Set up the apiary in a suitable place free of flooding.</li> <li>Study the need to protect hives from wind and rain, with the use of hut protections.</li> </ul>

Trigger	Apiculture	Adaptation Measures
Longer and more intense periods of drought	Plant development impaired by drought, affecting pollination and pollen collection, reducing the honey production capacity in hives.	<ul style="list-style-type: none"> <li>Use of beekeeping close to suitable AFS.</li> <li>Study the possibility of maintaining areas known to be pollinated with irrigation, when possible.</li> <li>Set up the hive areas near areas with some regularity of humidity.</li> </ul>
Excess Heat	Increased heat can kill the bee hives.	<ul style="list-style-type: none"> <li>Study the need to protect hives, with the use of hut protections</li> </ul>
Excessive and strong winds	Carrying of pesticides from cultivation areas to bee pollination sites	<ul style="list-style-type: none"> <li>Do not use pesticides near beehives or in pollination areas, especially on days with strong winds.</li> <li>Maintain contact with neighbors to discuss the avoidance of pesticide use in times of strong winds, if necessary, request support from TA to do so.</li> <li>Locate producers with the use of pesticides, trying to keep the apiary as far away as possible from these areas.</li> </ul>

**Table 12 – Water Supply**

Trigger	Identified Risks/Impacts	Adaptation Measures
Increased intensity and frequency of extreme weather events	<ul style="list-style-type: none"> <li>Risks to structures.</li> </ul>	<ul style="list-style-type: none"> <li>The areas where the systems will be installed should not be floodable or excessively humid.</li> <li>Select materials that are resistant to cracking. (Cisterns crack during extreme drought events).</li> </ul>
Longer and more intense periods of drought	<ul style="list-style-type: none"> <li>Limit of the collection and reservation systems reached.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate water storage (e.g. cisterns).</li> <li>Guidance to communities for the rational use of water.</li> </ul>
Excess Heat	<ul style="list-style-type: none"> <li>Increased water consumption.</li> </ul>	<ul style="list-style-type: none"> <li>Provide guidance to communities for the rational use of water.</li> </ul>

**Table 13 – Reuse of grey water and black water (Fossa Verde)**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall regime	<ul style="list-style-type: none"> <li>Excess water in sewage treatment systems.</li> </ul>	<ul style="list-style-type: none"> <li>Communities need to be instructed how to connect treatment systems, such as not connecting surface rainfall runoff to the sewage system.</li> <li>Projects must consider the entry of rainwater into the systems, looking for simple solutions and guiding communities to better installation.</li> <li>The areas where the systems will be installed should not be floodable or excessively humid.</li> </ul>
Increased intensity and frequency of extreme weather events	<ul style="list-style-type: none"> <li>Risks to structures.</li> </ul>	<ul style="list-style-type: none"> <li>The areas where the systems will be installed should not be floodable or excessively humid.</li> </ul>

Trigger	Identified Risks/Impacts	Adaptation Measures
Longer and more intense periods of drought	<ul style="list-style-type: none"> <li>Lack of water in treatment systems.</li> </ul>	<ul style="list-style-type: none"> <li>Guidance to communities for the rational use of water.</li> </ul>

**Table 14 –Renewable energy**

Trigger	Renewable energy	Adaptation Measures
Increased intensity and frequency of extreme weather events	Risks to structures.	<ul style="list-style-type: none"> <li>The areas where the systems will be installed must not be floodable or at risk of landslides/strong erosion.</li> </ul>
Longer and more intense periods of drought	Reduction in the production capacity of the plates, due to lack of washing.	<ul style="list-style-type: none"> <li>Provide guidance to communities for the rational use of water.</li> <li>Organization of a calendar for the cleaning of photovoltaic panels in the rainiest periods.</li> </ul>
Excess Heat	Increased heat in the solar panels reducing their performance.	<ul style="list-style-type: none"> <li>Keep the plates clean and with the surroundings free of obstacles so that there is a passage of air, providing cooling.</li> <li>Study the implementation of appropriate heat exchange systems.</li> </ul>

**Table 15 – Water Resources**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall regime	<ul style="list-style-type: none"> <li>Excessive reduction in river flows, affecting the biota and dependent communities.</li> </ul>	<ul style="list-style-type: none"> <li>Guidance to communities for the rational use of water.</li> </ul>
Excess Heat	<ul style="list-style-type: none"> <li>Increased surface water temperature, affecting aquatic biota.</li> </ul>	<ul style="list-style-type: none"> <li>Recovery of permanent preservation areas around rivers and lakes to create adequate microclimates and avoid extreme heat, mainly due to excessive sunlight directly on the water.</li> </ul>

**Table 16 – Human Health**

Trigger	Identified Risks/Impacts	Adaptation Measures
Instability in Rainfall regime	<ul style="list-style-type: none"> <li>Increase in communicable diseases such as arboviruses or waterborne diseases.</li> </ul>	<ul style="list-style-type: none"> <li>Actions of the PMU/ATER, if possible, with the Health Department of Paraíba, with information on environmental and health education for the communities</li> </ul>
Excess Heat	<ul style="list-style-type: none"> <li>Increase in arboviruses due to changes in mosquito reproductive cycles.</li> </ul>	<ul style="list-style-type: none"> <li>Active actions to search for vectors, with appropriate application of any pesticides.</li> </ul>

**Table 17 – Excessive Increase in the Use of Pesticides**

Trigger	Identified Risks/Impacts	Adaptation Measures
Irregularities in Rainfall	<ul style="list-style-type: none"> <li>Increased frequency of pesticide use (leaf wetting).</li> </ul>	<ul style="list-style-type: none"> <li>Use of biomixtures, compounds, bio-pesticides, mechanized mowing, etc., to the detriment of chemical pesticides.</li> </ul>

Trigger	Identified Risks/Impacts	Adaptation Measures
Excess Heat	<ul style="list-style-type: none"> <li>Increase in pests requiring a greater number of pesticides.</li> </ul>	
Excessive winds	<ul style="list-style-type: none"> <li>Increased dispersal of pests (by spores).</li> </ul>	

#### 4.2. Evaluation and selection of adaptation options

Once the potential adaptation options have been identified (which can be repeated in the various subprojects of PROCASE II) a General Framework of Adaptation Options has been elaborated. The next step is to evaluate and prioritize the options based on detailed information and criteria. These options should be assessed to determine: their suitability for the local context; their effectiveness in reducing vulnerability or building resilience; and their broader impact on sustainability.

It is important that the selection and ranking presented here is timely discussed with stakeholders and technicians of ATER. As observed in the Strategic Environmental and Social Assessment (SESA) It should be noted that the area of PROCASE II is quite broad and diverse – thus, thus, good practices that could have excellent results in each location, it won't be the best fit for another necessarily.

Making decisions about adaptation options is a complex process, involving decision-makers from various sectors and experts who must deal with high levels of uncertainty. It is critical to choose adaptation options that are effective in increasing resilience as well as socially, economically, and politically feasible. Thus, it was considered more appropriate to use a multicriteria analysis (MCA), which provides systematically a wide range of information that may be relevant to make adaptation choices. MCA allows decision-makers to have a framework for comparing a set of options defined on several criteria, so that they can evaluate adaptation options on a variety of priorities or values.

That way, MCA is a performance matrix in which each row describes an option, and each column describes the performance of each option against each criterion. Individual performance appraisals are numerical value, with higher scores representing more preferred options. The individual scores can be combined into a final score for each option based on the weights assigned to each criterion. This matrix may be the product of an MCA analysis. For the present study, the MCA of IFAD's Adaptation Options Prioritization System was used.

An adaptation database options and a system for evaluating and prioritizing adaptation options have been developed as part of IFAD's Adaptation Framework. Prioritization comprises two main elements: First, adaptation options are filtered based on the project sector and the climate risks identified during the climate screening process; Then, an MCA is carried out on the shortlist of adaptation options to help in the choice of measures to be integrated into the project, using the following criteria:

1. Technical feasibility.
2. Cost-benefit.
3. Addresses Climate Risk.
4. Accessibility for beneficiaries.
5. Flexibility.
6. Co-benefits.
7. Transformative potential.
8. Complementarity to IFAD Themes.

The ranking of options uses a simple scoring system based on the eight criteria above. The first four criteria require 2 as a minimum score; Options that score less than 2 on any of these criteria do not meet the minimum requirements and it is not considered

adequate. The fitting options that are scored higher are the most suitable for a project. The following guidelines define how users of the system should score, score adaptation options for each of the criteria of the multi-criteria assessment.

The following table shows the score for each criterion.

**Table 18 – Criteria and Scoring Used**

Criteria	Score Considered		
	1	2	3
Technical feasibility	Implementing partners have no experience implementing this type of adaptation option and there are no project partners with this experience.	Implementing partners do not have direct experience with this adaptation option, but partners are available who can provide technical expertise and experience with this type of option.	Implementing partners have previously implemented this type of adaptation option and have this technical expertise.
Cost-benefit	The benefits are less than the costs (BCR < 1) over the lifetime of the option, even with indirect benefits included	The benefit-cost ratio is in the range of 1-2. Benefits of implementing the option are higher than the estimated costs over the lifetime of the option although the benefits are not large and may be distributed unevenly among beneficiaries.	The benefit-cost ratio is greater than 2. Benefits of implementing the option are significantly higher than the estimated costs over the lifetime of the option and should be readily achieved.
Addresses climate risks	Adaptation option is not relevant or may not be effective for the risks identified for the project.	Adaptation option effectively addresses at least one of the identified risks.	Adaptation option is relevant for all of the major climate risks identified for the project.
Accessibility for project beneficiaries	Adaptation option is inaccessible for the main project beneficiaries (e.g., unaffordable, requiring regular complex maintenance), or exacerbates existing inequalities.	Adaptation option is accessible to most project's target beneficiaries.	Adaptation option is accessible to project beneficiaries and specifically benefits women or other marginalized groups.

Criteria	Score Considered		
	1	2	3
Flexibility	The adaptation option has a long lifetime (>10 years) and its design does not allow for any adjustment. For example, a flood defense designed to cope with an additional 1m of flooding, and which would need to be completely replaced if greater protection was required.	The adaptation option being considered has a short lifetime (<10 years) meaning that considerations of flexibility are not as relevant.	The adaptation option is low or no regrets or is part of an adaptive management approach. Low regrets mean the option has benefits across a wide range of conditions. Thresholds and trigger points identified in adaptation strategies support adjustments in response to new information, risks, or opportunities.
Mitigation co-benefits	No mitigation co-benefits or adaptation significantly increases greenhouse gas emissions.	Adaptation option leads to emissions reductions, either at present or in the future.	Adaptation option involves reforestation, restoration of carbon sinks, or the substitution of fossil fuels for renewable energy sources.
Transformative potential	Adaptation option is limited to small increases in the resilience of target group but does not involve changes in wider systems.	Adaptation option operates at scale or enables wider implementation of the option, for instance with a declining marginal cost.	Adaptation option enables change in the system in question which significantly increases opportunities for target beneficiaries to adapt to climate change.
Complementarity to IFAD themes	No complementarity	Complements at least one other cross-cutting theme that is directly relevant to adaptation outcomes.	Complements more than one other cross-cutting theme to support systemic resilience.

Source: IFAD, 2023 (consultation)

The following table present options classification of adaptation considered.

**Table 19 – Adaptative Options Score and Classification**

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
1	Apply soil treatment management practices to reduce spread of diseases and take control and constant visual inspection.	Productive Backyards and Agroforestry Systems – AFS	2	3	2	3	3	3	3	2	21
2	Enlist TA consultancy.	Productive Backyards and Agroforestry Systems – AFS	3	3	2	3	3	2	3	2	21
3	PMU/ATER actions, if possible with the Health Department of Paraíba, with information on environmental and health education for the communities	Human Health	3	3	2	3	3	1	3	2	20
4	Check Inmet Fire Risk monitoring system	Agroforestry Systems – AFS	2	3	2	2	3	3	3	2	20
5	Check rain forecast systems (INMET or Regional).	Productive Backyards and Agroforestry Systems – AFS	2	3	2	2	3	3	3	2	20
6	Manual weed control	Productive Backyards	3	3	2	3	3	2	2	2	20
7	Structuring community seed banks to bring greater resilience in case of losses.	Productive Backyards	2	3	3	2	3	1	3	3	20
8	Provide adequate ventilation in AFS implantation	Agroforestry Systems – AFS	2	3	2	2	3	3	3	2	20
9	Provide community fire brigades	Agroecological Cotton Farming and Agroforestry Systems – AFS	2	3	2	2	3	3	3	2	20
10	Husbandry needs to take adequate sanity actions with TA.	Free-Range Poultry and Cattle and Dairy Goat Farming	2	3	2	3	3	2	2	2	19
11	Deploy in conjunction with AFS to contribute to temperature regulation.	Productive Backyards	2	3	2	2	3	3	2	2	19
12	Apply corrective measures for any erosion process immediately.	Productive Backyards	3	3	2	3	3	1	2	2	19



Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
13	Harvest at the right time, reducing the risk of losing cotton.	Agroecological cotton farming	3	3	2	3	3	1	2	2	19
14	Implement adequate drainage systems to prevent the accumulation of water in crops.	Productive Backyards and Agroforestry Systems – AFS	2	3	2	3	3	1	2	3	19
15	Have contact with neighbors to be warned of periods of pesticide use, to close the bee hives during the period of high intensity use;	Beekeeping	2	3	2	3	3	1	3	2	19
16	Do not use fire to clean areas, without proper preparation and support staff for any eventuality; do not burn in periods of strong winds.	Agroecological cotton farming	2	3	2	3	3	2	2	2	19
17	Projects must consider the entry of rainwater into the systems, finding simple solutions and guiding communities for better installation;	Reuse of greywater and black water (Fossa Verde)	2	3	2	3	3	1	3	2	19
18	Seek support from ATER;	Agroecological cotton farming	2	3	2	3	3	1	3	2	19
19	Look for crops that are more suitable, including improvements developed by Embrapa	Productive Backyards and Agroforestry Systems – AFS	2	3	2	2	3	2	3	2	19
20	Using biomixtures, compounds, bio-pesticides, mechanized mowing, etc., rather than chemical pesticides.	Free-Range Poultry, Cattle and Goat Farming, Productive Backyards, Excessive Increase in Pesticide Use	2	3	3	2	3	2	2	2	19

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
21	Recovery of permanent preservation areas around rivers (APP) and lakes to create adequate microclimates and avoid extreme heat, mainly for excessive sunlight directly on the water.	Water Resources	2	3	2	2	2	3	3	2	19
22	Adequate water reserve for animal thirst and irrigation	Cattle and Goat Farming, Agroforestry Systems and Productive Backyards	2	3	2	3	3	1	3	2	19
23	Adequate water storage (e.g. cisterns).	Water Supply	2	3	2	3	3	1	3	2	19
24	Active actions to search for disease vectors, with appropriate application of mechanical or biological control.	Human Health	2	3	2	3	3	1	2	2	18
25	Communities need to be instructed about to connect sewage treatment solution systems, such as not connecting surface rainfall runoff to the sewage system.	Reuse of greywater and black water ( <i>Fossa Verde</i> )	2	3	2	2	3	1	3	2	18
26	Be careful with the location of crops in places that naturally flood or that are easily flooded.	Productive Backyards and Agroforestry Systems – AFS	2	3	2	2	3	1	3	2	18
27	Simple forms of protection for husbandry should be observed (protections with straw and installation of physical barriers to prevent access to unwanted places);	Cattle and goat farming	2	3	2	3	3	1	2	2	18

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
28	Simple forms of protection for husbandry should be observed (protections with straw, not very high perches and installation of physical barriers to prevent access to unwanted places).	Free-Range Poultry	2	3	2	3	3	1	2	2	18
29	Irrigate properly.	Agroecological cotton farming	3	3	2	2	3	1	2	2	18
30	Installation of physical barriers to prevent access to unwanted places).	Free-Range Poultry and Cattle and Dairy Goat Farming	2	3	2	3	3	1	2	2	18
31	Adequate cleaning of refuges to avoid attracting rats or harmful insects, as well as predators that may be hungrier, due to reduced natural food supply.	Free-Range Poultry	2	3	2	3	3	1	2	2	18
32	Have contact with neighbors to discuss the avoidance of pesticide use in times of strong winds, if necessary, request support from ATER;	Apiculture	2	3	2	2	3	1	3	2	18
33	Implement firefighting systems and equipment (dampers, protection, water sprinklers, etc.).	Agroforestry Systems – AFS	2	3	2	1	3	3	2	2	18
34	Map producers with the use of pesticides, trying to keep the apiary as far away as possible from these areas.	Apiculture	2	3	2	3	3	1	2	2	18
35	Do not plant crops in flooded areas	Agroecological cotton farming	3	3	2	2	3	1	2	2	18
36	Do not use pesticides near to beehives or in pollination areas, especially on strong winds days.	Beekeeping	2	3	2	3	3	1	2	2	18
37	Observe most prone periods of fires;	Agroecological cotton farming	2	3	2	3	3	1	2	2	18

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
38	Guidance to communities for the rational use of water.	Renewable Energy, Water Supply, reuse of grey water and black water (Green Cesspool), Water Resources	2	3	2	3	3	1	2	2	18
39	Refuges need to bring protection, thermal comfort and be clean to avoid the appearance of diseases and pests;	Free-Range Poultry	2	3	2	3	3	1	2	2	18
40	Avail the protections of ProAgro and ProAgro Plus.	Productive Backyards	2	3	2	2	3	2	2	2	18
41	Use the terrain with adequate drainage and covered with local material (antlers, leaves, pebbles) to reduce leaching and prevent the appearance of erosion.	Agroecological Cotton Farming and Productive Backyards	2	3	2	2	3	2	2	2	18
42	Use AFS, adequate storage of forages (e.g. forage palm).	Cattle and goat farming	3	3	2	2	3	1	2	2	18
43	Use AFS, adequate storage of forage.	Free-Range Poultry	3	3	2	2	3	1	2	2	18
44	Adequate and balanced food, as well as adequate clean water supply.	Free-Range Poultry and Cattle and Dairy Goat Farming	2	3	2	2	3	1	2	2	17
45	The areas where the systems will be installed must not be floodable or at risk of landslides/strong erosion.	Renewable Energy, Water Supply, reuse of grey water and black water (Green Cesspool)	3	3	2	2	1	1	3	2	17
46	The cultivation window for cotton should be observed, seeking to reduce the possibility of situations of excessive rainfall	Agroecological cotton farming	3	3	2	3	3	1	2		17
47	Assess the requirement of protect beehives from wind and rain, with the use of hut protections	Beekeeping	2	3	2	2	3	1	2	2	17

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
48	Assess the requirement to protect beehives, with the use of hut protections	Beekeeping	2	3	2	2	3	1	2	2	17
49	Assess the possibility of areas to be pollinated, maintained with irrigation, when it is possible.	Beekeeping	2	3	2	2	3	1	2	2	17
50	Maintain the health of crops, looking for evidence of pests and their immediate control.	Agroecological cotton farming	2	3	2	2	3	1	2	2	17
51	Choose beehive areas near to moist regularity places	Beekeeping	2	3	2	2	3	1	2	2	17
52	Set up the apiary in a suitable place free of flooding.	Beekeeping	2	3	2	2	3	1	2	2	17
53	Pigsties and sheepfolds need to be protected, offering thermal comfort and be clean to prevent the appearance of diseases and pests.	Cattle and goat farming	2	3	2	3	3	1	1	2	17
54	For shelters intended exclusively for shading, where there is no limitation of space on the sides for the movement of animals, the best orientation is north-south. In this way, the animals move with the displacement of shelter's shade, allowing greater exposure of the floor to the sun, reducing the formation of mud and keeping it drier.	Cattle and goat farming	2	3	2	3	3	1	1	2	17
55	Try to use the most resistant and local plants.	Agroecological cotton farming	2	3	2	2	3	1	2	2	17
56	Use of beekeeping close to suitable AFS;	Beekeeping	2	3	2	2	3	1	2	2	17

Adaptative Options		Subprojects	Technical feasibility	Cost-benefit	Addresses Climate Risk	Accessibility for beneficiaries	Flexibility	Co-benefit	Transformative potential	Complementarity to IFAD Themes	Total
57	Use simple roofs and systems to reduce direct rainfall, if necessary.	Productive Backyards	2	3	2	2	3	1	2	2	17
58	Use physical protection to avoid excessive sunshine.	Productive Backyards	2	3	2	2	3	1	2	2	17
59	Use screens or other protection in case of hail.	Productive Backyards	2	3	2	2	3	1	2	2	17
60	Assess the implementation of firebreaks for the plantation protection.	Agroecological cotton farming	2	3	2	2	1	2	2	2	16
61	Keep the plates clean and surroundings free of obstacles so that there is a passage of air, providing cooling.	Renewable energy	2	3	2	3	3	1	1	1	16
62	Fix up a calendar for cleaning the plates during the rainy periods	Renewable energy	2	3	2	3	3	1	1	1	16
63	Adequate protection to prevent access by predators that may be hungrier, due to reduced natural food supply;	Cattle and goat farming	2	3	2	2	3	1	1	2	16
64	Study the implementation of appropriate heat exchange systems.	Renewable energy	1	2	1	1	2	1	1	1	10

Elaboration: consultancy, 2023

Of the 64 adaptation options presented, 42 were considered adequate or very adequate for PROCASE II.

- The adaptation options are repeated in part of the subprojects, but were considered only once for classification purposes, a column was added to identify which subprojects the adaptation action is linked to.
- All 62 options are feasible, the previous selection of options has already ruled out those that would be totally unrealistic for the target communities of the Project (e.g., the construction of a complex irrigation system, typical of monocultures).
- Two options are not considered feasible for communities: 33 and 64 – the solutions are related to more complex actions in photovoltaic systems, which may not be accessible to communities. It is important here to reinforce that the first four criteria require a minimum score of 2; Options with a score of less than 2 in any of these criteria do not meet the minimum requirements and are not considered suitable, this mainly affects adaptation solution 33 of the table above.

- It is considered very important that, in due course, this evaluation, especially the adaptation actions, be passed on with TA technicians, to consider its effectiveness for the Project/communities, including considering the fact that eventually the solutions may vary due to the location of the communities, given the size and diversity of the area covered by PROCASE II.

A comprehensive hazard mapping and vulnerability assessment should be carried out, using standardized vulnerability and risk assessment (VRA), and the Disaster and Climate Change Risk Management Plan should be considered for this purpose, as provided for in the Project's PGASE.

It is important to highlight that the project can count on effective and comprehensive adaptation measures, such measures should not be configured only in a set of crops, techniques and practices, often created individually by local producers, but involving the definition of a catalogue of proven adaptation solutions and techniques that, based on experimentation, bring resilience to climate change. The approach must move from what can be called spontaneous adaptation to what is called planned adaptation, involving TA technicians and being articulated with local research and support institutions (universities, NGOs, Embrapa, among others), involving:

- Elaboration of proposals that can increase the resilience of productions and communities, with the appropriate elaboration of community tests.
- Incorporation of successful proposals into the portfolio of actions and technical courses made available by ATER, to disseminate knowledge.
- Incorporation of proposals that have caused problems or that would result in losses (lessons learned).
- Review and adaptation of the Disaster and Climate Change Risk Management Plan whenever necessary.

### **Additional measures to reduce vulnerability in Productive Development Plan**

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The measures presented below include additional actions that should contribute to the reduction of vulnerability levels assessed in this document. The measures seek to achieve better results in climate adaptation and in reducing identified risks.

#### ***Measures to reduce the vulnerability of production systems***

A comprehensive hazard mapping and vulnerability and risk assessment (VRA) should be carried out, considering in this proposal the Disaster and Climate Change Risk Management Plan provided in Project's MGAS.

It is important to highlight that the Project and subprojects shall consider effective and comprehensive adaptation measures. These measures should not be only a set of crops, techniques, and practices often implemented individually by local producers. It should encompass actions in agricultural technical packages that bring resilience to climate change based on experimentation. The proposal needs embody the development of planned actions to adaptation instead the spontaneous actions to adaptation, involving TA technicians, local scientific institutions, and research centers (universities, NGOs, Embrapa, and others). In general terms, the following actions are recommended:

- Effective adaptation measures, besides the introduction of a set of crops, techniques and practices, through the definition of the climate proof catalogue of adaptation solutions and techniques on the basis of experimentation, community-based trial of proposed solutions, testing and revision of disasters, risk and resilience plans.
- Measures to encourage integration of climate smart agri-practices, and nutrition in community plans.

- Alternative study to evaluate project design that affects areas to result in reduction or, whenever possible, non-suppression of vegetation, prioritizing the preservation of endemic and native species.
- In situations where vegetation suppression is unavoidable, off-set planting must be carried out aiming at net environmental gain at the micro-watershed level.
- Assess habitats and ecological corridors connectivity, mainly to verify new corridors that can be promoted with the recovery of areas and project actions, in special riparian areas.
- Assess vulnerable habitats to desertification, loss of vegetation, etc. and adopt protection measures.
- Avoid implementing agricultural and animal production in riparian areas and high slopes areas.
- Promote the substitution of monoculture by agroforestry systems.
- Promote species increasing and diversification encompassing agroecological production systems that include native species and, when involving exotic species, consider the following criteria established about fully adaptation, do not present characteristic of invasive or predatory species, perform an ecological function in the environment, do not present toxicity to local insects, especially those that act in local pollination – with a focus on native bees.

#### ***Training program - methods of pest and disease control in production systems***

Although the Project does not provide and encourage acquisition the use of chemical substances inputs in agricultural, the risk of pesticide use by the beneficiaries is identified, owing of communities producing habit and of being able to purchase and apply them with their own resources. In this sense, two actions are indicated for the recommended measure:

- In order to reduce and, as far as possible, combat the use of pesticides, it is important that the Project, in each Production Plan, implements a training program for TA and beneficiaries regarding the use of these substances. To this extent, in addition to others topics to be addressed in the training should be included: (i) information and guidance regarding the prohibition and consequences of the use of certain substances; (ii) the correct use and application of substances (quantity, frequency safe application, transport, storage, prescription, handling, PPE); (iii) and the application and benefits of ecological techniques that can efficiently replace the use of pesticides. It is suggested to be based on the recommendations of procedures established by Embrapa<sup>26</sup>.
- ATER should monitor and follow up on the methods and techniques applied by the communities in the implementation of Production Plans actions, with the objective of mapping the intensification or reduction use of pesticides during the life cycle of the Project implementation, and to apply guidance and adjustment measures to increasingly encourage the replacement of pesticides by more sustainable, health and environmentally friendly methods.

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<sup>26</sup> The Brazilian Agricultural Research Corporation (Embrapa) is a public company, linked to the Ministry of Agriculture and Livestock (Mapa), which was created in 1973 to develop the technological basis of a genuinely tropical agriculture and livestock model.



### ***Training management and assistance teams in climate change resilience measures***

There is also an opportunity and convenience to improve the institutional capacity of partner institutions of TA to manage climate and resilience issues. It is expected that better results will be achieved in the dissemination of good practices and more effective implementation of the measures provided in the environmental and social documents. The training could incorporate topics such as:

- Knowledge of national and international environment, social and climate change safeguards policies.
- Guidance to preparing a baseline knowledge on local risks, including research and consultation in scientific and academic institutions;
- Detailing and implementation of measures provided for Project's Environmental and Social Management documents (AAS/SESA, MGAS/ESMF, PGAS/ESMP, TCA/TAA).

#### **4.3. Monitoring**

This Targeted Adaptation Assessment should be implemented by PMU and its regional offices, and the participation of TA is essential for the results to be achieved, since it is through technical assistance that many communities will be able to achieve good results. IFAD's regional team will also provide mentoring support throughout the duration of the project.

Monitoring is critical to ensure the long-term success of climate adaptation initiatives, plans and actions. It plays an important role in the following aspects of adaptation.

- Monitors the performance of the activities carried out during the development of the adaptation plan (e.g., AFS implementation activities).
- It determines whether the planned results and the results of adaptation actions have been achieved (e.g., AFS evolution indexes).
- Determines what adjustments need to be made to achieve planned goals and results.
- It helps to determine if the actions are generating unforeseen side effects.

The PMU shall be responsible for the preparation of monitoring reports, procurement plans, cost estimates, and corrective action mechanisms that shall be implemented during the activities of this Target Adaptation Assessment.

## **5. COSTS AND BUDGET CONSIDERATIONS**

The implementation of Targeted Adaptation depends on structuring actions of the project and non-structuring actions (guidance of communities for development of AFS, vegetable cultivation, free-range poultry farming, avoid pesticides).

The Key to success of the Project is ATER's performance, with, who have not only the technical mastery and trained technicians, but also the ability to communicate adequately with the communities, creating bonds of trust and promote the transmission of knowledge that has expected. On the other hand, part of the actions considered here are also present in the Strategic Environmental and Social Management Plan (ESMP) prepared for PROCASE II.

The following table presents budgetary considerations for the implementation of this Target Adaptation Assessment.

**Table 20 – Budgetary considerations**

Seq.	Description	Budget	Responsibility
1	Training for interested communities	Inserted in the Project Budget	PMU/ATER
2	Implementation of Social Technology Frameworks	Inserted in the Project Budget	PMU
3	Accompaniment of Communities	Inserted in the Project Budget	PMU/ATER
4	Monitoring & Auditing	Inserted in the Project Budget	As Provided in the PGASE/ESMF

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## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

#### **Design Report**

#### **Annex: 8.6 Secap Resumen De La Revision Ambiental Y Social**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



DOCUMENTO DEL BANCO INTERAMERICANO DE DESARROLLO



BRASIL

PROYECTO DE DESARROLLO SOSTENIBLE DE PARAÍBA - PROCASE II

BR-L1623

RESUMEN DE LA REVISIÓN AMBIENTAL Y SOCIAL (ESRS)  
26/06/2025

Este documento fue preparado por:  
Alessandro Farinaccio (VPS/ESG), Luciana Vanzan (VPS/ESG) y Robert Langstroth  
con el apoyo de Octavio Damiani (VPS/RND)

<b>Resumen de la revisión ambiental y social</b>	
<b>Datos de la operación</b>	
<b>Número de la operación</b>	BR-L1623
<b>Sector/Subsector del BID</b>	Agriculture And Rural Development / Sustainable Agricultural Development
<b>Tipo y modalidad de la operación</b>	LON / ESP
<b>Clasificación de impacto ambiental y social (ESIC)</b>	B
<b>Calificación de riesgo de ambiental y social (ESRR)</b>	Substancial
<b>Clasificación de riesgo de desastre y cambio climático (DCCRC)</b>	Moderado
<b>Prestatario</b>	Governo Do Estado Da Paraiba
<b>Agencia Ejecutora (AE)</b>	BR-GPB-SEAFDS
<b>Monto del préstamo BID (y costo total del proyecto)</b>	\$70,000,000.00 (\$70,000,000.00)
<b>Normas de desempeño con requerimientos</b>	ESPS 1; ESPS 2; ESPS 3; ESPS 4; ESPS 6; ESPS 7; ESPS 8; ESPS 9; ESPS 10
<b>Resumen ejecutivo</b>	
<p>Según el Marco de Política Ambiental y Social (MPAS), y en base a la información disponible en este momento, la operación está clasificada como Categoría B debido a que las actividades y planes financiados por los componentes 1 y 2 pueden generar impactos ambientales y sociales negativos moderados a significativos a medio y largo plazo, gestionables y mitigables con medidas conocidas. Estos impactos están vinculados a actividades agrícolas y actividades puntuales de construcción civil que financiará el proyecto, incluyendo generación de ruido, de residuos de la construcción civil y agrícolas y de polvo, emisiones, erosión y sedimentación de cursos de agua, presión sobre las hábitats modificados y naturales. No se espera que las actividades orientadas a mejorar la productividad y los ingresos de los grupos de productores afecten negativamente ni contribuyan con la degradación de áreas protegidas o hábitats críticos. Se espera que la titulación de tierras promoverá el desarrollo económico y el mejor uso y conservación.</p> <p>La Clasificación de Riesgo Socioambiental es Sustancial, asociado a impactos ambientales y sociales negativos, temporales, gestionables y mitigables, a riesgos de intervención e impactos en hábitats modificados con un valor significativo para la biodiversidad, y riesgos de impacto indirecto para hábitats naturales y críticos. Algunas situaciones, relativas al tema de regularización (titulación) de tierras, conllevan riesgos de que generen conflictos en relación con el uso y ocupación de tierras entre potenciales beneficiarios y ocupantes que reclaman la propiedad de la tierra. El análisis PACI identificó que el Ejecutor tiene experiencia con los temas del proyecto, pero será necesario incorporar 2 especialistas – uno ambiental y otro social – para tratar de los temas socioambientales. Los riesgos de contexto están relacionados con la dispersión territorial de las intervenciones una amplia área del estado de Paraíba, lo que podrá dificultar la supervisión y control ambiental y social adecuado.</p> <p>El Riesgo de Desastres y Cambio Climático se clasificó como Moderado debido a la exacerbación de los riesgos de desastres naturales durante eventos extremos de sequías, precipitación e inundaciones e incendios en bioma sensible. La infraestructura que se va a construir es de criticidad moderada, ya que es de tamaño medio, lo que deberá confirmarse cuando se definan los proyectos y las áreas de implementación a través de una Evaluación de Riesgo de Desastres, a incluirse en el PGAS previo a la ejecución.</p>	



Estas clasificaciones se confirmaron a través de los resultados de los estudios en la Evaluación Ambiental y Social Estratégica -EASE realizados durante la debida diligencia. Los criterios de elegibilidad establecidos para la operación excluyen actividades que pudieran ser clasificados como categoría de impacto “A”, y específicamente aquellas que conlleven desplazamientos y reasentamiento involuntarios (físicos o económicos), impactos negativos en los medios de subsistencia, impactos negativos en las comunidades tradicionales y/o pueblos indígenas, así como impactos en los recursos ecosistémicos de los que dependen los pueblos indígenas y en su patrimonio cultural. Tampoco serán elegibles inversiones que generen impactos adversos en hábitats críticos.

Para tratar adecuadamente estos riesgos y con el fin de atender los requerimientos establecidos en las Normas de Desempeño Ambiental y Social (NDAS), fue desarrollada una (i) Evaluación Ambiental/Social Estratégica (EASE); (ii) un Plan de Gestión Ambiental/Social Estratégico (PGASE), (iii) un Análisis Sociocultural centrado en las poblaciones indígenas, las comunidades *quilombolas* y otras comunidades tradicionales, previo a las intervenciones que se llevarán a cabo, así como (iv) un Plan de Participación de las Partes Interesadas Específico (PPPI). Los riesgos referentes a las Comunidades Indígenas fueron evaluados durante la Debida Diligencia y se identificó la necesidad de una Consulta Libre Previa e Informada para las comunidades indígenas y tradicionales que pueden ser afectadas por el proyecto. Además, la UGP implementará un Sistema de Gestión Ambiental y Social (SGAS) consistente con la Norma de Desempeño Ambiental y Social NDAS 1.

Los estudios ambientales y sociales fueron divulgados en su versión preliminar en la página web del Banco previo a la Misión de Análisis, y se llevará a cabo un proceso de consulta pública para todo el proyecto, teniendo en cuenta los mecanismos culturalmente apropiados y el avance de los estudios y planes de gestión, previo a la fecha de Directorio de la operación.

## Descripción de la operación

El objetivo general del proyecto es reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional y la adaptación de la población rural al cambio climático. Los objetivos específicos son los siguientes: (i) aumentar la adopción de tecnologías agrícolas, incluidas las de adaptación y mitigación al cambio climático; (ii) mejorar la inclusión productiva y social de los agricultores familiares, priorizando mujeres, jóvenes, PCT y PcD; y (iii) mejorar las condiciones ambientales de las comunidades rurales y su entorno. El proyecto está dividido en dos componentes, a saber:

**Componente I. Sistemas productivos resilientes para reducir la pobreza rural (BID US\$42,8 millones, FIDA US\$6,04 millones, Local US\$15,10 millones).** Financiamiento de planes para mejorar la producción y comercialización de los beneficiarios, fortalecer su capacidad de adaptación al cambio climático y recuperar áreas ambientalmente degradadas, incluyendo: Planes de Inversión Resiliente (PIR) y Planes de Negocios (PN). Los PIR beneficiarán a grupos de comunidades rurales, basados en un diagnóstico participativo, con foco en mujeres, jóvenes, PCT y PcD. Los PN beneficiarán a cooperativas y organizaciones similares, y financiarán inversiones y asistencia técnica especializada para fortalecer capacidades de gestión, promover agregación de valor, mejorar la comercialización y la adaptación al cambio climático

**Componente II. Fortalecimiento organizacional y de capacidades y gestión del conocimiento (BID US\$20,87, FIDA US\$2,98 millones, Local US\$7,45 millones).** y

**Gestión, seguimiento y evaluación del proyecto (BID US\$6,85 millones, FIDA US\$0,98 millones, Local US\$2,45 millones).** Financiará equipos, consultorías y otros gastos necesarios para (i) administración y gestión del proyecto, (ii) seguimiento, monitoreo y evaluación (M&E); (iii) capacitaciones para el personal de la UGP; y (iv) auditorías del proyecto.

El Proyecto tendrá cobertura en todo el estado de Paraíba, involucrando sus 223 municipios (Figura 1 en Anexo C), municipios que están distribuidos entre los Biomas Caatinga (194) y Mata Atlántica (29). El Censo Agropecuario (IBGE 2017) señala un total de 163.218 establecimientos agropecuarios, de los cuales el 76,88% pertenece a la Agricultura Familiar (UAF), contabilizando un universo potencial para el Proyecto. El Proyecto buscará atender aproximadamente a

560.000 familias (200.000 personas) como beneficiarias directas, estableciendo un enfoque preferencial en los siguientes perfiles: mujeres, jóvenes, personas con discapacidad (PcD), Pueblos y Comunidades Tradicionales (PCT), pueblos originarios, comunidades de pescadores y gitanos. De todos modos, se definirán criterios específicos para la priorización y selección de las comunidades beneficiadas, involucrando aspectos como la tradicionalidad cultural, la necesidad de acceso a saneamiento básico, la tasa de familias inscritas en el CadÚnico, familias que no hayan sido beneficiadas por otros proyectos similares, el nivel de representación de género, juventud y PcD, el nivel de degradación ambiental y la falta de asistencia técnica y extensión rural (ATER). El estado de Paraíba presenta una gran diversidad de ocupación en su territorio, incluyendo grupos vulnerables, como afrodescendientes, colonos de la reforma agraria, pueblos indígenas, gitanos y pescadores artesanales. Las características de uso y ocupación de suelo, la no formalización de las áreas ocupadas por las comunidades tradicionales, los riesgos de sequía y dificultad de acceso a agua potable podrían representar riesgos para la implementación de los proyectos.

<b>Fundamentos de las clasificaciones/valoraciones</b>	
<i>Clasificación de impacto ambiental y social</i>	El proyecto ha sido clasificado con <b>Categoría B</b> , debido principalmente a potenciales impactos <b>moderados</b> directos, indirectos negativos como ruido, generación de polvo, emisiones, erosión y sedimentación de cursos de agua y residuos, asociados con la construcción de pequeñas obras y planes productivos de pequeña escala en áreas de producción existentes. Asimismo, serán localizados, de corta duración y fácilmente mitigables a través de planes de gestión, buenas prácticas y aplicación de códigos de conducta. Se reconocen potenciales impactos acumulativos a hábitats naturales, afectación de ocupación y uso del suelo por propietarios, ocupantes y usuarios de terrenos a lo largo de las márgenes de los ríos y costa marina.
<i>Calificación de riesgo ambiental y social</i>	<u>Causa</u> : La operación puede tener un impacto directo moderado en hábitats naturales y modificados con un valor significativo para la biodiversidad, también podría causar impactos directos generados por ruido, polvo, erosión, emisiones, generación de residuos sólidos (peligrosos y/o no peligrosos, accidentes de trabajo y salud y seguridad. <u>Contribución</u> : La operación tiene el potencial de causar impactos indirectos y/o acumulativos menores asociados a cambios acumulativos o inducidos en la calidad de suelos o cobertura de bosque, impactos menores indirectos y/o acumulativos generados por ruido, polvo, erosión, emisiones, generación de residuos sólidos (peligrosos y/o no peligrosos, accidentes de trabajo, salud y seguridad comunitaria y posibles afectaciones a comunidades indígenas. La operación tiene el potencial, a través de la cadena de suministro, de generar riesgos de impactos indirectos para hábitats naturales y críticos, particularmente si se genera demanda percibida y otros actores deciden expandir su producción. Además, la diversidad de actores sociales incluyendo comunidades afrodescendientes, asentados de la Reforma Agraria y pueblos indígenas que en caso de no hacerse la identificación de impactos ambientales y sociales y las medidas de mitigación pueden resultar afectados en sus modos de vida de manera significativa. <u>Contexto</u> : La dispersión territorial de las intervenciones podrá dificultar la supervisión y el control ambiental y social adecuado. El proyecto se desarrollará en un contexto mayoritariamente rural, en áreas vulnerables, pudiendo abarcar comunidades tradicionales, indígenas y quilombolas, asentamientos de INCRA, entre otros con algún grado de inseguridad alimentar. Además, existe riesgo contextual por temas reputacionales en relación con la regularización y titulación de tierras que puede ocasionarse reclamos y perjuicios en las personas afectadas del Proyecto. <u>Desempeño</u> : El prestatario tiene una buena capacidad para implementar el SGAS y los planes de gestión ambientales y sociales necesarios para gestionar los riesgos e impactos. Por ende, la Calificación de Riesgo general se categoriza como <b>Substancial</b> .
<i>Clasificación de riesgo de desastre y cambio climático</i>	El Riesgo de Desastre y Cambio Climático ha sido clasificado como <b>Moderado</b> , debido que en la zona del proyecto se producen amenazas naturales como inundaciones fluviales, sequías, incremento del nivel del mar, incendios forestales y otros, incluidos los causados o exacerbados por el cambio climático, y porque éstos puedan afectar significativamente al

	proyecto y/o porque el proyecto puede exacerbar significativamente la exposición de vida humana, la propiedad, y/o el medio ambiente hacia estas amenazas.
<b>Uso del marco ambiental y social del prestatario</b>	<b>No</b>
Para el proyecto se utilizará solamente el Marco de Políticas Ambientales y Sociales del BID.	
<b>¿Se aplicará un enfoque de “framework approach”?</b>	<b>Sí</b>
Debido a que la operación financia un grupo grande de intervenciones replicables en un mismo sector o subsector dentro de una misma región geográfica, el proyecto tiene un enfoque de framework approach. Para eso, se preparó una Evaluación Ambiental y Social Estratégica (EASE) y un Plan de Gestión Ambiental y Social Estratégico (PGASE), considerando las diferentes tipologías de intervención y riesgos previstos en los Planes de Inversión Resilientes. Para cada de estas intervenciones serán realizados Análisis Ambiental y Social (AAS) y Planes de Gestión Ambiental y Social (PGAS) específicos para los Planes de Negocio y Planes de Inversión Resilientes.	
<b>¿Se cofinanciará la operación?</b>	<b>Sí</b>
Se anticipa que esta operación involucre el cofinanciamiento del Fondo Internacional para el Desarrollo Agrícola (FIDA) por un monto estimado de US\$ 10.000.000,00. El FIDA es una institución financiera internacional y organismo especializado de las Naciones Unidas dedicado a erradicar la pobreza y el hambre en las zonas rurales de los países en desarrollo. Dicho cofinanciamiento tendrá la modalidad de cofinanciamiento conjunto. Se harán esfuerzos para establecer un enfoque común. El FIDA ha indicado que se alinearía para el atendimento/seguimiento de los estándares sociales y ambientales del BID. También, se analizará el atendimento a las salvaguardas del FIDA y se verificará la mejor forma para su aplicación.	
<b>Normas de Desempeño Ambiental y Social con requerimientos para el proyecto propuesto</b>	
<b>NDAS-1. Evaluación y gestión de riesgos e impactos ambientales y sociales</b>	<b>Sí</b>
<p>El proyecto será ejecutado por el Gobierno del Estado a través de la Secretaría de Agricultura Familiar y Desarrollo del Semiárido, donde se creará una Unidad de Gestión del Proyecto (UGP), que incorporará como equipo mínimo para los temas de ambientales y sociales un especialista en PCT (Pueblos y Comunidades Tradicionales) y salvaguardas sociales; y un especialista en salvaguardas ambientales.</p> <p>El esquema de ejecución, incluyendo los mecanismos de coordinación será detallado en el POD y en el Reglamento Operativo del Proyecto (ROP) y el Sistema de Gestión Ambiental y Social (SGAS), el cual se diseñará e implementará conforme a los requisitos del MPAS y las diez NDAS del Banco.</p> <p>Para la fase de preparación de esta operación, se encuentra en elaboración un SGAS que está compuesto por los elementos identificados por el MPAS como esenciales para un sistema de gestión socioambiental: El SGAS se basará en siete pilares fundamentales:</p> <p><b>1-El Marco Ambiental y Social Especifico</b>, que define los compromisos ambientales y sociales aplicables, considerando los requisitos de las Normas de Desempeño del MPAS y la legislación nacional.</p> <p>La UGP, con el apoyo del BID y el Fondo Internacional para del Desarrollo Agrícola (FIDA), establecerá un marco legal, y un Sistema de Gestión Ambiental y Social, compatible con las Normas de Desempeño del MPAS, que apoyará la gestión de los programas de control y mitigación de impacto del PGASE, el monitoreo de los procesos de licenciamiento y el cumplimiento de la legislación ambiental y estándares de desempeño socioambiental del BID. Esta estructura define los objetivos, principios y metas que guían al Proyecto para lograr el desempeño ambiental y social deseado y describe el proceso, la estructura y el funcionamiento general de la gestión de los aspectos ambientales y sociales;</p> <p><b>2- Identificación de Riesgos e Impactos:</b> Los riesgos e impactos socioambientales del PROCASE II fueron detallados en la Evaluación Ambiental y Social Estratégica (EASE). En relación con a las comunidades tradicionales, fue elaborada una Evaluación Sociocultural (ASCE).</p> <p><b>3- Programas de Gestión.</b> Los programas de gestión socioambiental fueron detallados en el Plan de Gestión Ambiental y Social Estratégico (PGASE) y en el Plan de Acción Ambiental y Social (PAAS). El PGASE desarrollado tiene un carácter global para que sea aplicable a todos los tipos de intervención y sus varios medios receptores, y contiene los</p>	

procedimientos para que la Agencia Ejecutora realice un screening de las actividades contra criterios de elegibilidad (que excluirán proyectos categoría A). El PGASE describe las medidas de mitigación y mejora del desempeño y las acciones destinadas a abordar los riesgos e impactos ambientales y sociales significativos identificados en el EASE. Los estudios desarrollados para el Programa apuntan a que, en la fase de Operación, sean desarrollados PGAS específicos en conformidad a las tipologías de los Planes de Inversión Resilientes.

**4-Capacidad y Competencia Organizacional.** Durante la debida diligencia fue realizada un análisis de la capacidad institucional del Organismo Ejecutor (OE) por medio de la Plataforma de Análisis de la Capacidad Institucional (PACI) del Banco. Fue verificado que la OE tiene capacidad técnica para tratar los temas ambientales y sociales relativos al Proyecto, mientras el análisis indicó la necesidad del equipo de apoyo, siendo mínimamente un especialista ambiental y un especialista social, con dedicación exclusiva para apoyo a los temas socioambientales, que deberán ser entrenados en el Marco de Política Ambiental y Social del BID para asumir las responsabilidades y autoridad para coordinar la implementación del SGAS en la estructura organizacional de la UGP.

**5-Preparación y respuestas ante emergencias.** El PGASE presenta la orientación para un Plan de Respuesta a Emergencias (PRE). Este sistema deberá identificar efectivamente la tipificación de los desastres a los que está sujeta el área de influencia de los Proyectos, estableciendo un conjunto de protocolos a seguir no solo por los equipos de obras, sino también por la defensa civil y otros órganos involucrados en la seguridad de la población. Entre las acciones establecidas en los protocolos se incluyen, entre otras: (i) identificación de los lugares de seguridad, (ii) puntos de encuentro y comunicación, (iii) evacuación de la población, (iv) refugio y alimentación para los afectados, y (v) sistema de aviso "multicanal" (sirenas, vía telefónica, mensajes en celular, radio/TV). El PRE se ha preparado para cada proyecto, ya que depende de la tipificación de la obra y de su inserción en el entorno. En el SGAS deberá incluir, en programas específicos, procedimientos de preparación y respuesta a situaciones accidentales y de emergencia asociadas a las intervenciones del Proyecto, de manera adecuada para prevenir y mitigar cualquier daño a las personas y al medio ambiente;

**6- Seguimiento y revisión.** Sobre la base de los programas y recomendaciones de PGASE, el SGAS incluye procedimientos para: (i) monitorear sistemáticamente la implementación de programas de gestión socioambiental y medir su efectividad, así como monitorear el cumplimiento de las obligaciones legales y contractuales y los requisitos regulatorios relevantes; ii) registrar e informar los resultados del monitoreo y las acciones correctivas y preventivas necesarias, con la emisión de informes aprobados por la UCP y remitidos al BID; y iii) planificar y realizar evaluaciones periódicas de la eficacia del SGAS, con base en los resultados del monitoreo sistemático.

**7-Participación de las partes interesadas.** Durante la debida diligencia fue desarrollado un Plan de Participación de Partes Interesadas (PPPI) para planificar e implementar un proceso de participación continua de las partes interesadas, esencial para la gestión exitosa de los impactos sociales y ambientales del programa, que hará parte del SGAS del Proyecto, siendo actualizado conforme los avances durante la ejecución. Este proceso puede incluir los siguientes elementos: i) análisis (mapeo) de los grupos de interés y la planificación correspondiente; ii) difusión de información; iii) consulta y participaciones significativas, mecanismos de denuncia y comunicación externa; y iv) procedimiento para la comunicación periódica de información a las personas afectadas por el trabajo y otras partes interesadas. El proceso debe estar de acuerdo con los requisitos establecidos en NDAS 2 a 10. El PPPI fue publicado en 07 de junio de 2024, y se puede encontrar en la pagina del BID <https://www.iadb.org/es/proyecto/BR-L1623>.

En base a los requerimientos del SGAS, el proceso de evaluación y mitigación de riesgos e impactos del Proyecto incluirá los siguientes instrumentos: Análisis Ambiental y Social (AAS) para las comunidades tradicionales y un Plan de Gestión Ambiental y Social Estratégico para los Planes de Inversión Resilientes y la implementación del Sistema de Quejas y Reparación, en correspondencia a los riesgos e impactos que pueden afectar las poblaciones. Entre los grupos potencialmente vulnerables del área de influencia del proyecto se incluyen comunidades indígenas, quilombolas, gitanos, y otras poblaciones tradicionales mujeres, personas discapacitadas, ancianos. La EASE incluyó un Análisis Sociocultural de las comunidades tradicionales y vulnerables del área del Proyecto para identificar mecanismos culturalmente apropiados de consulta para cada grupo identificado. También se actualizará el Plan de Participación de Partes Interesadas (PPPI), y el proceso de Consultas Pública conforme está establece en las NDAS 1 e 10, y no tocante a las comunidades tradicionales, especialmente las comunidades indígenas, las Análisis Socioculturales indican la aplicación del Consentimiento Libre, Previo e Informado (CLPI) de las comunidades indígenas involucradas.

Destacase que no será elegible cualquier potencial intervención que genera reasentamiento involuntario (desplazamiento físico o económico), impactos negativos en las comunidades tradicionales y/o pueblos indígenas.

Las medidas de gestión de riesgos e impactos ambientales y sociales que conforman el SGAS deben formar parte de los contratos y demás documentos legales de la Operación, además de documentos complementarios, y por tanto son obligaciones del Prestatario.	
<b>ESGI-1.1. Número de elementos del SGAS completamente preparados</b>	3
<b>ESGI-1.3. Número de comunidades de pueblos afrodescendientes y/o tradicionales* dentro del área de influencia directa e indirecta de la operación</b> <i>*No considerado bajo NDAS7</i>	36335
<b>NDAS-2. Trabajo y condiciones laborales</b>	Sí
<p>El PROCASE II adoptará e implementará políticas y procedimientos de gestión laboral (PGL) que hace parte del PGASE lo actual se aplicará a los planes de Negocio (PN) y Planes de Planes de Inversión Resilientes (PIR) futuros y su fuerza laboral. En este contexto, los trabajadores recibirán información documentada, clara y comprensible sobre sus derechos establecidos en las leyes nacionales de trabajo y empleo y en cualquier convenio colectivo aplicable, incluidos sus derechos relacionados con las horas de trabajo, los salarios, las horas extraordinarias, la remuneración, la pensión y otros beneficios al iniciar la relación laboral. Estas políticas incluyen la atención de quejas de la comunidad, según lo establecido en el Sistema de Gestión Ambiental y Social del Proyecto.</p> <p>Los PGL preparados presentan dos Códigos de Conducta para las fuerzas laborales involucradas en el proyecto, siendo uno directamente para los trabajadores y otro para las empresas contratadas. Con respecto a las condiciones de trabajo, se respetarán los requisitos de las Normas Reglamentarias N° 18 y N° 31 del Ministério del Trabajo y Seguridad Social, que establecen lineamientos administrativos, de planificación y organización, que tienen como objetivo implementar medidas de control y sistemas de seguridad preventiva en los procesos, condiciones y ambiente de trabajo en la Industria de la Construcción. Dicha norma y los PGL cumple con los requisitos de la NDAS.</p> <p><b>Protección de la fuerza laboral.</b> En los PGL del Proyecto se establece que no será permitido el empleo de adolescentes menores a 15 años, conforme establecido en la NDAS2. Tampoco se permitirá el trabajo forzoso, que consiste en cualquier trabajo o servicio que no se realice voluntariamente o que se realice bajo amenaza de fuerza o sanción. Tales requisitos se aplican a los contratos establecidos con terceros o proveedores primarios.</p> <p><b>Cadena Principal de Suministro:</b> Las obras civiles utilizarán los insumos básicos de construcción directa (tierra, cemento, arena, ladrillos, hierro, etc.) y otros equipos que se instalarán para la fase operativa. Los riesgos laborales que conlleva la producción de estos insumos se consideran bajos y ya están reconocidos en la EASE. Los Planos Productivos del Componente 1 del proyecto, además prevén la introducción de prácticas agroecológicas, con vistas a la transición, destinadas a reducir el uso de pesticidas químicos y fertilizantes sintéticos y sustituirlos por insumos naturales (biocaldas, compost, defensas biológicas, siega mecanizada, etc.) con los efectos positivos esperados sobre el suelo, el agua y los productos comercializados.</p> <p>El proyecto prevé la adquisición y uso de paneles solares como forma de energía limpia, así tanto el Código de Conducta de las Empresas incluidos en el PGL establece reglas para la adquisición de estos equipos, considerando que deben llevar a cabo un proceso específico de debida diligencia sobre los riesgos laborales, que incluya la evaluación de los proveedores primarios hasta una evaluación de los riesgos laborales, incluida, en algunos casos, una evaluación independiente del trabajo forzoso en los proveedores primarios.</p> <p><b>Seguridad y Salud en el Trabajo.</b> En las intervenciones del Proyecto se garantizará un ambiente de trabajo seguro y saludable, teniendo en cuenta los riesgos inherentes al proyecto y las clases específicas de peligros, incluidos los riesgos físicos, químicos, biológicos y las amenazas específicas para las mujeres, las personas de diversa identidad de género u orientación sexual, las personas con discapacidad, los niños (en edad de trabajar de acuerdo con la Ley N° 8.069/1999) y los trabajadores migrantes. También se respetarán todos los artículos de las Normas Reglamentarias N° del Ministerio de Trabajo y Seguridad Social, NR-18 -Segurança e Saúde no Trabalho na Indústria da Construção y NR-31 Segurança e Saúde no Trabalho na Agricultura, Pecuária, Silvicultura, Exploração Florestal e Aquicultura. En la EASE y el</p>	

<p>PGASE se detallarán los procedimientos de Salud y Seguridad para los tipos de obras que serán implementados, y de mitigación de los riesgos asociados. Como parte de los PGL fue elaborado el Subprograma de Salud y Seguridad Ocupacional considerando elementos como cumplimiento de las condiciones legales, ruido excesivo, protección respiratoria, trabajos en altura /espacios confinados, manejo de maquinaria móvil, manejo de vehículos, uso de Equipamientos de Protección Personal, uso de uniformes, las condiciones de los campamentos como alimentación, depósitos de materiales incluyendo material peligroso, señalización / aislamiento de zonas, protección contra incendios, orden y limpieza y las reuniones de seguridad y fiscalización.</p>	
<p><b>ESGI-2.1. Número de trabajadores (contratistas, subcontratistas, autónomos y/o entidades gubernamentales) en el sitio del proyecto</b></p>	<p>N/A</p>
<p><b>NDAS-3. Uso eficiente de los recursos y prevención de la contaminación</b></p>	<p>Sí</p>
<p><b>Eficiencia de recursos.</b> No se espera un consumo de agua, energía y otros tipos de insumos significativos que representen riesgo mayor a la disponibilidad de recursos naturales. De todas maneras se prevén sistemas más eficientes de uso de recursos. En la EASE se presentan medidas o proyectos de ingeniería que prevén el manejo de recursos naturales buscando mayor eficiencia, donde las intervenciones del PROCASE II deberán traer mejoras en la eficiencia del consumo de energía, agua y otros recursos e insumos materiales naturales. En el PGASE se describen las principales medidas que integrarán los principios de producción más limpia en el desarrollo del proyecto, con conservación de insumos, materias primas, energía y agua cómo: uso de bombillas eficientes, como la tecnología LED, siempre que haya disponibilidad y mercado para las piezas de repuesto y un mantenimiento viable del sistema; mejor aprovechamiento de la iluminación natural; utilización de materiales que proporcionen un mayor confort térmico, reduciendo el uso de calefactores y aire acondicionado, por ejemplo, suelos o techos compatibles con el clima local, dimensionamiento de ventanas y colocación de zonas que proporcionen ventilación y sistemas de reutilización del agua. En la fase de obras del proyecto, la eficiencia energética está estrechamente relacionada con el uso de equipos con motores eléctricos o de combustible, lo que requiere mediciones y evaluaciones específicas del consumo. Por este motivo, la eficiencia energética en la construcción incluirá algunas acciones más especializadas, como: dimensionamiento correcto de los proyectos de ingeniería eléctrica; inspección de puntos de fuga de agua y energía; sistemas de reutilización de agua y aprovechamiento de aguas pluviales; adquisición de equipos ofrecidos en el mercado con mayor eficiencia energética; mantenimiento constante de la maquinaria; mantenimiento de la tensión de energía; implementación de filtros que puedan corregir alteraciones en la calidad del suministro de energía, fluctuaciones, interferencias electromagnéticas, entre otros.</p> <p><b>Prevención de la contaminación.</b> El PGASE presentan los planes y medidas de prevención de polución, en base a las características de las obras y de operación futura, considerando mínimamente los temas siguientes:</p> <p><u>Residuos.</u> La generación de residuos peligrosos y no peligrosos durante la implementación de los proyectos que integran la muestra del Proyecto presenta riesgo de contaminación del suelo, agua superficial y subterránea, bien como a salud humana. Las actividades del proyecto en materia de gestión de residuos sólidos se ajustan al marco jurídico brasileño (que cumple con los requisitos aplicables de NDAS3) y evitarán que los residuos resultantes de las actividades del proyecto provoquen contaminación. Siempre que sea posible, los residuos sólidos se reciclarán y se utilizarán como fuentes de nutrientes y energía, con el objetivo de desarrollar sistemas de producción de ciclo cerrado. Además, fue preparado un Programa de Gestión de Residuos, considerando principalmente dos tipos de generación, los Residuos de la Construcción (que se aplicará principalmente durante las fases de construcción) y Residuos de la Producción y Transformación Agrícolas, para tratar residuos específicos. Además, serán adoptados los requisitos de la Ley N° 10.305/2010, que establece la Política Nacional de Residuos Sólidos, adoptándose siempre los criterios más restrictivos. Según el PGASE, para cada proyecto o conjunto de proyectos debe elaborarse un Plan de Gestión de Residuos de Construcción (PGRCC), que deberá ser elaborado por la UGP (PROCASE II), que lo transmite al contratista de la obra, siguiendo la hoja de ruta en la que debe describir las actuaciones relativas a la caracterización, manipulación, segregación, envasado, identificación, almacenamiento, recogida, transporte interno y externo, tratamiento y disposición final de todos los residuos generados durante la ejecución de la obra, así como la formación de los implicados en la ejecución del plan.</p>	

Control de las emisiones y atmosféricas y ruidos. En el PGASE por medio del subprograma de Control de Emisiones Atmosféricas y Ruido, se minimizarán las emisiones atmosféricas derivadas del funcionamiento de equipos y maquinaria durante las obras de construcción, así como reducir los niveles de ruido asociados a las mismas. Esto incluye la regulación y el mantenimiento continuo de equipos como la planta de hormigón, la maquinaria y los vehículos en general. Habrá que adoptar prácticas como rociar con agua las pilas de áridos, los carriles y las cargas que puedan liberar partículas. Así como cubrir los camiones con una lona cuando estén cargados. En cuanto al ruido, se prevé la adopción del mantenimiento preventivo de equipos y maquinaria. Siempre que sea posible, se colocarán barreras físicas, como revestimientos, para reducir el ruido en el vecindario, en casos concretos en los que los niveles máximos permitidos superen el tiempo de ocurrencia y los decibelios previstos conforme la norma NBR 10.151 – Avaliação do ruído em áreas habitadas visando o conforto da comunidade.

Control de efluentes: La gestión de los efluentes seguirá las disposiciones de la legislación nacional brasileña, que cumple con los requisitos aplicables de NDAS3: el Consejo Nacional del Medio Ambiente (Conama). Las resoluciones del Conama aplicables son: 430/2011 para la descarga en un cuerpo de agua y 420/2009 para la descarga en el suelo. Las normas siguen las mejores prácticas internacionales. Además, en algunos casos se utilizará el sistema (Fossa + Sumidouro). La gestión de los lodos se realizará mediante la retirada periódica de los lodos con camión de vacío y la estabilización de la materia orgánica en lecho de secado (basado en otros proyectos de referencia del BID). La materia orgánica estabilizada podrá utilizarse como fertilizante en la agricultura local. El manejo de los efluentes generados en el Proyecto está descrito en varios programas como el Programa de control de la calidad del agua y de los efluentes, que prevé medidas de control como Control de la calidad del agua para abastecimiento público, Control de los efluentes de los sistemas colectivos de alcantarillado, Control de la calidad de las cuencas en la zona de vertido de aguas residuales.

Gases de Efecto Invernadero. Se han realizado estimaciones ex ante para los cálculos de Gases de Efecto Invernadero (GEI), se prevé que el proyecto no produzca más de 25,000 toneladas equivalentes de Co<sub>2</sub>. El cálculo para la fase de construcción se realizó una evaluación teniendo en cuenta los tipos de actividades de los proyectos productivos, utilizando la metodología sectorial apropiada del BID. El proyecto en la fase de implementación podrá potencialmente emitir 11.000 tCO<sub>2</sub>e, pero estas serán compensadas por la implementación de las actividades de los PIR y PNs que son basados en prácticas agrícolas de reducción de emisiones de gases de efecto invernadero, asimismo se realizará la instalación de PTARS de menor escala que obtendrán reducciones de emisiones ya que tratarán emisiones residenciales que no eran tratadas previamente al igual la reducción de emisiones a través del financiamiento de cocinas eficientes. Así no se espera impactos relacionados a emisiones brutas durante la fase de implementación del proyecto ya que en su totalidad se tendrán reducciones. Para las etapas de implementación y operación del proyecto FIDA contrató un estudio específico junto a la Food and Agriculture Organization (FAO) para cálculos de gases de efecto invernadero y se concluyó que habrá un balance positivo entre la regeneración de Gases Efecto Invernadero, y la captura de carbono por los sistemas productivos y obras que se van a implementar. El estudio del FAO presenta un balance total estimado de carbono de PROCASE II de -1,449,802 tCO<sub>2</sub>-eq para 20 años de contabilidad, 6 años de implementación y 14 años de capitalización, para un área total de 13,575 hectáreas y 1,072,757 cabezas de ganado. Esto equivale a un balance de carbono de -107 tCO<sub>2</sub>-eq por hectárea y -5 tCO<sub>2</sub>-eq por hectárea por año. El proyecto va a promover una forestación donde ocurrir sus actividades (ver Tabla en Anexo C). El proyecto se desarrolla en dos biomas distintos, Mata Atlántica (8% de las actividades) y Caatinga (92% de las actividades). El balance de carbono es una media ponderada de dos análisis que utilizan los mismos parámetros de datos de actividad, pero con variaciones en los descriptores clave del bioma (tabla 2) y los valores de nivel 2. El balance de carbono estimado representa un balance esperado que oscila entre -1419.739 tCO<sub>2</sub>-eq (tropical húmedo) y -1.452.416 tCO<sub>2</sub>-eq (tropical seco).

**Control de Productos Peligrosos.** En el PGASE se incluye el Plan de Gestión y Control de Productos Contaminantes, donde son incluidas las medidas de control de productos peligrosos que serán utilizados como aquellos relacionados a operación de los sistemas de saneamiento (ej. cloro); de los procesamientos como productos de limpieza y el aceite comestible ("aceite de cocina") que se va a utilizar; y defensivos agrícolas, desde su acondicionamiento y transporte. Además, el Programa de Controle Ambiental de las Obras-PCAO y sus subprogramas establecen las medidas de control para almacenamiento, manoseo y accidentes con productos peligrosos que se van a utilizar en las obras. Pesticidas: El proyecto no podrá financiar la compra de pesticidas y otros insumos sintéticos, sino únicamente insumos alineados con los principios de la agroecología.

<p><b>Erosión y sedimentación.</b> Para las actividades de la muestra que involucran el movimiento de tierras o reemplazo del suelo, el PGASE incluye una Medida de Control de Procesos Erosivos, con las medidas de control de erosión y protección del sistema de drenaje natural. Las medida incluye las siguientes directrices: 1-Reducir al mínimo posible las áreas con suelo expuesto y, cuando sean inevitables, dichas áreas deberán ser protegidas por medidas provisionales, como cobertura con manta, material vegetal, gramíneas y, dependiendo de la situación, contar con la instalación de medidas para retención de sedimentos; 2- Implementar dispositivos de drenaje provisionales de forma que permitan que las aguas escurran sin que surjan procesos erosivos y arrastre de material hacia los lugares con las cotas más bajas; 3- Corregir o estabilizar, en el menor plazo posible, todas las formaciones erosivas surgidas en el área de implementación del proyecto. 4-Los proyectos de implementación de sistemas productivos, principalmente en áreas de APP, deberán respetar las curvas de nivel y la pendiente del terreno, buscando de manera armoniosa contribuir al aumento de la estabilidad del suelo.</p>	
ESGI-3.1. Emisiones totales estimadas de Gases de Efecto Invernadero (GEI) durante la construcción	11000
ESGI-3.2. Emisiones totales estimadas de Gases de Efecto Invernadero (GEI) durante la operación	0
NDAS-4. Salud y seguridad de la comunidad	Sí
<p>Las actividades de construcción de las obras, incluyendo el transporte de material de construcción civil, presentan riesgos menores de accidentes y exposición al ruido, emisiones y sustancias peligrosas para personas de las comunidades locales. La circulación de maquinaria y equipamientos por las comunidades puede presentar un riesgo moderado de accidentes con la población local, una vez que estos podrán circular dentro de comunidades rurales. Para estos escenarios el PGASE presenta los siguientes programas y planes: Programa de Control Ambiental y Social de las Obras, Programa de Comunicación, Consulta e Participación de Partes Interesadas para tratar las interferencias e incomodidades causadas en las comunidades locales, así como un Plan de Transporte, de modo de evitar al máximo las interferencias con la población local. El Subprograma de Reducción y Mitigación del Descontento Comunitario, presenta una serie de procedimientos para reducir los riesgos de la seguridad de la comunidad. Las actividades productivas pueden utilizar pesticidas químicas y otros insumos tóxicos. La ejecución de excavaciones puede presentar riesgos de caídas y atrapamiento. Los EIAS de los Planes de Negocio y Planes de Inversión Resiliente específicos establecerán medidas de mitigación para dichos tipos de impactos potenciales y riesgos.</p> <p>Debido el alcance geográfico del Proyecto, diferentes escenarios podrán ser identificados relacionados a ocurrencia de Covid-19, malaria, dengue y chikunguña y otras enfermedades contagiosas y basadas en el agua. Así, la presencia de trabajadores foráneos en las comunidades locales puede conllevar riesgos de exposición a enfermedades y además riesgos de uso de personal de seguridad. En el PGASE se presentó el Programa de Control de Vectores de Enfermedades, lo cual engloba acciones que deben ir acompañadas de un control de vectores, tanto por la eliminación de hábitats con el consiguiente ahuyentamiento de fauna, como por nuevas situaciones y entornos que puedan aumentar la presencia de estos insectos y animales dañinos. Finalmente, el PGASE presenta el Programa de Educación Ambiental y Sanitaria (PEAS) para la población directa del proyecto donde se incluye acciones específicas de sensibilización y concientización medioambiental de la población priorizando los siguientes contenidos: (i) calidad del agua, saneamiento y residuos sólidos domésticos; (ii) cuidado y mantenimiento de fosas sépticas; (iii) cuidado del suelo; (iv) riesgo de enfermedades transmitidas por el agua y vectores; (v) prevención de accidentes de trabajo, enfermedades profesionales y enfermedades de transmisión sexual; (vi) Áreas de Preservación Permanente - APP; (vii) riesgos relacionados con el uso de pesticidas, herbicidas y agrotóxicos; (viii) beneficios ambientales del uso de sistemas agroecológicos; (ix) respeto a los cauces de los ríos para que no sean terraplenados o estrangulados.</p> <p>El Riesgo de Desastre y Cambio Climático fue clasificado como Moderado, ya que en gran parte de los municipios del PROCASE II, Las amenazas naturales presentes en el área de influencia se identifican como amenazas de sequías, y en las áreas de orillas de algunos de los municipios del proyecto se reconocen amenazas moderadas a altas, principalmente relacionadas a inundaciones fluviales y lluvias según el Screening App de ESG. Para esta operación, ambas amenazas se clasifican como Moderadas y Altas (ver Figuras y Mapas en Anexo C). La criticidad y vulnerabilidad del componente de</p>	



infraestructuras de agua y saneamiento es clasificada como Moderada, según los criterios incluidos en la tabla de criticidad para infraestructura de drenaje, suministro de agua y gestión de aguas residuales (Ver figura en Anexo C): (i) características físicas es Baja, ya que las estructuras de retención no son mayores a 5m; (ii) la pérdida de servicio esencial es Baja, pues no se esperan impactos que afecten a la municipalidad (menores que 10.000 hab.); y (iii) el impacto en la comunidad es Moderado con daños físicos moderados y muy esporádicos. Entonces, la criticidad es clasificada como Moderada. Se esperan incrementos poco significativos de las condiciones actuales de amenazas naturales o de la vulnerabilidad de las comunidades locales o del entorno por la presencia de las estructuras de abastecimiento y tratamiento de agua, sin embargo, considerando los niveles de amenaza identificados, la estimación de la criticidad y de la vulnerabilidad de las intervenciones de infraestructura y los niveles de exacerbación del riesgo, una clasificación de riesgo Moderada es adecuada.

Cómo parte del diagnóstico, la EASE presentó una evaluación de riesgo de desastres, considerando los riesgos y vulnerabilidad del Estado da Paraíba para los escenarios de inundaciones y sequías. Como fuente de información utilizaron el reciente "Atlas de Riscos, Vulnerabilidades e Desastres Ambientales del Estado da Paraíba (2023)". El Índice de Riesgo de Desastres por Inundaciones (IRDI) para el estado de Paraíba se obtuvo por medio de la evaluación de la vulnerabilidad socioambiental con la inundación, integrado a los desastres hidrometeorológicos registrados en el estado (2003 a 2016). Este mapeo revela que 24 municipios del estado presentan un índice de riesgo Muy Alto o Alto frente a las inundaciones. Según los autores, "estas dos clases corresponden al 11% de todo el estado y comprenden el 9% de la población paraibana. Para la amenaza a sequías se consideró vulnerabilidad socioambiental a la sequía y la aridez, integrada a los desastres climáticos registrados en el Estado. Por estar en regiones del semiárido brasileño, Paraíba presenta el 42% de su territorio bajo la condición de Alto o Muy Alto IRDC, (93 municipios), concentrados espacialmente en la porción central de Paraíba y afectando al 23% de la población paraibana.

Para conocer los efectos del cambio climático en el área de influencia del proyecto, se consultó la información "Adapta Brasil" del Gobierno Federal, donde se presenta Índices e Indicadores de riesgo de impactos del cambio climático en Brasil, integrados en una única plataforma, vinculada al Ministerio de Ciencia, Tecnología e Innovación - MCTI. En la EASE fueron considerados los siguientes escenarios de riesgo:

Lluvias: Los resultados de AdaptaBrasil señalan que en el escenario actual ya existe un riesgo medio prevaleciendo en las porciones costeras del estado de Paraíba, mientras que el territorio central del estado aún presenta la mayor parte de su área con riesgo bajo o muy bajo. Para el escenario de 2050 (pesimista) se prevé un aumento significativo de los municipios en riesgo muy alto más cerca de la franja costera, con ampliaciones para riesgo medio en el oeste del estado. Sequía: Según la plataforma AdaptaBrasil, en el escenario actual, en una parte significativa del área de estudio, ocurre un riesgo bajo o medio. En parte de la porción oeste del estado ya hay algunos municipios con riesgo alto para los impactos de la sequía en la seguridad alimentaria. En el escenario para 2050, la incidencia de riesgo medio a alto comienza a prevalecer en el estado. Entre el escenario actual y el escenario de 2050 (pesimista), habrá un aumento en la clase alta, que pasará de 20 a 70 municipios.

Deslizamientos: Analizando los datos de AdaptaBrasil, se puede percibir que en varios municipios de Paraíba ocurre un riesgo medio a alto. Es importante considerar que los deslizamientos normalmente se configuran como fenómenos de menor extensión y que, aunque no afectan toda el área municipal, tienen el potencial de causar grandes daños y poner en riesgo a comunidades y estructuras importantes. En el escenario actual prevalecen los municipios con riesgo medio, pero en el escenario de 2050 (pesimista) pasan a prevalecer los municipios con riesgo alto, con un aumento significativo de municipios en riesgo muy alto.

Inundaciones, Torrentes y Anegamientos: Para inundaciones, torrentes y anegamientos, no ocurren alteraciones marcantes entre los escenarios actuales, prevaleciendo las clases media y alta. Se observa un aumento de municipios en la clase media y alta, con disminuciones en las clases baja y muy alta. Los mapas se encuentran en el Anexo C. En el PGASE se presentó una estructura de un Plan de Gestión de Riesgos de Desastres y Cambio Climático (PGRD), donde además se detallan las directrices para la preparación de un Plan de Respuesta de Emergencia. El PGRD incluye, Evaluación de Riesgos de Desastres y Cambio Climático medidas de Reducción de Riesgos y de Contingencia, acciones de seguimiento, acciones preventivas y correctivas y el Plan de Acción.

<p>La narrativa concluyó que para esta operación no se requiere un análisis completo de riesgo cualitativo, Paso 4 de la Metodología de Evaluación de Riesgo de Desastres y Cambio Climático del Banco (MERDCC), dado que no hay vacíos de información significativos, las medidas de gestión de riesgos se han identificado, y se documentarán exhaustivamente en los PGRD del PGASE de la operación, y es posible con todo ello asegurar un nivel de riesgo tolerable.</p>	
<p><b>ESGI-4.1 Narrativa consistente cumpliendo al menos con el paso 3 de la metodología de Riesgo de Desastres y Cambio Climático</b></p>	<p>Sí</p>
<p><b>ESGI-4.3 Tipos de amenazas naturales presentes en el proyecto/ programa</b>  <i>Tipos de amenazas naturales: Terremoto, Deslizamientos de tierra, Erosión del suelo, Erosión costera, Erosión fluvial, Tsunami, Volcánica, Hundimiento, Sequía, Helada, Ola de frío, Granizo, Marejada ciclónica (inundaciones costeras), Inundación fluvial, Inundación pluvial, Marea, Vientos extremos, Huracán-Viento extremo, Tormenta Tropical, Ola de calor, Retroceso Glacial, Aumento del nivel del mar, Lluvias intensas, Escasez de agua, Incendio forestal</i></p>	<p>Inundación fluvial, Inundación pluvial, Escasez de agua, Incendio forestal, Erosión fluvial, Sequía</p>
<p><b>NDAS-5. Adquisición de tierras y reasentamiento involuntario</b></p>	<p>No</p>
<p>Durante la debida diligencia se evidenció que las intervenciones del Proyecto no generarán reasentamiento involuntario, adquisición de tierras o repercusiones en los medios de subsistencia. De todas maneras, el programa excluirá todas las actividades que conlleven a reasentamiento involuntario (físico y económico) de personas o grupos tradicionales por motivos de las intervenciones. Los requisitos de las exclusiones correspondientes formarán parte del ROP.</p> <p>La operación incluirá titulación de tierra con el objetivo de incrementar eficiencia en la utilización de recursos escasos. Si por un lado la titulación de tierra puede contribuir al desarrollo económico del sector agrícola, por otro puede generar conflictos relativos a los usos y ocupación de tierras entre usuarios y propietarios, a partir de la implementación de la regularización fundaría. La EASE/PGASE incluirá directrices para asegurar que el proceso de regularización de tierras no tenga repercusiones negativas en la población que se beneficiará de él, y directrices que aseguran un levantamiento catastral, mecanismo de quejas y plan de participación y comunicación con los partes afectado-específicos para temas de titulación de tierra. Los riesgos e impactos serán identificados y evaluados para cada proyecto y registrados en la EASE, y cuando pertinente, en las Análisis Sociocultural previstas para las poblaciones tradicionales vulnerables. Las condiciones de elegibilidad serán incorporadas en el SGAS, que reflejará los criterios sociales y ambientales de elegibilidad previstas en el Programa, se destacando el factor de exclusión: está prohibido realizar cualquier desplazamiento físico o económico de personas o grupos con motivo de las intervenciones, principalmente a los pueblos tradicionales, como los indígenas, quilombolas y gitanos. Además, los directrices deberán asegurar la igualdad de género en la titulación de tierra y serán conformes a leyes y decretos nacionales como el Programa Nacional de Ciudadanía y Buen Vivir para Mujeres Rurales, que tiene como objetivo garantizar el acceso a la documentación civil básica, la titulación conjunta de tierras y el territorio ocupado por las mujeres rurales.</p>	
<p><b>ESGI-5.1. Número de hogares (familias o unidades socioeconómicas) físicamente desplazados*</b>  <i>*Incluye hogares desplazados físicamente y personas desplazadas física y económicamente</i></p>	<p>0</p>
<p><b>ESGI-5.2. Número de personas desplazadas físicamente*</b>  <i>*Incluye hogares desplazados físicamente y personas desplazadas física y económicamente</i></p>	<p>0</p>
<p><b>ESGI-5.3. Número de hogares (familias o unidades socioeconómicas) económicamente desplazados</b></p>	<p>0</p>
<p><b>ESGI-5.4. Número de personas desplazadas económicamente</b></p>	<p>0</p>
<p><b>NDAS-6. Conservación de la biodiversidad y gestión sostenible de los recursos naturales vivos</b></p>	<p>Sí</p>

El Proyecto se llevará a cabo en ambientes rurales del Estado de Paraíba dentro de los biomas Caatinga y del Bosque Atlántico en paisajes con larga historia de ocupación humana, la cual ha resultado en un mosaico de hábitats naturales y modificados, algunos de los cuales son críticos. La Caatinga es un bioma semiárido de altos niveles de endemismo y degradación por usos insostenibles históricos, por otro lado, el Bosque Atlántico se reconoce internacionalmente como un ecosistema altamente amenazado y Hábitat Crítico debido al grado histórico de conversión de los bosques de alta biodiversidad para fines agropecuarios y urbanos.

Dentro del área de influencia del Proyecto, existen 23 áreas legalmente protegidas y dos áreas clave para la biodiversidad, considerados como Hábitat Crítico por el Banco (para mayor detalle, ver Figuras 1 e 2 del Anexo C), además de varias especies indicadores de Hábitats Críticos. Los criterios de elegibilidad, descritos en el SGAS y el ROP, excluirán actividades que generan intervenciones con impactos adversos a Hábitat Crítico o que requieran o resulten en la conversión significativa o degradación de Hábitats Naturales o la expansión de la frontera agropecuaria. Además, para mantener la Categoría B, el SGAS y el ROP del Proyecto excluyen actividades que resulten en impactos negativos sobre áreas legalmente protegidas, incluyendo toda unidad de conservación. Para estos fines, el Ejecutor deberá desarrollar un mecanismo para identificar la presencia de Hábitats Críticos en sus procesos de evaluación de actividades a ser financiadas durante la vida del préstamo. Las actividades para financiar por el Proyecto, incluyendo los planes de desarrollo sostenible, se deben diseñar de manera que no resulte en la pérdida neta de biodiversidad en Hábitats Naturales como definido por NDAS 6.

En el caso de actividades en Hábitats Críticos, se presentará al Banco un Plan de Acción de Biodiversidad para su no objeción como requisito del Plan de Acción Ambiental y Social. El diseño, construcción, operación y mantenimiento de los puentes mojados deberán incluir medidas de mitigación para evitar y minimizar impactos negativos a los ambientes acuáticos, incluyendo la conectividad para organismos acuáticos. El SGAS excluirá el uso o introducción de especies exóticas invasivas en las actividades financiadas por el Proyecto y además excluirá obras o actividades que provoquen impactos negativos a servicios ecosistémicos prioritarios para las comunidades locales. Como operación de desarrollo rural con enfoque en el uso de recursos naturales vivos, el Proyecto debe ser diseñado para que toda gestión de recursos naturales vivos financiado o promovido por el mismo se realice de acuerdo con normas reconocidas de sostenibilidad de acuerdo con los párrafos 25 a 28 de esta NDAS. Además, el SGAS y PGASE incluyen mecanismos para verificar que la cadena de suministros no resulte en conversión significativa de hábitats naturales o impactos a hábitats naturales en el caso de financiar subproyectos o actividades que requieren insumos de recursos naturales vivos.

<b>ESGI-6.1. Área en hectáreas (ha) de hábitats naturales afectados negativamente (por ejemplo, convertidos o degradados)</b>	0
<b>ESGI-6.2. Área en hectáreas (ha) de hábitats críticos afectados negativamente (por ejemplo, convertidos o degradados)</b>	0
<b>NDAS-7. Pueblos indígenas</b>	Sí

Durante la debida diligencia se verificó que en el área del proyecto hay comunidades quilombolas, indígenas, pescadoras y gitanos que responden a las características definidas en NDAS 7 para definir “Pueblos Indígenas,” por lo cual se preparó un Análisis Sociocultural Estratégica (ASCASCEE) para el proyecto (ver Anexo de Mapas), y como parte del SGAS del Programa que presentó sus características generales, los principales riesgos y medidas generales de mitigación, que hacen parte del PGASE. El ASCEE desarrollado indicó ser importante mapear y construir una línea de base de las comunidades tradicionales beneficiarias de los proyectos, incluyendo un proceso de Consulta Participativa Informada y posterior Consentimiento Libre, Previo e Informado; reunió informaciones relevantes para actualizar el Plan de Participación de Partes Interesadas (PPPI), que deberá obtener la aprobación del Banco anterior a la consulta significativa, que, por su vez, deberá ocurrir antes del inicio de las intervenciones. Además, recomienda que se sigan las mismas directrices y normativas para las comunidades indígenas para la evaluación de impacto y consulta informada de cualquier comunidad tradicional existente (reconocida formalmente o no), ya sean quilombolas, pescadores, mariscadores, gitanos, entre otros.

El AASCEE incluyó un enfoque de vulnerabilidad a la que están sujetas las comunidades al momento de construir infraestructura de saneamiento (Componente 2) e implementar infraestructura u otras acciones relacionadas con los Planes Productivos (Componente 2), así como brindar orientaciones y lineamientos para abordar dichas vulnerabilidades en diálogo con las comunidades. Otro riesgo se refiere a la posibilidad de discriminación, prejuicio y/o

acoso durante las intervenciones, o aún de exclusión de las comunidades indígenas de los procesos participativos del programa y/o de no obtención de su consentimiento libre, previo e informado. proceso de consulta previa, libre e informada. Por lo tanto, el ASCEE Indicó la inclusión de formación de los trabajadores el respeto a la integridad cultural de las poblaciones directa o indirectamente afectadas por los proyectos.

El programa incluye titulación de tierras y directrices en el PGASE para asegurar que en caso de necesitar titulación en comunidades indígenas se seguirá el Programa de Comunicación, y Consulta y Participación y lineamientos para el Consentimiento Libre, Previo e Informado elaborada para la operación. El SGAS también establece la necesidad de obtener todas las autorizaciones aplicables antes del inicio de las intervenciones con comunidades indígenas, lo que incluye aquellas relacionadas a la Fundación Nacional de los Pueblos Indígenas (FUNAI). El SGAS define aún los roles mínimos que deberán componer la estructura de la Unidad de Gestión del Programa (UGP) con relación a los temas socioculturales, pudiendo haber indicación de un especialista social con conocimiento en temas indígenas para apoyo.

<b>ESGI-7.1. Número de comunidades Indígenas* que se encuentran dentro del área de influencia directa e indirecta de la operación</b> <i>*Para efectos de la NDAS7, los pueblos tradicionales son tratados como pueblos indígenas, según lo reconocen las leyes nacionales</i>	34
<b>NDAS-8. Patrimonio cultural</b>	Sí

El Estado de Paraíba es conocido por su rica variedad de yacimientos arqueológicos, que atestiguan la presencia de pueblos antiguos en la región. Destacan los sitios con vestigios de la presencia indígena, como las pinturas rupestres encontradas en varias regiones del Estado.

Patrimonios Arqueológicos: Entre los primeros pasos de la investigación, se realizó un levantamiento para verificar la existencia de Sitios Arqueológicos conocidos en los municipios estudiados. De esta forma, se levantó junto al Cadastro Nacional de Sítios Arqueológicos (CNSA) del Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN) la existencia de tales sitios en el estado de Paraíba. Según el levantamiento, en Paraíba, se catalogaron en el CNSA 192 sitios arqueológicos, resumidos por Territorio Rural y por municipio en el Anexo 8.8. Conforme presentado en el mapa de sitios arqueológicos de Paraíba, a continuación, la concentración de sitios arqueológicos está en la porción central del estado, regiones de los Territorios Rurales de Borborema, Cariri, Curimataú y este del Médio Sertão. Se destaca que la mayor parte de los sitios arqueológicos registrados abarcan vestigios precoloniales, cabe mencionar la mayor presencia de sitios históricos en los Territorios Rurales que abarcan áreas costeras, como el TR Mata Norte, donde se encuentra el municipio de Baía da Traição, escenario de eventos importantes que marcaron la colonización de los indígenas por los pueblos europeos.

Patrimonio Paleontológico: En el diagnóstico de la EASE, Sousa e Uiraúna-Brejo das Freiras son dos cuencas cretácicas de la región del Río do Peixe que poseen una gran cantidad de huellas de dinosaurios. Estas cuencas están ubicadas en el oeste del Estado de Paraíba, y sus orígenes se relacionan con los movimientos de fallas transcurrentes a lo largo de lineamientos preexistentes del basamento, durante la apertura del Océano Atlántico. La principal icnofauna de tetrápodos se compone de huellas aisladas y rastros de grandes y pequeños terópodos, además de ornitópodos. También hay icnofósiles de invertebrados como pistas y excavaciones producidas por artrópodos y anélidos. Los fósiles son palinomorfos, fragmentos de plantas, ostrácodos, conchostráceos, escamas de peces y huesos de crocodylomorfos. Estos fósiles están preservados en depósitos de abanicos aluviales, ríos anastomosados, meandranes y lagos someros de edad neocomiana - Berriasiano a Barremiano inferior.

Ya se han identificado y mapeado 22 sitios icnofosilíferos, y se han reconocido 296 rastros de grandes terópodos; 29 de pequeños terópodos; 42 de saurópodos; 2 de ornitíscuos cuadrúpedos; 28 de ornitópodos graviportales; un conjunto de huellas batracopódidas; una impresión lacertoide; un gran número de huellas no clasificables y muchos rastros de semi-natación atribuidos a quelonios. Según presentado en la EASE, en total, ya se han clasificado más de 395 individuos dinosaurios. El área más importante de distribución de huellas fósiles, ubicada en Passagem das Pedras (Fazenda Ilha) en el municipio de Sousa, es actualmente un parque natural - Monumento Natural Vale dos Dinossauros. El parque, con

40 hectáreas de área, es uno de los sitios paleontológicos mejor preservados en Brasil. Posee infraestructura turística y guías capacitados para el turismo ecológico y la protección del sitio icnofosilífero.

El Monumento Vale dos Dinossauros comprende un área de más de 1.730 km<sup>2</sup>, abarcando aproximadamente 30 localidades en el alto sertón de Paraíba, entre ellas los municipios de São João do Rio do Peixe, Sousa, Aparecida, Marizópolis, Vieirópolis, São Francisco, São José da Lagoa Tapada, Santa Cruz, Santa Helena, Nazarezinho, Triunfo, Uiraúna, Cajazeiras. Estas localidades se concentran en los Territorios Rurales del Vale do Piranhas y Alto Sertão.

Las actividades previstas en el proyecto tienen potencial de afectar recursos de patrimonio cultural en las zonas en las cuales se desarrollen las intervenciones. Poderá ocurrir impacto sob sítios arqueológicos no caso de implantação das tecnologias sociais associadas a tanques de pedra, já que este tipo de patrimônio se forma nos leitos rochosos.

Con la presencia de áreas de concentración de vestigios en la región de Sousa (Río do Peixe), en la porción noroeste de Paraíba, se debe prestar atención a los riesgos en la implantación de estructuras que puedan afectar los sitios o inundar áreas con su presencia. La destrucción o interrupción del acceso a estos sitios puede significar la pérdida de un bien patrimonial prehistórico y de conocimiento científico.

El proyecto tendrá alcance estatal y aún no se han definido todas las localidades del estado que serán beneficiadas, de esta manera el PGASE se presentó el **Programa de Proteção ao Patrimônio Cultural e Achados Fortuitos**. Este programa incorpora directrices para la preservación del patrimonio cultural local y el rescate de eventuales patrimonios encontrados en los lugares de implementación de tecnologías sociales asociadas a tanques de piedra y otras actividades que involucren excavación. También presenta directrices para el caso de hallazgos fortuitos no previstos durante la ejecución de los trabajos de implementación de los proyectos, en especial aquellos que puedan involucrar excavaciones y movimientos de tierra.

Durante la implementación, áreas con potencial paleontológico podrán sufrir impactos. De esta forma, es importante certificar la existencia de sitios y asegurar la salvaguarda junto a la Agencia Nacional de Mineração (ANM).

<b>ESGI-8.1. Área en hectáreas (ha) de patrimonio cultural tangible afectada negativamente</b>	0
<b>NDAS-9. Igualdad de género</b>	Sí

No se esperan impactos diferenciados o adversos basados en la identidad de género o la orientación sexual, ni que afecten desproporcionadamente a minorías, grupos vulnerables o personas con discapacidades. Durante la diligencia debida, los riesgos relacionados con el género y la diversidad (incluido el riesgo de abuso y explotación sexual infantil) se analizaron y los indicadores de seguimiento fueron definidos en el PGASE, y harán parte del SGAS.

La EASE recomienda incluir el tema de género y diversidad en los programas de formación para trabajadores y contratistas, con información sobre leyes punitivas, buenas prácticas y conductas, y canales de denuncia; además, se recomienda sensibilizar a las comunidades beneficiarias sobre la importancia y el papel de la mujer, así como sobre la igualdad de género y la lucha contra la violencia basada de género (VBG).

Adicionalmente, se prestará especial atención a comprender cómo las desigualdades de género interactúan con otras desigualdades, como factores socioeconómicos, étnicos, raciales, de discapacidad y de otro tipo, y cómo esta interseccionalidad puede exacerbar las barreras para acceder a los beneficios del Programa, limitar la capacidad de hacer frente a los impactos negativos y crear otras vulnerabilidades. Para tanto, se propondrán medidas para la inclusión de las mujeres en los procesos consultivos en los planes de participación de las partes interesadas. Un Código de Conducta será parte integrante del PGASE y del SGAS para las intervenciones de la muestra y se incluirá en los documentos de licitación. Es importante resaltar que el Código de Conducta deberá ser aplicable a todos los colaboradores involucrados con las intervenciones, especialmente aquellos involucrados con la implantación de las infraestructuras en comunidades indígenas o tradicionales. El PPPI, a su vez, establece el principio central de igualdad de género, añadiendo la inclusión de la diversidad y la consideración de factores de vulnerabilidad específicos relacionados a género en el diseño y en la implementación de las estrategias de participación, a lo largo del ciclo de vida del proyecto, para garantizar la debida representatividad.

ESGI-9.1. Porcentaje de mujeres que participan en la consulta pública	N/A
<b>NDAS-10. Participación de las partes interesadas y divulgación de información</b>	Sí
<p>El Plan de Participación de Partes Interesadas (PPPI) del Programa fue elaborado basado en los requisitos de la NDAS 10 del MPAS. Dado que, en esta fase de preparación no se conoce específicamente las comunidades a ser beneficiarias o afectadas por el proyecto, el PPPI fue estructurado a partir de un abordaje marco, con principios y lineamientos generales para el cumplimiento de los requisitos de la NDAS 10 durante la fase de ejecución, además de las directrices y procedimientos necesarios para la planificación y organización de la consulta significativa de la fase preparatoria (con carácter estratégico). El PPPI establece la responsabilidad de la Agencia Ejecutora, a través de su Unidad de Gestión del Programa, en cuanto a la consecución apropiada de los principios, lineamientos, procedimientos y acciones determinados en el plan. El documento reúne las principales actividades para apoyar el objetivo de involucramiento significativo y continuo de las partes interesadas y personas afectadas durante todo el ciclo de proyecto, previendo: análisis de las partes interesadas; profundización/adequación de las estrategias de participación y comunicación según las comunidades involucradas en las actividades del proyecto; los principios y objetivos de la disseminación de información sobre el proyecto; la necesidad de consultas continuas y socioculturalmente adecuadas a las partes interesadas (incluyendo los requisitos específicos de la NDAS 7 hacia los pueblos indígenas y otras comunidades tradicionales); el reporte apropiado a las partes interesadas; los objetivos y forma de operación del mecanismo de gestión de quejas.</p> <p>El PPPI indicó que se llevará a cabo un formato mixto de consultas, especialmente considerando las características de las comunidades involucradas, siempre que posible presencial. La consulta pública y la publicación del respectivo informe ocurrirán previo a la fecha del Directorio del Banco. La implementación del PPPI presupone un proceso de consulta significativa con los Grupos de Interés identificados, utilizando formatos comprensibles, accesibles y culturalmente apropiados para la divulgación y como parte de la evaluación ambiental y social. Cabe destacar que el PPPI es una parte integral y fundamental del Sistema de Gestión Ambiental y Social del Programa y debe ser tratado como un documento vivo. Por lo tanto, la Agencia Ejecutora tiene la responsabilidad de mantenerlo actualizado periódicamente y, a medida que avanza el proyecto, adaptarlo a las diferentes necesidades, a la aparición de nuevos Grupos de Interés y a la dinámica del proyecto, al igual que todos los demás procesos de gestión incluidos en el SGAS del PROCASE II.</p> <p>Durante la fase de ejecución del Programa, el PPPI establece que, tan pronto sean definidas las ubicaciones específicas de los terrenos para implantación de las infraestructuras, la UGP-PADEAM (con el apoyo de la consultoría de gestión de proyecto contratada) deberá identificar las personas afectadas y partes interesadas de cada intervención. Este mapeo y análisis resultará en la actualización del PPPI, lo cual deberá presentar de forma detallada las estrategias de comunicación y participación adecuadas según las personas afectadas y las partes interesadas identificadas. El PPPI deberá incluir medidas específicas dirigidas a la efectiva participación de personas y grupos sociales vulnerables y guiará la organización de las consultas significativas. La actualización del PPPI es una condición previa a la realización de las consultas y a la publicación de los documentos de licitación de obras del Programa.</p> <p>Además, la NDAS10 indica la implementación del mecanismo de quejas, por donde se recibirá sugerencias, quejas y reclamaciones a través de los canales establecidos y publicitados a los Grupos de Interés del Programa, con especial atención a los considerados Grupos de Interés Afectados por las actividades. Se establecerán los canales de atención directa al Programa, debiendo tener en cuenta aspectos etno-culturales, sociales, de accesibilidad y de género para facilitar una amplia participación. Oportunamente tanto el PPPI, cuanto los demás documentos socioambientales, fueran divulgados en la página web del BID en 07 de junio de 2024 previo a la Misión de Análisis.</p>	
ESGI-10.1. Número de documentos socioambientales divulgados por el BID y el Prestatario	4
<b>Requisitos de divulgación de información (para el BID)</b>	
<p>Los siguientes documentos socioambientales fueron divulgados en la web página del BID en 07 de junio de 2024: <i>Avaliação Ambiental e Social Estratégica-AASE (Versão Preliminar)</i>; <i>Plano de Gestão Ambiental y Social Estratégica-PGASE (Versão Preliminar)</i>; <i>Avaliação Sociocultural Estratégica-ASCASCEE (Versão Preliminar)</i> y</p>	

*Plano de Consulta e Participação de Partes Interessadas (Versão Preliminar)*. Los documentos pueden ser encontrados en el website del BID (<https://www.iadb.org/es/proyecto/BR-L1623>) y en la página del PROCASE II (<https://www.procasse.pb.gov.br/consultapublica>).

<b>Anexos</b>	
<b>Anexo A</b>	Plan de Acción Ambiental y Social (PAAS)
<b>Anexo B</b>	Requisitos ambientales y sociales legales
<b>Anexo C</b>	Mapas ambientales y sociales

## Anexo A. Plan de Acción Ambiental y Social (PAAS)

Plan de Acción Ambiental y Social (PAAS)	
<b>Nombre de la operación</b>	Proyecto de Desarrollo Sostenible de Paraiba - PROCASE II
<b>Número de la operación</b>	BR-L1623
<b>Versión de PAAS</b>	V.1
<p>El contenido del PAAS debe ser acordado entre el BID y el Prestatario durante la debida diligencia. El PAAS identificó medidas materiales y acciones específicas para abordar las brechas ambientales y sociales identificadas durante la debida diligencia A&amp;S o las acciones clave que se llevarán a cabo posteriormente. Todos los requisitos se establecerán claramente, de modo que no haya ambigüedad en torno al cumplimiento, el tiempo y el seguimiento. El PAAS se adjunta al ESRS y será legalmente vinculante (referencia cruzada en el contrato de préstamo).</p> <p><i>Según lo acordado por el Banco y el Prestatario, este PAAS puede ser revisado de vez en cuando durante la ejecución del Proyecto para reflejar la gestión adaptativa de los cambios del Proyecto y las circunstancias imprevistas o en respuesta a la evaluación de desempeño del Proyecto realizada bajo el PAAS en sí. En tales circunstancias, el Prestatario, a través de la Agencia Ejecutora, acordará los cambios con el Banco y actualizará el PAAS para reflejar dichos cambios. Los acuerdos sobre cambios al PAAS se documentarán mediante el intercambio de cartas firmadas entre el Banco y el Prestatario, a través del Organismo Ejecutor. El Prestatario, a través de la Agencia Ejecutora, divulgará sin demora el PAAS actualizado.</i></p>	

Tema	Acción	Evidencia	Hito	Fecha de vencimiento	Coste (estimado)	Entidad responsable
<b>NDAS-1. Evaluación y gestión de riesgos e impactos ambientales y sociales</b>						
Sistema de Gestión Ambiental y Social (SGAS)	Adoptar y presentar la versión final del Documento Síntesis del SGAS como parte del ROP	Documento Síntesis del SGAS	Previo a la elegibilidad de la operación		0 (ya incluido en los costos del AASE-PGASE)	Gobierno do Estado (PROCASE-II)



NDAS-2. Trabajo y condiciones laborales						
NDAS-3. Uso eficiente de los recursos y prevención de la contaminación						
NDAS-4. Salud y seguridad de la comunidad						
NDAS-5. Adquisición de tierras y reasentamiento involuntario						
NDAS-6. Conservación de la biodiversidad y gestión sostenible de los recursos naturales vivos						
Hábitats críticos	En caso de proponer subproyectos o acciones en áreas de hábitats críticos, incluyendo unidades de conservación equivalentes a las categorías I a VI de la UICN, el	Plan de Acción de Biodiversidad específico para cada caso.	Previo al inicio de actividades u obras en áreas de hábitat crítico		US\$ 5000.00	Governo do Estado (PROCASE-II)

	Prestatario presentará un Plan de Acción de Biodiversidad diseñada para lograr ganancias netas para la no objeción del Banco.					
<b>NDAS-7. Pueblos indígenas</b>						
<b>NDAS-8. Patrimonio cultural</b>						
<b>NDAS-9. Igualdad de género</b>						
<b>NDAS-10. Participación de las partes interesadas y divulgación de información</b>						











## Anexo B. Requisitos ambientales y sociales legales

**Nota general:** De acuerdo con cada operación y país, el especialista de ESG podrá proponer ajustar o incorporar cláusulas de acuerdo con la operación, país y temas relevantes

Con el propósito de cumplir con los requerimientos del Marco de Políticas Ambientales y Sociales (MPAS), el Prestatario, directamente o a través del Organismo Ejecutor, cumplirá a satisfacción del Banco con las condiciones y términos contractuales establecidos en este Anexo. Cuando se ha determinado que un Plan de Acción Ambiental y Social (PAAS) es necesario, este será contractualmente vinculante (referencia cruzada en el contrato de préstamo – ver párrafo abajo). El especialista de ESG se debe asegurar que la referencia sea incluida en dicha cláusula.

**Esta cláusula debe ser incluida en el correspondiente contrato de un proyecto que tenga un PAAS (categoría A, B o C con ESRR sustancial o alto)**

*Condiciones Especiales. “CLÁUSULA XX. Otros documentos que rigen la ejecución del (Proyecto/Programa). (a) Las Partes convienen en que la ejecución del Proyecto será llevada a cabo de acuerdo con las disposiciones establecidas en el presente Contrato y lo establecido en el ROP, el SGAS y el PAAS. Si alguna disposición del presente Contrato resultase inconsistente o estuviere en contradicción con las disposiciones del ROP y PAAS prevalecerá lo previsto en este Contrato. Asimismo, las Partes convienen que será necesario el consentimiento previo y por escrito del Banco para la introducción de cualquier cambio al ROP, SGAS, Y PAAS.”*

Los términos y condiciones, así como el PAAS, solo podrán ser modificados con el consentimiento previo y por escrito del Banco, incluyendo el visto bueno de ESG.

### Normas Generales

Las Normas Generales del modelo de contrato para préstamos para inversión, específicamente el Artículo 6.03 Disposiciones Generales para la ejecución del Proyecto/Programa, 6.06 Gestión ambiental y social, y Artículo 7.02 Planes e informes establecen la base legal para garantizar el cumplimiento de las políticas A&S durante la ejecución de la operación.

#### ***ARTÍCULO 6.06. Gestión ambiental y social.***

*(a) El Prestatario se compromete, por sí o, por intermedio del Organismo Ejecutor, a llevar a cabo la ejecución (preparación, construcción y operación) de las actividades comprendidas en el Proyecto, de conformidad con el Marco de Política Ambiental y Social (MPAS) del Banco, sus Normas de Desempeño Ambientales y Sociales, y de acuerdo con las disposiciones ambientales y sociales específicas que se incluyan en las Estipulaciones Especiales de este Contrato.*

*(b) El prestatario se compromete, por sí o, por intermedio del Organismo Ejecutor a informar inmediatamente al Banco la ocurrencia de cualquier incumplimiento de los compromisos ambientales y sociales establecidos en las Estipulaciones Especiales.*



(c) El prestatario se compromete, por sí o, por intermedio del Organismo Ejecutor, a implementar un plan de acción correctiva, acordado con el Banco para mitigar, corregir o compensar las consecuencias adversas que puedan ocurrir por el incumplimiento en la implementación de los compromisos ambientales y sociales establecidos en las Estipulaciones Especiales.

(d) El Prestatario se compromete, a permitir que el Banco por sí mismo o mediante contratación de servicios de consultoría, realice actividades de supervisión, inclusive auditorías ambientales y sociales del Proyecto, con el fin de confirmar el cumplimiento de los compromisos ambientales y sociales establecidos en las Estipulaciones especiales.”

#### **Definiciones para incluir en el Contrato**

**“Plan de Acción Ambiental y Social”** o **“PAAS”** significa el plan de acción ambiental y social del Proyecto/Programa, acordado con fecha [                    ], el cual establece las acciones necesarias, dentro de plazos determinados, para que el Proyecto/Programa cumpla con las Normas de Desempeño Ambientales y Sociales.

**“EASE”** significa Evaluación Ambiental y Social Estratégica.

**“PGASE”** significa Plan de Gestión Ambiental y Social Estratégico.

**“SGAS”** significa Sistema de Gestión Ambiental y Social.

**“PAB”** significa Plan de Acción de Biodiversidad.

**“Normas de Desempeño Ambientales y Sociales”** o **“NDASs”** se refieren a las 10 Normas de Desempeño que forman parte del Marco de Políticas Ambientales y Sociales (GN-2965-23).

**“Código de Conducta”**: Declaración formal de principios que establecen las normas de comportamiento de los trabajadores en relación con las medidas de prevención y gestión de los riesgos ambientales, laborales y sociales del Proyecto, incluyendo los riesgos de salud y seguridad ocupacional, violencia sexual y de género, discriminación, y abuso y explotación sexual infantil y de otras personas o grupos vulnerables, en cuanto ello resulte aplicable a las obras, servicios diferentes de consultoría, consultorías, y bienes.

**“Instalaciones conexas”**: obras o infraestructuras nuevas o adicionales, independientemente de la fuente de financiamiento, consideradas esenciales para que un Proyecto/Programa financiado por el Banco pueda funcionar, tales como caminos de acceso, líneas ferroviarias, líneas eléctricas o ductos, tanto nuevos como adicionales, que deban construirse para el Proyecto/Programa; campamentos de obra o alojamientos permanentes, tanto nuevos como adicionales, que se requieran para alojar a los trabajadores del Proyecto/Programa; plantas de energía nuevas o adicionales que se requieran para el Proyecto/Programa; instalaciones de tratamiento de efluentes nuevas o adicionales para el Proyecto/Programa; y almacenes y terminales marítimas, nuevos o adicionales, construidos para la gestión de los bienes del Proyecto..

## Condiciones Especiales

### A. Cláusulas para incorporar en las Estipulaciones Especiales para todas las operaciones categoría B

#### Condiciones previas al primer desembolso

a. Que el Prestatario, directamente, o por intermedio del Organismo Ejecutor, haya aprobado y haya entrado en vigencia el ROP en los términos y condiciones acordados previamente con el Banco, que deberá incluir, entre otros elementos, los requerimientos ambientales y sociales e incorporar como anexos el Sistema de Gestión Ambiental y Social, el Plan de Gestión Ambiental y Social y el PAAS.

b. Que como parte de la estructura de ejecución del Proyecto cuya conformación es una condición previa al primer desembolso de los recursos del Proyecto, se haya designado mínimamente (i) un coordinador general; (ii) un coordinador técnico; (iii) un coordinador administrativo financiero; (iv) un coordinador operacional del componente I; (v) un coordinador operacional del componente II; (vi) un especialista en género y diversidad; (vii) un especialista en PCT y salvaguardias sociales; (viii) un especialista en salvaguardias ambientales; (ix) un especialista en monitoreo y evaluación; (x) un especialista en adquisiciones; y (xi) un especialista en gestión del conocimiento, comunicación y cooperación sur-sur y triangular (CSST)

Justificación: Condición necesaria para garantizar el cumplimiento con la NDAS 1.

#### Condiciones especiales de Ejecución

Para aplicar y poner en práctica el Artículo 6.06 Gestión Ambiental y Social párrafo (a) de las Normas Generales, las siguientes disposiciones deben ser incluidas en la cláusula correspondiente a Gestión Ambiental y Social en las Estipulaciones Especiales para todas las operaciones de Categoría B.:

##### *Cláusula XX. Gestión Ambiental y Social*

2. Para efectos de lo dispuesto en los Artículos 6.06 y 7.02 de las Normas Generales, las partes convienen que la ejecución del Proyecto se regirá por las siguientes disposiciones que se han identificado como necesarias para el cumplimiento de los compromisos ambientales y sociales del Proyecto/Programa:

- (a) El Prestatario acuerda diseñar, construir, operar, mantener y monitorear el Proyecto y administrar los riesgos A&S de las Instalaciones Conexas del Proyecto, si las hay, directamente o a través del Organismo Ejecutor, o a través de cualquier otro contratista, operador o cualquier otra persona que realice actividades relacionadas con el Proyecto de acuerdo con el Sistema de Gestión Ambiental y Social, Plan de Gestión Ambiental y Social, Plan de Gestión del Riesgo de Desastres y Cambio Climático, Plan de Acción Ambiental y Social, y cualquier

*otro plan ambiental, social, de salud y seguridad laboral que haya sido preparado y/o que deba ser elaborado durante la ejecución, y los requisitos incluidos en el Plan de Acción Correctiva*

- (b) El Prestatario, directamente o a través del Organismo Ejecutor, deberá asegurar que el Proyecto sea implementado de acuerdo con el PAAS de fecha 17 de junio, en una manera aceptable para el Banco. Con este propósito, el Prestatario deberá asegurar que sus costos sean cubiertos y contar con el personal requerido para su implementación. El PAAS podrá ser modificado con el consentimiento previo y por escrito del Banco, según se indica en el mismo.*
- (c) El Prestatario, directamente o a través del Organismo Ejecutor, deberá: (i) implementar procesos de participación con las comunidades afectadas y partes interesadas de las actividades previstas en el Programa/Proyecto; (ii) divulgar toda documentación ambiental y/o social del Sistema de Gestión Ambiental y Social; (iii) establecer, publicitar, mantener y operar un mecanismo de quejas y reclamos accesible, eficaz y eficiente para facilitar la atención o resolución de las preocupaciones que pudieren surgir por la implementación de las actividades del Programa/Proyecto, en una manera aceptable para el Banco.*
- (d) El Prestatario, directamente o, a través del Organismo Ejecutor, se compromete a asegurar que en todos los documentos de licitación y contratos, a ser financiados con recursos del Préstamo se incluyan disposiciones que exijan que los solicitantes, oferentes, proponentes, contratistas, consultores, representantes, miembros del personal, subconsultores, subcontratistas, y proveedores de bienes y servicios, sus representantes, y entidades supervisoras se obliguen, entre otros aspectos, a: (a) cumplir con los instrumentos ambientales y sociales del SGAS, PAAS, PGAS, incluyendo disposiciones y procedimientos para prevenir trabajo infantil y trabajo forzoso; (b) adoptar y hacer cumplir el Código de Conducta del Proyecto, el cual deberá ser proporcionado y debidamente notificado a todos sus trabajadores [y (c) en caso de Proyectos que prevean la adquisición de paneles solares o componentes de paneles solares, el Prestatario directamente o a través del organismo ejecutor se asegurará que los respectivos procesos de adquisiciones, documentos de licitación y contratos incluyan las disposiciones específicas del Banco que previenen cualquier tipo de trabajo infantil o forzoso].*

Justificación: Condiciones necesarias para cumplir con los requisitos de las NDAS aplicables al Proyecto.

### **Supervisión y Evaluación**

Las siguientes disposiciones deben ser incluidas para todas las operaciones Categoría A y B en el Capítulo V “Supervisión y Evaluación del Programa”.

1. *El Prestatario, directamente o a través del Organismo Ejecutor, deberá:*
  - (a) Preparar y presentar a satisfacción del Banco, un Informe de Cumplimiento Ambiental y Social, en la forma y contenido acordados con el Banco sobre la implementación del SGAS y el cumplimiento del PAAS, de haberlo, como parte del informe de progreso semestral. Si el Banco lo solicita dentro de los dos (2) años siguientes al último desembolso de recursos del Préstamo, el Prestatario se compromete a proporcionar al Banco información sobre cuestiones ambientales y sociales relacionadas con el Proyecto.*

- (b) *Adoptar todas las medidas necesarias para recolectar, compilar y suministrar al Banco a través de informes regulares, con la frecuencia acordada entre el Banco y el Organismo Ejecutor, o cuando sea requerido por el Banco, que incluyan: (i) la información del estado de implementación del SGAS y de cumplimiento del PAAS, en caso corresponda; (ii) las condiciones, de haberlas, que interfieren o podrían interferir con la implementación del SGAS y/o cumplimiento del PAAS, en caso corresponda; y (iii) las medidas correctivas y preventivas que han sido tomadas o que deban ser tomadas para abordar las condiciones indicadas en el literal (a) anterior; y,*
- (c) *Con respecto al Proyecto y sus instalaciones conexas, el Organismo Ejecutor notificará al Banco por escrito dentro de los diez (10) días desde que toma conocimiento de cualquier (1) incumplimiento material de los requisitos ambientales y sociales; (2) incidente o accidente grave relacionado con las obras del Proyecto donde haya resultado en fatalidades o lesiones con invalidez permanente de trabajadores o terceros, así como casos de violencia sexual asociado a un trabajador contratado por el Proyecto y cualquier otro que a criterio del organismo ejecutor pueda generar un impacto significativo en el ambiente, la comunidad o trabajadores; (3) acción reguladora de carácter ambiental, social y/o de salud y seguridad ocupacional que de inicio a un proceso sancionador por falta grave; o (4) cualquier riesgo e impacto ambiental y social recientemente identificado, que pueda afectar los aspectos ambientales y sociales del Proyecto y de sus instalaciones conexas; en cada caso dicha notificación incluirá acciones tomadas o propuestas con respecto a tales eventos.*

Justificación: Condiciones necesarias para hacer seguimiento al desempeño socioambiental del Programa.

#### **B. Cláusulas para incorporar en las Estipulaciones Especiales caso por caso (categoría A y B)**

*El Prestatario, directamente o a través del Organismo Ejecutor, no deberá participar en ninguna de las siguientes actividades con respecto al Programa y/o subproyectos: Proyectos de categoría A y actividades que conlleven reasentamiento involuntario (físico y económico), proyectos que impacten negativamente las comunidades tradicionales y/o pueblos indígenas, proyectos que impliquen la conversión significativa o degradación de hábitats naturales, proyectos que impliquen riesgo de impacto adverso cuantificable a hábitats críticos o en áreas legalmente protegidas, proyectos que causen un impacto negativo significativo en bienes o activos culturales críticos, por ejemplo, yacimientos religiosos, arqueológicos, paleontológicos y otros.*

Justificación: Los criterios de elegibilidad excluyen los proyectos que generan impactos que no caracterizan a los proyectos de la muestra representativa, de acuerdo con PR-202.

#### **C. Disposiciones para incluir en el ROP**

La siguiente disposición normalmente debería incluirse en el ROP:

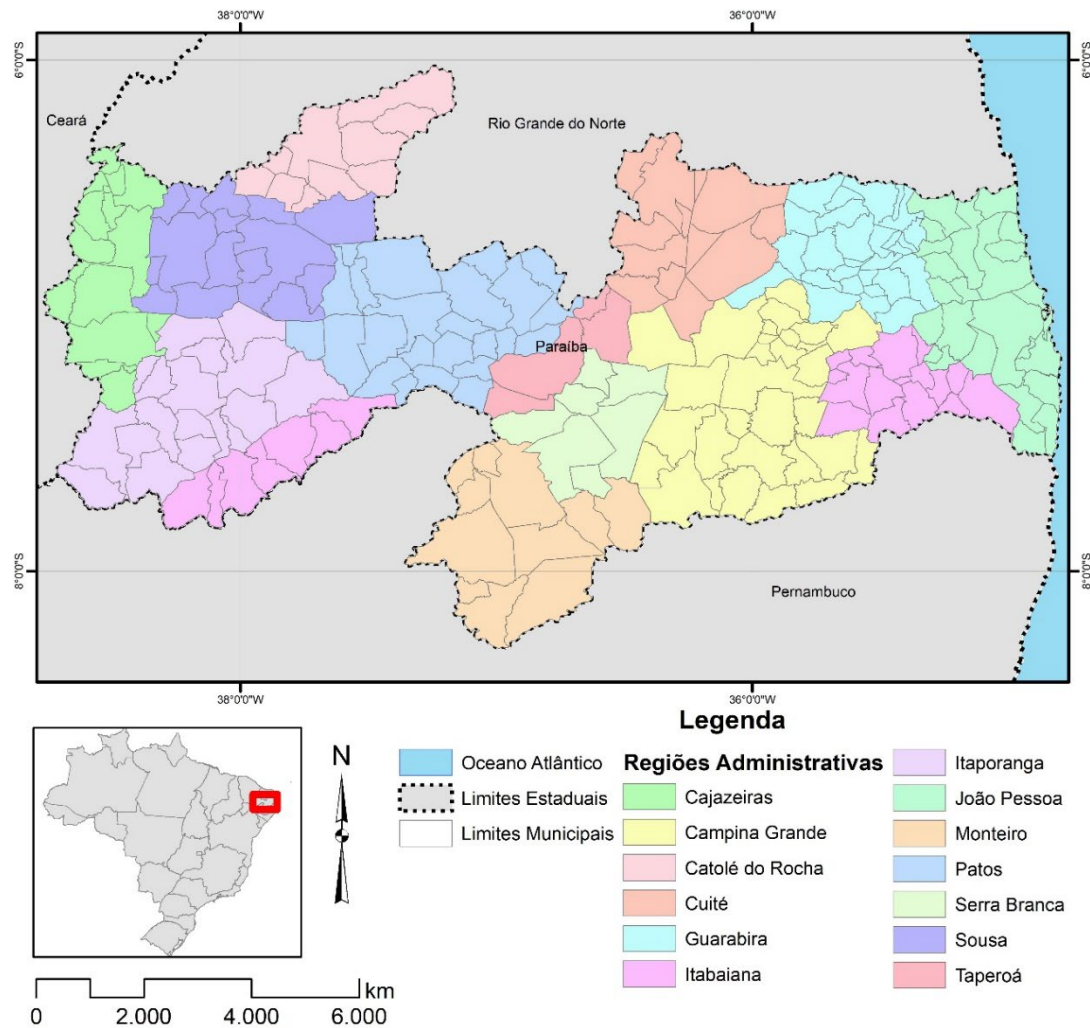
- (a) *Cualquier cambio sustancial al Sistema de Gestión Ambiental y Social o cualquier Plan A&S, debe ser por escrito y aprobado por el Banco de manera consistente con las NDASs del Banco.*

En caso de no tener un ROP, esta disposición debe ser incluida en las Estipulaciones Especiales del contrato.

### Anexo C. Mapas ambientales y sociales

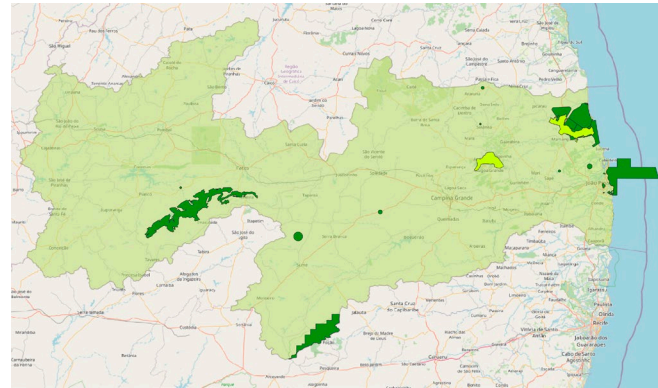
*Nombra, explica y pega toda la información gráfica necesaria (Mapas generados desde la Plataforma ESG ARC -GIS).*

**Figura 1 – Área del Programa**



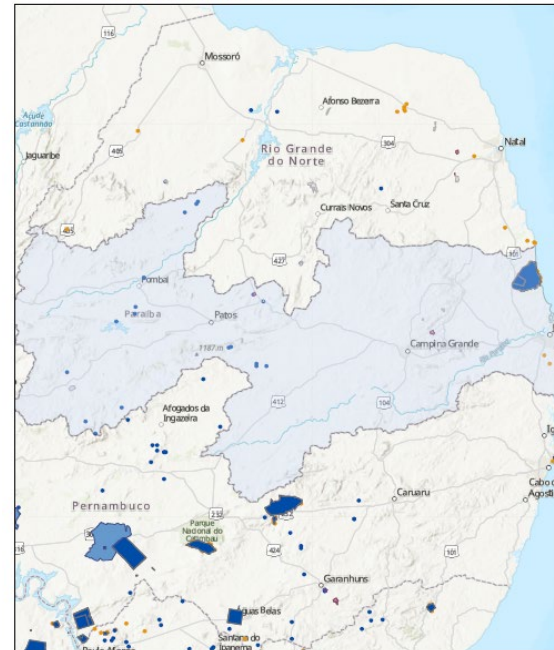
Fuente: IBGE, 2015; Estado da Paraíba, 2024 – consulta

Figura 1 – Área Legalmente Protegidas (verde oscuro) y Áreas Clave para la Biodiversidad (verde claro)



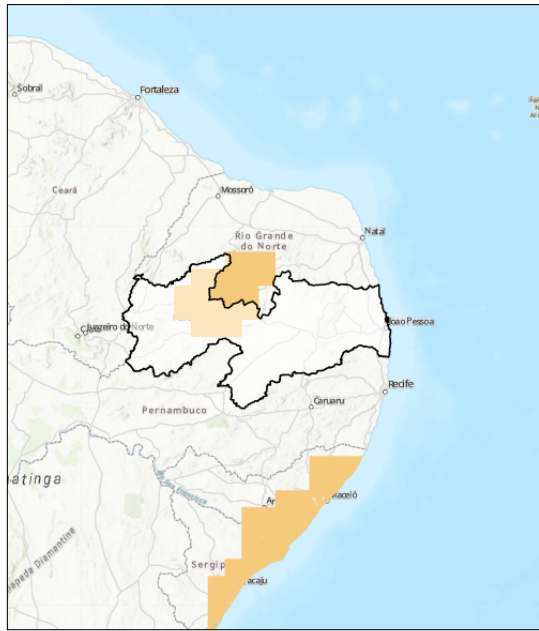
Fuentes: World Database of Protected Areas, versión marzo 2024; World Database of Key Biodiversity Areas, versión octubre 2023.

Figura 2- Territorios Indígenas y Afrodescendientes



3/14/2024, 3:35:41 PM  
1:2,311,162  
0 20 40 80 mi  
0 30 60 120 km  
Parabíba limite  
Territorios Afrodescendientes  
NO TITULADO  
EN PROCESO DE TITULACION  
TITULADO  
Territorios Indígenas  
EN PROCESO DE TITULACION  
TITULADO  
Poblados Indígenas y afrodescendientes  
AFRODESCENDIENTE  
INDIGENA  
UNESCO World Heritage Convention 2021  
Cultural  
Elst, TomTom, Garmin, Fourquare, FAO, METANASA, USGS | preparado por Leo Zúñiga-Arce, en base a los datos del INCRA, Brasil | © OpenStreetMap contributors  
AerGIS Web-AppBuilder  
Elst, USGS | Elst, TomTom, Garmin, Fourquare, FAO, METANASA, USGS | preparado por Leo Zúñiga-Arce, en base a los datos del INCRA, Brasil | © OpenStreetMap contributors

Figura 3- Precipitación



3/14/2024, 3:44:31 PM

Paraiba\_limite  
Precipitation MRI\_CGCM3  
Moderate

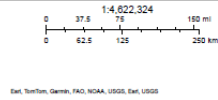
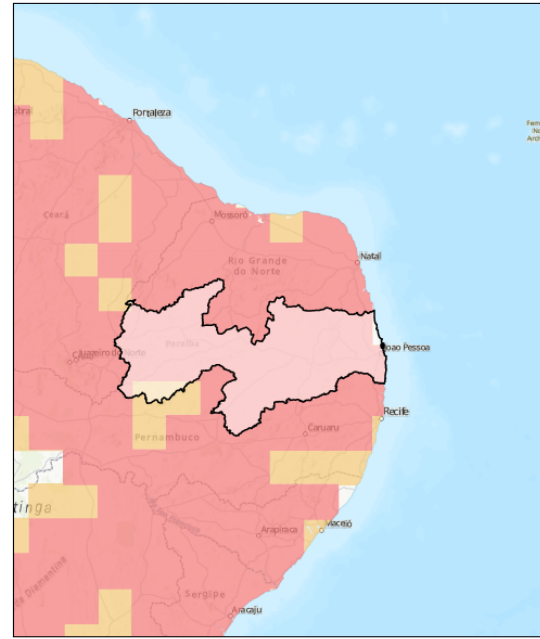


Figura 4 - Sequias



3/14/2024, 3:42:06 PM

Paraiba\_limite  
Drought hazard  
Moderate  
High

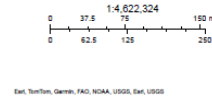
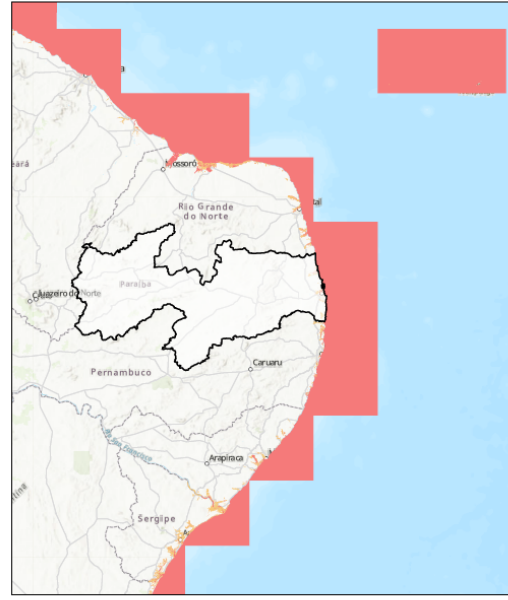


Figura 5 - Inundación Fluvial



3/14/2024, 3:48:39 PM  
 Paraíba\_límite  
 Riverine flooding hazard with Climate change  
 High  
 Moderate  
 Escal. North, Garmin, FAO, NOAA, USGS, Esri, USGS

Figura 6 - Incremento del Nivel del Mar



3/14/2024, 3:49:45 PM  
 Paraíba\_límite  
 Sea Level Rise  
 Moderate  
 High  
 Escal. North, Garmin, FAO, NOAA, USGS, Esri, USGS

Figura 7 – Cubo de Criticidad para Sistemas de drenaje y abastecimiento de agua

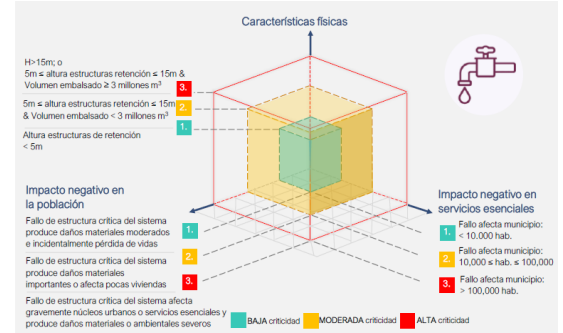


Figura 8- Índice de Inflamabilidade – INMET

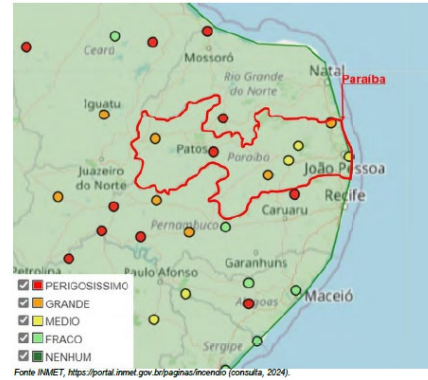
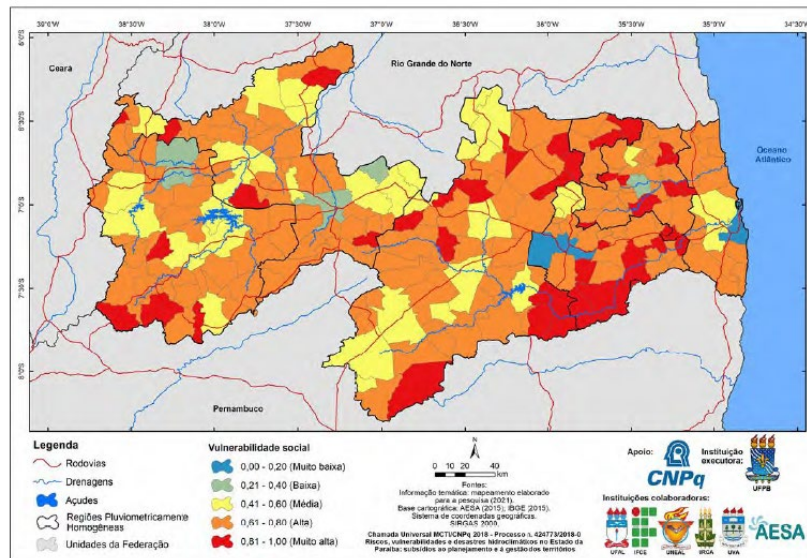


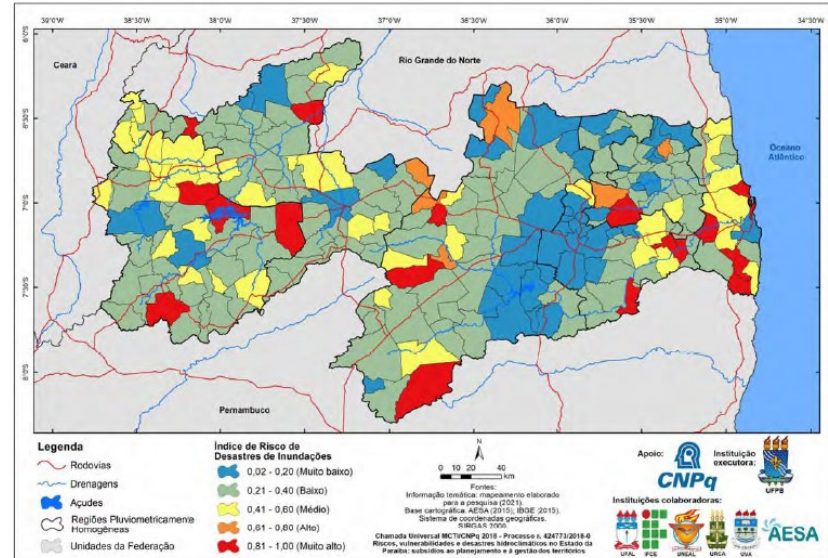


Figura 8- Vulnerabilidade Social – Inundações e Secas



Fonte: Cunico et al., 2023

Figura 9- Índice de Risco de Desastres de Inundações



Fonte: Cunico et al., 2023

Figura 10-General EX-ACT Results

PROJECT COMPONENTS	BALANCE		
	Tropical moist (8%)	Tropical dry (92%)	Weighted average
Deforestation	0	0	0
Afforestation	-20,255	-10,294	-11,091
Other land-use	88,841	8,690	15,102
Annual	-36,973	-9,975	-12,134
Perennial	-1,377,845	-1,356,721	-1,358,410
Flooded rice	0	0	0
Grasslands	0	0	0
Livestock	126,834	116,224	117,073
Forest mngt.	0	0	0
Inland wetlands	0	0	0
Coastal wetlands	0	0	0
Fisheries and aquaculture	0	0	0
Inputs & Invest.	-200,341	-200,341	-200,341
<b>Total emissions, tCO2-e</b>	<b>-1,419,739</b>	<b>-1,452,416</b>	<b>-1,449,802</b>
<b>Total emissions, tCO2-e/ha</b>	<b>-105</b>	<b>-107</b>	<b>-107</b>
<b>Total emissions, tCO2-e/ha/yr</b>	<b>-5</b>	<b>-5</b>	<b>-5</b>



## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 8.7 Public Consultation Report**

Mission Dates: 20-28/05/2024  
Document Date: 05/09/2024  
Project No. 2000004620  
Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II

**CONSOLIDATED REPORT  
PUBLIC CONSULTATION AND STAKEHOLDER PARTICIPATION  
PREPARATION PHASE**

**Paraíba  
July 2024**

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## CREDITS

**BID - INTER-AMERICAN DEVELOPMENT BANK**

**IFAD - INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**

**STATE OF PARAÍBA**

### **Consultants**

Marcelo da Costa

Rogério Peter

## SUMMARY

1	PRESENTATION.....	6
2	INTRODUCTION .....	6
3	OBJECTIVES .....	6
4	PRINCIPLES ADOPTED IN CONSULTATIONS.....	6
5	PUBLIC CONSULTATIONS.....	7
5.1	Publicity and Public Call.....	8
5.1.1	Internet publishing .....	9
5.1.2	Sending invitations and messages.....	22
5.1.3	Participation in Rural Territory Council Plenaries .....	23
5.1.4	Pre-consultation meetings in the Rural Territories .....	25
5.1.5	Broadcasting room orientation meeting.....	28
5.2	Attention to Gender Issues, Vulnerable Groups and Traditional Communities 32	
5.3	Query description.....	36
6	CONCLUSION.....	57
6.1	Recommendations.....	59
7	ANNEXES .....	60
7.1	Annex - Presentation/slides from the Public Consultation in Belém and Santarém .....	61
7.2	Annex - List of Stakeholders who received an official invitation.....	62
7.3	Annex - List of Participants in the Public Consultation .....	63
7.4	Annex - List of participants in the Broadcasting Rooms .....	64

## LIST OF FIGURES

Figure 1 - YouTube portal for the virtual consultation broadcast .....	8
Figure 2 - Publication of the Public Consultation Notice in the D.O.E. ....	9
Figure 3 - News page about the Public Consultation on the PROCASE website .....	10
Figure 4 - PROJECT Public Consultation website.....	10
Figure 5 - Publication and dissemination of documents on the Public Consultation page. ....	11
Figure 6 - Disclosure of Public Consultation broadcasting sites throughout the country. ....	12
Figure 7 - Instagram post .....	13
Figure 8 - Step-by-step video explaining how to access the documents and fill in the protest form.....	13
Figure 9 - Contributions form on the project website, on the left for individuals and on the right for institutions or organizations.....	14
Figure 10 - Invitation distributed by WhatsApp .....	15
Figure 11 - Publicity and reminders distributed by WhatsApp .....	16
Figure 12 - Ecards drawn up by the Prefectures/Secretariats .....	17
Figure 13 - Invitation from SEAFDS with the support of FUNAI .....	18
Figure 14 - Participation of the PROCASE State Coordinator in a podcast. ....	18
Figure 15 - Portal Juarez News. ....	19
Figure 16 - Publication of a news article on the Paraíba Government's news channel. ....	19
Figure 17 - Article in Portal da Capital. ....	20
Figure 18 - Official invitation.....	22
Figure 19 - Letter.....	23
Figure 20 - Image of the Plenary held in Piemont da Borborema .....	24
Figure 21 - Image of the Plenary held in Seridó.....	24
Figure 22 - Image of the Plenary held in Cariri Oriental.....	25
Figure 23 - Image of pre-consultation meeting held in Médio Sertão.....	27
Figure 24 - Image of pre-consultation meeting held in Mata Norte.....	27
Figure 25 - Image of pre-consultation meeting held in the Paraíba Valley .....	27
Figure 26 - Image of pre-consultation meeting held in the Piancó Valley .....	28
Figure 27 - Image of the Virtual Meeting for beaconing and training the Transmission Rooms .....	29
Figure 28 - Slide for the presentation of the beaconing to those responsible for the Transmission Rooms .....	29
Figure 29 - Image of the WhatsApp group created to exchange information between the teams responsible for the Broadcast Rooms .....	30
Figure 30 - Image of the Transmission Room on the day of the Public Consultation installed at the Rural Workers' Union in Arara/PB.....	30
Figure 31 - Image of the Broadcasting Room on the day of the Public Consultation installed at the Municipal Agriculture Department in Caturité/PB.....	31
Figure 32 - Image of the Transmission Room on the day of the Public Consultation installed in the Conceição/PB Town Hall.....	31



Figure 33 - Image of the Transmission Room on the day of the Public Consultation installed in the Cultural Center of Sousa/PB .....	32
Figure 34 - Image of the Transmission Room on the day of the Public Consultation installed in the Town Hall in Princesa Isabel/PB .....	32
Figure 35 - Public consultation venue with accessibility .....	34
Figure 36 - Simultaneous translation of the Public Consultation event into Libras .....	34
Figure 37 - Specific mobilization with representation of people with disabilities .....	35
Figure 38 - Meeting with the local FUNAI representative .....	35
Figure 39 - Meeting with representatives of quilombolas and settlers in preparation for the public consultation .....	35
Figure 40 - YouTube Analytics report on the Public Consultation video .....	39
Figure 41 - Speech by PROCASE State Coordinator Nivaldo Magalhães. Emphasis on the translation into pounds throughout the event. ....	43
Figure 42 - Proc case II presentation by Technical Coordinator Nicholas Queiroz .....	43
Figure 43 - PROCASE team supporting the consultation .....	43
Figure 44 - Participants who stayed until the end of the in-person Public Consultation Plenary Session (PBPrev Auditorium, João Pessoa).....	44
Figure 45 - Number of online forms per rural territory .....	45
Figure 46 - Profile in terms of type of representation .....	45
Figure 47 - Profile of rural organizations/communities .....	46
Figure 48 - Gender profile in the responses to the online form .....	46
Figure 49 - Where the questions were asked on the link during the consultation .....	47
Figure 50 - Gender profile in the questions on the link during the consultation .....	48

## LIST OF TABLES

Table 1 - News stories published by media outlet .....	20
Table 2 - PROJECT Website Results (10/06/2024 to 04/07/2024) .....	21
Table 3 - Sending official invitations .....	22
Table 4 - Plenaries held in the Rural Territories .....	23
Table 5 - Plenaries held in the Rural Territories .....	25
Table 6 - General data on participants in the Public Consultation .....	38
Table 7 - Summary of the main doubts/questions from the Public Consultation .....	49
Table 8 - Locations and results of stakeholder participation in the Transmission Rooms during the Public Consultation.....	65

## 1 PRESENTATION

This report presents the record of the public consultation carried out within the framework of the **Paraíba Rural Sustainable Development Project - PROCASE II (PROJECT)**, held in July 2024, as part of the PROJECT's preparation stage.

## 2 INTRODUCTION

The aim of the public consultation with interested parties is to establish a channel of communication with the communities directly affected by the works, building a process of information exchange that (i) enables the executor and the IDB/IDAF and other teams involved in the PROJECT to get to know the particularities of the benefited/affected communities, as well as their needs, (ii) to present the PROJECT and its impacts to the affected communities with the aim of making them aware of what this investment proposal actually means in their daily lives, against the backdrop of the fact that the PROJECT aims to contribute to reducing rural poverty levels, improving food and nutritional security and adapting the rural population to climate change.

The Public Consultation process was based on an inclusive proposal, i.e. the formats and language used to communicate with the population were suitable for transmitting the information to the public, preserving the integrity of the information, while at the same time trying to suit the target audiences.

In line with Environmental and Social Performance Standard 10 of the IDB's Environmental and Social Policy Framework, a round of public consultation took place in a semi-presential event<sup>1</sup> on July 2, 2024, with the participation of communities that could potentially benefit from the PROJECT and related institutions (associations, NGOs, cooperatives, etc.), including traditional communities such as indigenous peoples, quilombolas, gypsies, fishermen and shellfish gatherers. The consultation involved the area covered by the PROJECT, given that the socio-environmental studies carried out were *Framework Approach* in nature, but also focused on the effort to call on and include defined communities in the territory of Paraíba.

## 3 OBJECTIVES

The aim of this document is to present the results of the Public Consultation process carried out as part of the preparation of **PROCASE II**, explaining the public call process, the dynamics of the event and the main questions and concerns raised by the public, as well as the answers given to these questions.

## 4 PRINCIPLES ADOPTED IN CONSULTATIONS

The communication adopted for the implementation of the Public Consultation is based on an inclusive proposal, i.e. the formats and language used to communicate with the population must be appropriate to convey the information to the public. It is important to emphasize that adequate communication seeks to preserve the integrity of the information, while at the same time adapting it to the target audience, in this sense the following criteria have been adopted:

---

<sup>1</sup> Considered a hybrid format, with some of the stakeholders participating in person or virtually, either through their own internet access or in transmission rooms distributed throughout the territory of Paraíba, as provided for in the Stakeholder Participation Plan for the preparation of the PROJECT.

- Written language should be simple and straightforward, avoiding technical terms as much as possible and explaining them as much as possible.
- Whenever possible, didactic examples (drawings, photos, animations) should be presented in order to convey to the population the reality of what the works that make up the PROJECT mean.
- Any requests/complaints from the population must be met with patience and attention to understanding the demand. Special attention should be paid to vulnerable populations.
- The information transmitted to the public, regardless of the medium, must be simple, clear and transparent.

## 5 PUBLIC CONSULTATIONS

According to the IDB's PDAS 10, the Public Consultation was held in order to publicize and debate, in addition to the planned projects, the Strategic Environmental and Social Assessment (SEA) - including the results of the Strategic Socio-Cultural Analysis (SSA), the Strategic Environmental and Social Management Plan (ESMP).

The activities carried out to prepare the consultation included:

- **Disclosure: in accordance** with the Safeguarding Policies, the broad participation of the communities taking part in the PROJECT must be guaranteed and proven. This means that it must be widely publicized, calling on the population to take part in the event, as well as being held in a place or medium that is easily accessible to the population, on a date and at a time that is convenient for them to join. It should be noted that the Consultation took place regardless of whether or not a Public Hearing was required by the state or municipal environmental agency. Communication for the public consultation (call for proposals) began 20 days before the consultation was due to take place. It is worth noting that some of the actions to disseminate information and call for proposals in person in the Rural Territories of Paraíba began around 30 days before the date scheduled for the Consultation.
- **Organization:** the Consultation process was drawn up by the Executor, the PROCASE PMU, which provided and organized the infrastructure for the meeting, with a suitable venue, sound system and support material.
- **Registration of the Public Consultation:** The consultation was broadcast on the internet and its content was kept on the institution's channels. In addition, a channel was made available for comments on the website, which has been available since the beginning of the broadcast.
- The **AASE, PGASE, ASCE and Consultation Plan** documents, as well as an Executive Summary and other information, **were** also made available in digital format for public consultation during the event.
- The event was broadcast over the internet on PROCASE's official YouTube channel. The place of origin of the broadcast was João Pessoa: July 2, 2024, between 10:00 and 12:00 a.m., broadcast channel:
  - <https://www.youtube.com/live/gCMA9iYKSvQ>

**Figure 1 - Youtube portal of the virtual consultation broadcast**



Source: <https://www.youtube.com/live/gCMA9iYKSvQ>

### 5.1 Publicity and Public Call

Dissemination took place in four basic ways: (i) the publication of notices and calls on PROCASE's official electronic channels and social networks; (ii) direct calls to communities and institutions<sup>2</sup> ; (iii) through publication in printed and virtual media, such as newspapers, magazines and presses; (iv) through plenary sessions with communities and authorities in the Rural Territories. Samples of such publicity are presented below.

The publication in the Official Gazette was made on June 12, 2024, 20 days before the meeting was held. The figure below shows this publication.

<sup>2</sup> The focus was on direct outreach to the public through official invitations to community representatives, including traditional populations, using email or WhatsApp.

Figure 2 - Publication of the Notice of Public Consultation in the D.O.E.

10 João Pessoa - Quarta-feira, 12 de Junho de 2024 Diário Oficial

**GABINETE DA PRESIDÊNCIA  
PORTARIA - A - Nº. 0640**

O Presidente da PBPREV, no uso de suas atribuições, consoante o disposto no art. 11, II, da Lei nº 7.517-PBPREV, de 30 de dezembro de 2003, de acordo com o Processo de nº. 000342b-24, RESOLVE:

**CONCEDER APOSENTADORIA POR TEMPO DE CONTRIBUIÇÃO** ao servidor **JOSÉ SALES JUNIOR**, no cargo de **Professor de Educação Básica 2**, matrícula nº 128.718-4, lotado na **Secretaria de Estado da Educação**, com base no Art. 20, "caput", I a IV, e §§ 1º e 2º, I, da EC nº 103/19 e/c o Art. 34-A, "caput" e § 1º, da CF. (com redação dada pela ECE nº 47/2020).  
João Pessoa, 04 de maio de 2024.  
**JOSÉ ANTONIO COELHO CAVALCANTI**  
Presidente da PBPREV

**RESENHA/PBPREV/GP/Nº 175-2024**

O Presidente da PBPREV-Paraíba Previdência, no uso das atribuições que lhes são conferidas pelos incisos I, II e III do art. 11 da Lei nº 7.517, de 30 de dezembro de 2003, DEFERIU (o/s) processo(s) abaixo relacionado(s):

Nº	Processo	Requerente	Resultado
01	3602-24	MYDE FIGUEIREDO PORTO	REVISÃO DE PENSÃO
02	3604-24	TEREZINHA RODRIGUES VIANA DE LIMA	REVISÃO DE PENSÃO
03	3605-24	JULIA MARIA JOSE MACIEL VIEIRA	REVISÃO DE PENSÃO
04	3605-24	TATIANA MARIA NASCIMENTO LEMOS	REVISÃO DE PENSÃO
05	3603-24	MARIA LUCIA HENRIQUES DA SILVA	REVISÃO DE PENSÃO
06	3608-24	MARIA DA GLORIA REBOGAS DA CUNHA LIMA	REVISÃO DE PENSÃO
07	3601-24	LUIZCE SOUZA RIBEIRO	REVISÃO DE PENSÃO

João Pessoa, 11 de junho de 2024.  
**JOSÉ ANTONIO COELHO CAVALCANTI**  
Presidente da PBPREV

**RESENHA/PBPREV/GP/Nº 0414-2024**

O Presidente da PBPREV - Paraíba Previdência, no uso das atribuições que lhes são conferidas pelos incisos I, II e III do art. 11 da Lei nº 7.517, de 30 de dezembro de 2003, INDEFERIU (o/s) PROCESSO(S) DE SOLICITAÇÃO, abaixo discriminado(s):

Nº	Processo	Requerente	Resultado
01	1043-24	ADRIANUS NUNES DE MELO	000 616-2
02	0047-24	JOÃO LEITE DE CARVALHO NETO	513.373-5
03	1285-24	RUBENS INACIO SOARES DE ALANCAR	500.034-0

João Pessoa, 11 de junho de 2024.  
**JOSÉ ANTONIO COELHO CAVALCANTI**  
Presidente da PBPREV

**LICITAÇÕES - EXTRATOS - LICENÇAS - TERMOS - ATAS**

**Secretaria de Estado da Administração**

**NOTIFICAÇÃO**

SECRETARIA DE ESTADO DA ADMINISTRAÇÃO  
COMISSÃO ESTADUAL DE ACUMULAÇÃO DE CARGOS

NOTIFICAÇÃO

O Presidente da Comissão Estadual de Acumulação de Cargos - CEAC, no uso de suas atribuições legais e em atenção ao que determina a **Constituição Federal** - Matéria de Acumulação de Cargos Públicos, RESOLVE:

**Corpo de Bombeiros Militar da Paraíba**

**NOTA**

NOTA Nº 029 - CCCCF0-BM-2024

O Coordenador-Geral da Comissão Coordenadora Geral do Concurso Público para o CURSO DE FORMAÇÃO DE OFICIAIS DO CORPO DE BOMBEIROS MILITAR DO ESTADO DA PARAIBA 2024, no uso das atribuições que lhes são conferidas pela Portaria nº 134/GCG/2023-CG, publicada no Diário Oficial do Estado nº 17.972, datado de 28 de outubro de 2023, escudado no que pontifica o Edital nº 001/2023 CFO-BM-2024,

**RESOLVE:**

**TORNAR PÚBLICO** que os ATOS Nº 028-CCCF0-BM-2024, ATO Nº 029-CCCF0-BM-2024, ATO Nº 030-CCCF0-BM-2024 e o ATO Nº 031-CCCF0-BM-2024, cujo expediente trata acerca das Soluções de Recursos da Avaliação Psicológica encontram-se disponíveis no link: <http://www.bombeiros.pb.gov.br>.

João Pessoa - PB, 11 de junho de 2024.  
**LUCAS SEVERIANO DE LIMA MEDEIROS - CEL. QOEM**  
Coordenador-Geral da Comissão

**Secretaria de Estado da Agricultura Familiar e do Desenvolvimento do Semiárido**

**EDITAL E AVISO**

SECRETARIA DE ESTADO DA AGRICULTURA FAMILIAR  
E DO DESENVOLVIMENTO DO SEMIÁRIDO - SEAFDS

**AVISO DE CONSULTA PÚBLICA Nº 001/2024**

O GOVERNO DO ESTADO DA PARAIBA, entidade de direito público interno, inscrito no CNPJ sob o nº 08.761.124/0001-00, através da SECRETARIA DE ESTADO DA AGRICULTURA FAMILIAR E DO DESENVOLVIMENTO DO SEMIÁRIDO - SEAFDS, no uso de suas atribuições, torna público a realização de Consulta Pública com o objetivo de engajar efetivamente as comunidades, organizações e instituições ligadas à agricultura familiar, oferecendo informações e abrindo espaço para que possam expressar suas opiniões e contribuir para a construção e o aprimoramento do Projeto de Desenvolvimento Rural Sustentável da Paraíba - PROCASE II, atuando com foco na redução da pobreza rural, na garantia da segurança alimentar e nutricional, e na mitigação dos efeitos das mudanças climáticas em áreas rurais do Estado da Paraíba.

Os interessados podem participar acessando o site do PROCASE (<http://www.procase.pb.gov.br/consulta-publica>) para conhecer e contribuir com o projeto, ter acesso aos documentos, expressar suas opiniões ou esclarecer dúvidas por meio dos canais de comunicação divulgados.

Os estudos e os documentos socioambientais - Normas e Políticas de Salvaguarda Ambientais do BID e do FIDA, divulgados previamente no site, serão apresentados, de maneira acessível durante o evento de consulta, pela equipe técnica do PROCASE, sobre possíveis riscos e impactos ambientais, bem como as soluções previstas pelo Projeto. As contribuições, anexas e sugestões das partes interessadas, além dos questionamentos apresentados, durante e após a consulta, auxiliarão na implementação das medidas de mitigação dos impactos ambientais.

A apresentação da Consulta Pública do PROCASE II será aberta a toda a sociedade e demais partes interessadas, e ocorrerá no dia 2 de julho, das 10h00 às 12h00, presencialmente no Auditório da PBPREV e, de forma virtual, pelo canal divulgado no site oficial. Adicionalmente, haverá transmissões nos escritórios regionais da EMPAER.

A organização do PROCASE II, amparado pelo **Decreto estadual nº 44.934/2024**, que o regulamentou, e as condições gerais de participação, pelas normas desta consulta pública, estarão disponíveis também no site eletrônico: <http://www.procase.pb.gov.br/consulta-publica>, a partir de sua publicação no Diário Oficial do Estado.

**ANTONIO RIBEIRO (Frei Anastácio)**  
Secretário de Estado - SEAFDS

**IVALDO MORENO DE MACALHÃES**  
Coordenador Estadual do PROCASE II

Source: Official Gazette, June 12, 2024

### 5.1.1 Internet publishing

A page was created on the PROCASE website (<https://www.procase.pb.gov.br/consultapublica>), calling for public consultation and making available materials and documents produced on the PROJECT. News stories were also broadcast on the PROCASE news channel.

In order to strengthen the publicity and prestige of the PROJECT, videos were made with the Governor of the State, the Secretary for Family Farming and the Project Coordinator, making statements and calling on the public to take part in the Consultation process.

Several articles have been published about the PROJECT, as well as the dissemination and participation in a Podcast aimed at broadening the scope of the dissemination of information.

We also had the support of various municipalities and institutions that helped to create new channels and mechanisms for publicizing the PROCASE Consultation, which showed the Executive Agency's excellent coordination with local institutions and partners.

The following figures show an image of the Public Consultation page and a news article on the PROCASE news channel; these pages remained active during the call process.

Figure 3 - News page about the Public Consultation on the PROCASE website



### Consulta Pública Procace II

Data: 02/07/2024 Hora: 10:00

Sua presença é importante!

[Assista ao vivo pelo canal do youtube do PROCASE](#)

[Clique e confira os locais de transmissão no seu município.](#)

Source: <https://www.procace.pb.gov.br/>

Figure 4 - Website of the PROJECT Public Consultation



## Consulta Pública Procace II

O GOVERNO DO ESTADO DA PARAÍBA, através da SECRETARIA DE ESTADO DA AGRICULTURA FAMILIAR E DO DESENVOLVIMENTO DO SEMIÁRIDO – SEAFDS, no uso de suas atribuições, torna público a realização de Consulta Pública com o objetivo de engajar efetivamente as comunidades, organizações e instituições ligadas à agricultura familiar, oferecendo informações e abrindo espaço para que possam expressar suas opiniões e contribuir para a construção e o aprimoramento do Projeto de Desenvolvimento Rural Sustentável da Paraíba – PROCASE II, atuando com foco na redução da pobreza rural, na garantia da segurança alimentar e nutricional, e na mitigação dos efeitos das mudanças climáticas em áreas rurais do Estado da Paraíba.

Queremos ouvir suas sugestões, dúvidas, observações e anseios sobre o projeto e os documentos preparatórios disponíveis em nosso site. Sua opinião é muito importante para nós! Preencha o formulário disponível no final da página.

Os dados coletados através deste formulário são notificados em conformidade com a Lei Geral de Proteção de Dados (LGPD). As

Source: <https://www.procace.pb.gov.br/consultapublica>

**Figure 5 - Publication and dissemination of documents on the Public Consultation page.**

Conheça mais:

Acesse os documentos abaixo sobre os possíveis impactos e riscos ambientais, bem como as soluções propostas.

Documentos de Referência			
Conteúdo	Atualização	Tamanho	Download
<p><b><u><a href="#">AVALIAÇÃO AMBIENTAL E SOCIAL ESTRATÉGICA - VERSÃO PRELIMINAR</a></u></b></p> <p>Este documento avalia a área do Projeto para garantir que as intervenções considerem aspectos ambientais e sociais, verificando a conformidade com as Políticas de Salvaguardas do FIDA e do BID. Ele define critérios para orientar as atividades e subprojetos do PROCASE II, integrando essas dimensões nas decisões do Projeto.</p>	12/08/2024	61.672 KB	
<p><b><u><a href="#">ANÁLISE SOCIOCULTURAL ESTRATÉGICA - VERSÃO PRELIMINAR</a></u></b></p> <p>O documento examina a situação das comunidades tradicionais e avalia os riscos potenciais que o projeto pode gerar. Além disso, propõe um plano de ação para mitigar esses riscos e monitorar os impactos, preparando instrumentos de identificação e gestão de potenciais impactos e riscos socioambientais negativos sobre as comunidades tradicionais beneficiadas.</p>	12/08/2024	6.101 KB	
<p><b><u><a href="#">PLANO DE GESTÃO AMBIENTAL E SOCIAL ESTRATÉGICA - VERSÃO PRELIMINAR</a></u></b></p> <p>Este plano define as ações dos Programas Ambientais e Sociais do projeto, com a finalidade mitigar impactos e orientar os estudos socioambientais dos projetos futuros.</p>	12/08/2024	2.624 KB	
<p><b><u><a href="#">PLANO CONSULTA E PARTICIPAÇÃO DE PARTES INTERESSADAS DA PREPARAÇÃO DO PROJETO - VERSÃO PRELIMINAR</a></u></b></p> <p>Este documento orienta a Consulta Pública para apresentar o PROJETO e os documentos socioambientais, além de captar informações, desejos e dúvidas das partes interessadas. Serve como um elo entre a sociedade e o governo, buscando unir interesses e promover a sustentabilidade do projeto.</p>	12/08/2024	880 KB	
<p><b><u><a href="#">RESUMO EXECUTIVO</a></u></b></p> <p><u><a href="#">Esse Documento apresenta o Resumo Executivo da AVALIAÇÃO AMBIENTAL E SOCIAL ESTRATÉGICA - AASE e do PLANO DE GESTÃO AMBIENTAL E SOCIAL ESTRATÉGICA - PGASE, que foram elaborados no âmbito da preparação do PROCASE II.</a></u></p>	20/08/2024	1.129 KB	
<p><b><u><a href="#">APRESENTAÇÃO PROCASE II</a></u></b></p> <p><u><a href="#">Esse Documento é a apresentação utilizada durante a Consulta Pública realizada no dia 02/07/2024, abordando o Projeto de Desenvolvimento Rural Sustentável da Paraíba. Contém informações sobre o projeto, objetivos, estratégias e documentos socioambientais.</a></u></p>	03/07/2024	3.043 KB	

Source: <https://www.procace.pb.gov.br/consultapublica>

Figure 6 - Disclosure of Public Consultation broadcasting sites throughout the territory.

Confira os locais das salas de transmissão - Consulta Pública 02/07/2024			
Município	Território	Local	Endereço
Água Branca	Serra do Teixeira	Auditorio da Prefeitura	PB 306 - Centro, Água Branca - PB, 58000
Aguilar	Vale de Piancó	Casa da Cultura	Rua Eplício Tavares, S/N
Alagoa Nova	Borborema	Centro de Cultura e Cidadania da Associação Cultural e Agrícola dos Jovens Ambientalistas da Paraíba - ACAJAMAN	Rua Antunes Brandão, 380, Santa Luz Alagoa Nova - PB
Alagoa Grande	Borborema		
Alagoinha	Brejo	CRAS	R. Dr. Francisco Beltrão, 2-80, Alagoinha PB, 58290-000
Aparecida	Vale do Piranhas	Sindicato dos Trabalhadores Rurais Agricultores e Agricultoras Familiares de Aparecida	Rua Josefa Cassimiro de Almeida, 25 Centro - Aparecida - PB
Araçagi	Brejo	Sindicato dos Trabalhadores Rurais	Av. José Rosa Filho, 243, Araçagi - P 58270-000
Arara	Piemont da Borborema	Sindicato dos Trabalhadores Rurais	R. Solon de Lucena, nº 16, Arara-PI 58296-000
Areia	Borborema	Auditorio do Teatro Minerva	Endereço: Rua Eplício Pessoa - Areia
Areia de Baraúnas	Médio Sertão	Gerência Operacional da Empaer	Rua Valdeci Sales, 374, Centro, 58732
Areial	Borborema	Sindicato dos Trabalhadores Rurais	Rua Joaquim Fonseca, 923, Centro, Ar PB, CEP: 58140-000
Bela da Traição	Mata Norte	Funai	Aldeia do Forte, S/N - Área Rural- Bela Traição - PB
Bananeiras	Piemont da Borborema	Espago Cultural Oscar de Castro	R. Henrique Lucena Costa, 21, Banane PB, 58220-000.
Belém	Piemont da Borborema	Sindicato dos Trabalhadores Rurais	R. Joaquim Rodrigues - Belém, PB, 58000
Belém do Brejo do	Médio Piranhas	Câmara de Vereadores	Rua Cônego José Viana, s/n - Centri

< Page 1 of 8 >

Source: <https://www.procace.pb.gov.br/consultapublica>

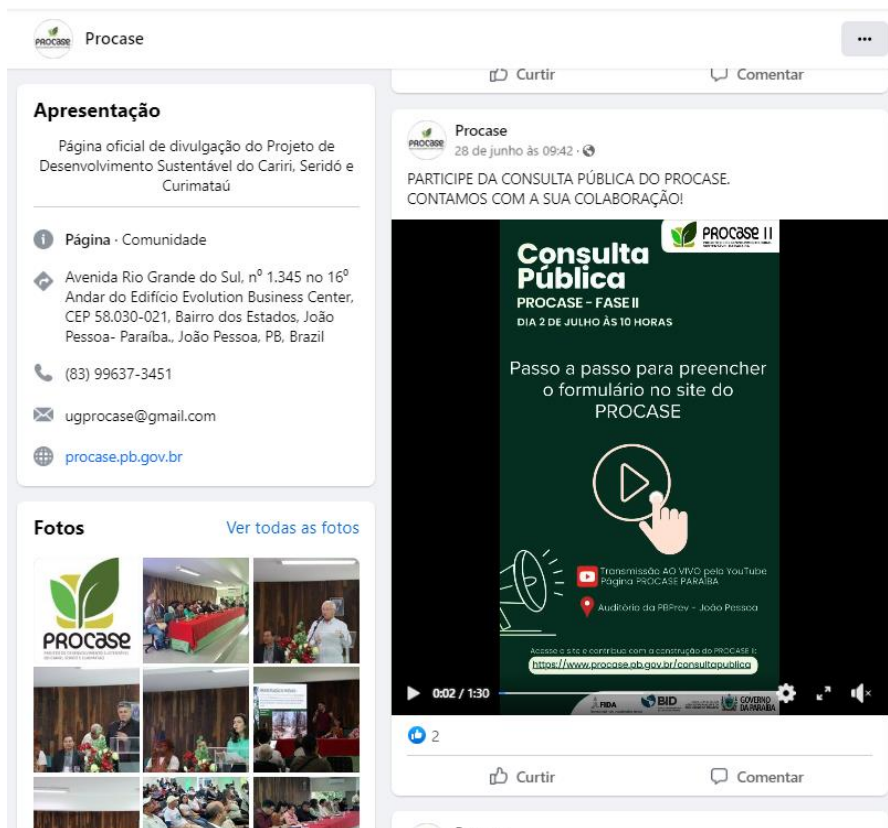


Figure 7 - Instagram post



Source: <https://www.instagram.com/procasepb/>

Figure 8 - Step-by-step video explaining how to access the documents and fill in the protest form



Source: UGP/PROCASE

**Figure 9 - Contribution form on the Project website, on the left for individuals and on the right for institutions or organizations**

**Consulta Pública Virtual**

Obrigado por participar da nossa consulta pública!

Estamos construindo o Projeto de Desenvolvimento Rural Sustentável - PROCASE II voltado para a agricultura familiar no Estado da Paraíba. Queremos ouvir suas sugestões, dúvidas, observações e anseios sobre o projeto e os documentos preparatórios disponíveis em nosso site. Sua opinião é muito importante para nós!

Por favor, preencha o formulário abaixo.

**Dúvidas?**

Ligue para (83) 3214-9248 ou envie um e-mail para [contato@procase.pb.gov.br](mailto:contato@procase.pb.gov.br)

vitor.andrade@procase.pb.gov.br [Mudar de conta](#)

\* Indica uma pergunta obrigatória

**Nome \***

Sua resposta

**Telefone**

Sua resposta

**E-mail \***

Sua resposta

**Identificação da Parte Interessada**

Você está respondendo como:

- Instituição: Se você representa uma entidade governamental, uma organização sem fins lucrativos, uma instituição de ensino ou pesquisa, ou outra entidade formalmente constituída.
- Organização Rural: Se você representa uma cooperativa agrícola, uma associação de agricultores/as, um grupo de produtores/as rurais, ou outra organização diretamente envolvida com atividades agrícolas ou do campo.
- Outro: Caso você seja agricultor (a), técnico (a), estudante ou indivíduos que não represente uma instituição ou organização rural. Por favor, informe-nos quem você representa.

Por favor, selecione a opção que melhor descreve a sua situação: \*

Instituição e/ou Entidade

Organização Rural

Outro: \_\_\_\_\_

Por favor, indique o município ao qual pertence \*

Escolher

[Próxima](#) [Limpar formulário](#)

Nunca envie senhas pelo Formulários Google.

Este conteúdo não foi criado nem aprovado pelo Google. [Denunciar abuso](#) - [Termos de Serviço](#) - [Política de Privacidade](#)

Google Formulários

**Consulta Pública Virtual**

vitordeandradelacerda@gmail.com [Mudar de conta](#)

\* Indica uma pergunta obrigatória

**Instituições e/ou Entidades**

Você representa uma entidade governamental, uma organização sem fins lucrativos, uma instituição de ensino ou pesquisa, ou outra entidade formalmente constituída.

**Nome da Instituição e/ou Entidade \***

Sua resposta

**CNPJ**

Sua resposta

**Descrição da atividade desenvolvida \***

Sua resposta

**Endereço**

Sua resposta

**Tipo de comunidade que a Instituição/Entidade atua**

Comunidade Quilombola

Povo Indígena

Pescadores(as) artesanais/marisqueiras

Comunidade Cigana

Ribeirinhos(as)

Assentamentos da reforma agrária e/ou Loteamentos do Crédito Fundiário

Comunidade da agricultura familiar

Outro: \_\_\_\_\_

[Voltar](#) [Próxima](#) [Limpar formulário](#)

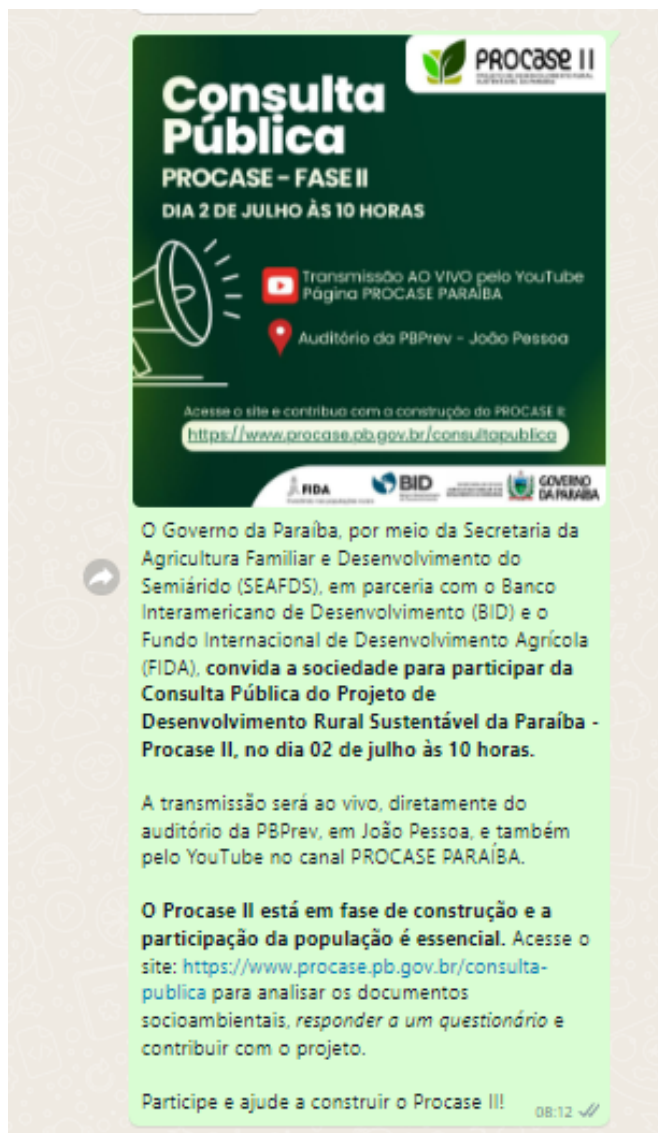
Nunca envie senhas pelo Formulários Google.

Este conteúdo não foi criado nem aprovado pelo Google. [Denunciar abuso](#) - [Termos de Serviço](#) - [Política de Privacidade](#)

Google Formulários

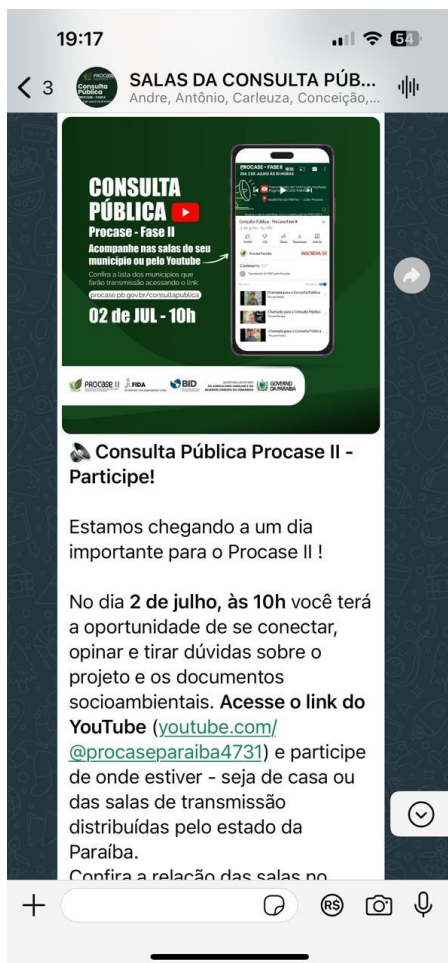
Source: <https://docs.google.com/forms/d/e/1FAIpQLScUMIjPba5pJTH0Sv49tbVOIWxhre-8MIVwXJHso8sR73LjFQ/closedform>

Figure 10 - Invitation distributed by WhatsApp



Source: UGP/PROCASE

Figure 11 - Announcement and reminders distributed by WhatsApp



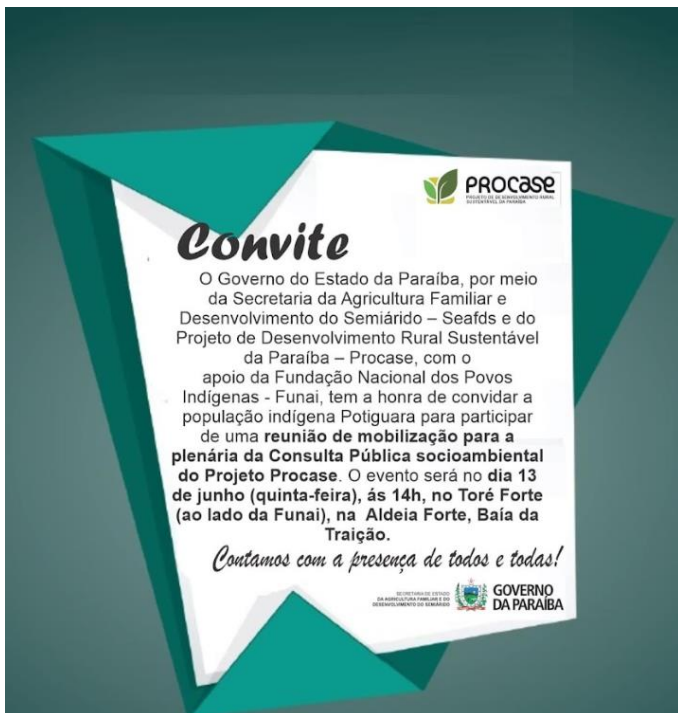
Source: UGP/PROCASE

Figure 12 - Ecards prepared by City Halls/Secretariats



Source: UGP/PROCASE

Figure 13 - Invitation from SEAFDS with the support of FUNAI



Source: UGP/PROCASE

Figure 14 -Participation of the PROCASE State Coordinator in a podcast.



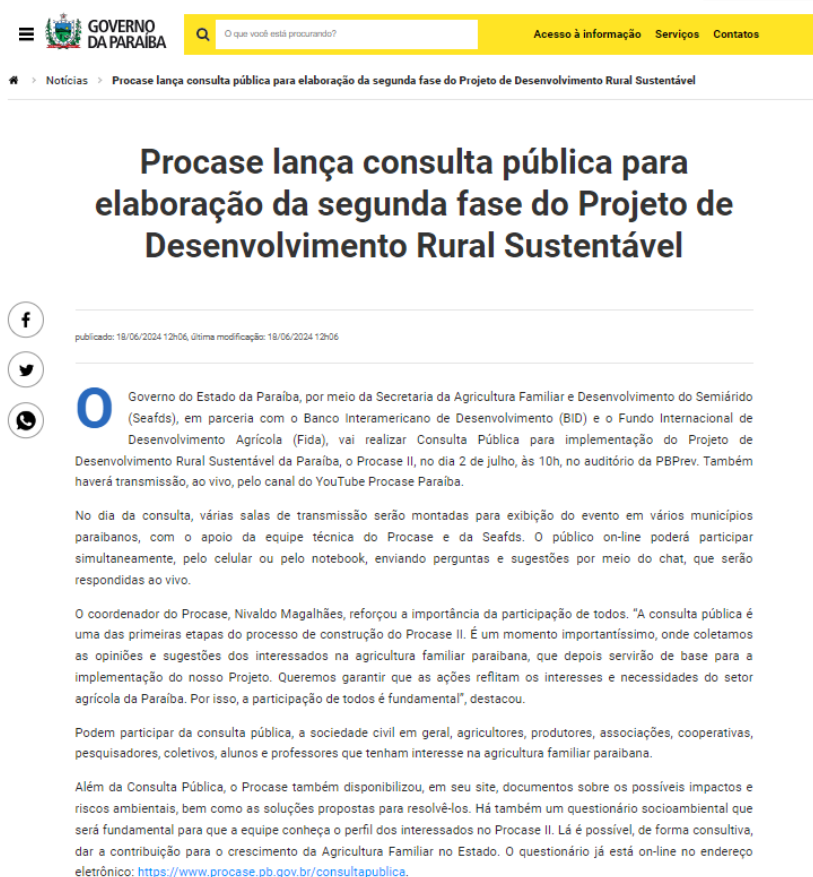
Source: <https://www.youtube.com/watch?v=larhqb3lpo>

Figure 15 -Protal Juarez News.



Source: [https://www.facebook.com/watch/live/?ref=watch\\_permalink&v=1532549064026085](https://www.facebook.com/watch/live/?ref=watch_permalink&v=1532549064026085)

Figure 16 - Publication of a news article on the Paraíba Government's news channel.



Source: <https://paraiba.pb.gov.br/noticias/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase>.

Figure 17 - Article on the Capital Portal.



Source: <https://www.portaldacapital.com/2024/06/18/procasa-faz-consulta-publica-para-elaborar-2a-fase-do-projeto-de-desenvolvimento-rural-sustentavel/>.

## Results achieved in publicizing the Public Consultation

The various publications on channels and media had a significant public reach. The following table summarizes the reach of the PROJECT's dissemination on the reporting channels.

Table 1 - News stories published by media outlet

Communication vehicle	Access addresses	Date of publication
Radio Tabajara FM 105.5	<a href="https://radiotabajara.pb.gov.br/podcast-radio-tabajara">https://radiotabajara.pb.gov.br/podcast-radio-tabajara</a>	27/06/2024
UNION JOURNAL	<a href="https://auniao.pb.gov.br/servicos/copy_of_jornal-a-uniao/2024/julho/jornal-em-pdf-03-07-24-cdepc.pdf/view">https://auniao.pb.gov.br/servicos/copy_of_jornal-a-uniao/2024/julho/jornal-em-pdf-03-07-24-cdepc.pdf/view</a>	03/07/2024
SITE FATOS PB	<a href="https://fatospb.com.br/2024/07/04/estado-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/">https://fatospb.com.br/2024/07/04/estado-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/</a> <a href="https://fatospb.com.br/2024/07/04/estado-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/">https://fatospb.com.br/2024/07/04/estado-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/</a>	02/07/2024
STUDIO RURAL WEBSITE	<a href="https://www.studiorural.com.br/plenaria-no-territorio-do-vale-do-pianco-discute-procase-ii-durante-evento-em-itoporanga/">https://www.studiorural.com.br/plenaria-no-territorio-do-vale-do-pianco-discute-procase-ii-durante-evento-em-itoporanga/</a>	12/06/2024
PARAÍBA STATE GOVERNMENT WEBSITE	<a href="https://paraiba.pb.gov.br/noticias/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase">https://paraiba.pb.gov.br/noticias/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase</a>	18/06/2024



Communication vehicle	Access addresses	Date of publication
PICUÍ CITY HALL WEBSITE	<a href="https://www.picui.pb.gov.br/noticia/consulta-publica-do-projeto-desenvolvimento-rural-sustentavel-procase-e-realizada-em-picui">https://www.picui.pb.gov.br/noticia/consulta-publica-do-projeto-desenvolvimento-rural-sustentavel-procase-e-realizada-em-picui</a>	25/06/2024
SITE REPÓRTER PB	<a href="https://www.reporterpb.com.br/noticia/paraiba/2024/07/04/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/159316.html">https://www.reporterpb.com.br/noticia/paraiba/2024/07/04/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase/159316.html</a>	02/07/2024
SITE INFORMA PARAÍBA	<a href="https://informaparaiba.com.br/2024/06/18/procase-lanca-consulta-publica-para-elaboracao-da-segunda-fase-do-projeto-de-desenvolvimento-rural-sustentavel/?fbclid=IwZXh0bgNhZW0CMTEAR0lmh4G07UIAimwfrf_po7qiC6Q7pWo6bY3rUnADshvZyt-CihF82fswMI_aem_TnU8FAI5Gcg6u3vcnezeww">https://informaparaiba.com.br/2024/06/18/procase-lanca-consulta-publica-para-elaboracao-da-segunda-fase-do-projeto-de-desenvolvimento-rural-sustentavel/?fbclid=IwZXh0bgNhZW0CMTEAR0lmh4G07UIAimwfrf_po7qiC6Q7pWo6bY3rUnADshvZyt-CihF82fswMI_aem_TnU8FAI5Gcg6u3vcnezeww</a>	18/06/2024
STUDIO RURAL WEBSITE	<a href="https://www.studiorural.com.br/azevedo-e-magalhaes-explicam-consulta-publica-do-procase-ii-anunciando-recursos-e-acoes-aos-arranjos-produtivos-paraibanos/">https://www.studiorural.com.br/azevedo-e-magalhaes-explicam-consulta-publica-do-procase-ii-anunciando-recursos-e-acoes-aos-arranjos-produtivos-paraibanos/</a>	18/06/2024
CAPITAL PORTAL WEBSITE	<a href="https://www.portaldacapital.com/2024/06/18/procase-faz-consulta-publica-para-elaborar-2a-fase-do-projeto-de-desenvolvimento-rural-sustentavel/">https://www.portaldacapital.com/2024/06/18/procase-faz-consulta-publica-para-elaborar-2a-fase-do-projeto-de-desenvolvimento-rural-sustentavel/</a>	17/06/2024
CAIÇARA TOWN HALL WEBSITE	<a href="https://www.caicara.pb.gov.br/consulta-publica-do-procase-ii-2/">https://www.caicara.pb.gov.br/consulta-publica-do-procase-ii-2/</a>	20/06/2024
PARAÍBA STATE GOVERNMENT WEBSITE	<a href="https://paraiba.pb.gov.br/noticias/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase">https://paraiba.pb.gov.br/noticias/governo-da-paraiba-realiza-consulta-publica-para-a-segunda-fase-do-projeto-procase</a>	04/07/2024

Source: UGP/PROCASE

**Table 2 - PROJECT Website Results (10/06/2024 to 04/07/2024)**

Item	Quantity
Accesses to the site	3.959
Number of clicks on the question form	2.016
Number of Contributions (input of questions/complaints from the online form)	1.338
Number of Contributions (input of questions/complaints from the questions link on the day of the Public Consultation)	172
Website sessions in the period	4.950
Sessions per device	Mobile: 3.802 Desktop: 1,148

Source: UGP/PROCASE

### 5.1.2 Sending Invitations and Messages

Invitations were sent out by the PROCASE PMU team using WhatsApp, e-mail, in person and by telephone, as shown in the table and figure below.

**Table 3 - Sending official invitations**

Type of organization / Institution	Examples	Form of call
Municipal Secretariats	Agriculture, Environment, Social Assistance, CRAS, City Councils, Town Halls	Face-to-face invitation and telephone contact
State bodies	AGEVISA, EMPREENDER - PB, UEPB, SEAFDS, SEPLAG, SEMAS, SUDEMA, SEDAP, SEIRH, SECTIES, SETDE, SEMDH, UEPB,	Email, letter, telephone contact and face-to-face invitation
Federal bodies	FUNAI, CONAB, INCRA/PB, MDA/PB, ICMBio, FUNAI, INSA, MDA, UFCG, UFPB,	Email, letter, telephone contact and face-to-face invitation
Trade associations	STRs, FETAG-PB, FAMUP, FETRAF-PB, FAEPA/SENAR, OCB-PB	Email and telephone contact
Social Organizations	ASA-PB, LGBTQIAPNB+ FORUM, CÂRITAS PB FORUM, PLANES-PB, MAB-PB, ASA PARAÍBA	E-mail, letter and telephone contact
Representative Councils (Public Authorities and Civil Society)	CAISAN-PB, CONSEA-PB, COSEMS, CpD, CEDRS-PB, COPAM	Face-to-face invitation and telephone contact

Source: UGP/PROCASE

**Figure 18 - Official invitation**



Source: UGP/PROCASE

## Figure 19 - Letter



OFÍCIO CIRCULAR Nº: 037.2024/COORD/PROCASE.

Assunto: Convite para a Plenária de Consulta Pública do PROCASE II

João Pessoa/PB, 19 de junho de 2024

O Governo do Estado da Paraíba, por meio da Secretaria de Estado da Agricultura Familiar e Desenvolvimento do Semiárido (Seafds), tem a honra de **convidar Vossa Senhoria para participar da Plenária de Consulta Pública do PROCASE II**. O evento ocorrerá no dia 2 de julho (terça-feira), das 10h às 12h, no Auditório da PBPrev, localizado na Av. Rio Grande do Sul, s/n, bairro dos Estados, em João Pessoa.

O evento também será transmitido ao vivo pelo canal PROCASE PARÁIBA no YouTube.

A Consulta Pública incluirá uma apresentação institucional do PROCASE, com foco na elaboração da segunda fase do Projeto PROCASE e nos documentos socioambientais, que estão disponíveis no site: <https://www.procasse.pb.gov.br/consultapublica>.

Contamos com a sua valorosa participação.

Atenciosamente,

NIVALDO MORENO MAGALHÃES  
COORDENADOR ESTADUAL DO PROCASE

Source: UGP/PROCASE

The list in Annex 7.2 shows the list of stakeholders who received official invitations to the Public Consultation and to express their views on PROCASE II and the socio-environmental documents drawn up. A total of 467 invitations were sent out, involving government institutions and civil society organizations representing the communities.

### 5.1.3 Participation in the Plenary Councils of the Rural Territories

As mentioned, plenary sessions were held in the Councils of the Rural Territories with the participation of interested parties, in order to present PROCASE, instruct the councilors of the territories on the public consultation process and the channels/forms of manifestation, as well as collecting contributions to improve the process. It is important to mention that the Councillors were also agents for spreading the word about the PROJECT to interested parties. The plenary sessions took place in April, totaling 10 meetings, each in a Rural Territory. The following table and images provide information on the plenary sessions.

Table 4 - Plenaries held in the Rural Territories

Rural Territory	Location	Date
Piemont da Borborema	Belém/PB Rural Workers' Union	19/04/2024
Serra de Teixeira	City Council of Princesa Isabel/PB	11/04/2024
Seridó	Department of Education of São Vicente do Seridó/PB	16/04/2024
Mata Sul	CODETER in Pedras de Fogo/PB	18/04/2024
Alto Sertão	Auditorium of the STR Cajazeiras/PB	11/04/2024

Rural Territory	Location	Date
Middle Hinterland	Economic Development Secretariat of São José do Bonfim/PB	17/04/2024
Brejo	Guarabira/PB	10/04/2024
Western Cariri	CDSA in Sumé/PB	10/04/2024
Eastern Cariri	Soledade/PB	09/04/2024
Borborema	Mother Seed Bank in Lagoa Seca/PB	30/04/2024

Source: UGP/PROCASE

**Figure 20 - Image of the Plenary held in Piemont da Borborema**



Source: UGP/PROCASE

**Figure 21 - Image of the Plenary held in Seridó**



Source: UGP/PROCASE

**Figure 22 - Image of the Plenary held in Cariri Oriental**



Source: UGP/PROCASE

#### 5.1.4 Pre-consultation meetings in the Rural Territories

In addition to the plenary sessions with the councils of the Rural Territories, additional meetings were also held to present the PROJECT, the socio-environmental documents, guidance on participation in the public consultation and instructions on how to fill in the form to contribute to the process. In total, 30 pre-consultation meetings were held with interested parties.

These meetings were organized by the PROCASE team, in conjunction with the territorial collegiate bodies. Various representatives took part, such as territorial councils, unions, organizations, municipal secretariats and other entities. Some meetings took place during the agendas of the territorial collegiate bodies, such as in the Maringá Valley and Borborema.

The following table and images show information on the additional pre-consultation meetings held in the Rural Territories.

**Table 5 - Plenaries held in the Rural Territories**

Rural Territory	Location	Date
Piemont da Borborema	Auditorium of the Town Hall of Caiçara/PB	20/06/2024
Middle Hinterland	FETAG Auditorium in Patos/PB	17/06/2024
	EMPAER headquarters in Junco do Seridó/PB	21/06/2024
Cariri	Social Action Department of São José dos Cordeiros/PB	25/06/2024
	Auditorium of the CDSA/UFCG in Sumé/PB	8/06/2024
	Auditorium of UEPB in Monteiro/PB	17/06/2024
	Atypical Mothers' Group in Monteiro/PB	23/06/2024
	CMDRS at DNOCS headquarters in Sumé/PB	01/07/2024
	Youth at the José Gonçalves Queiroz School in Sumé/PB	01/07/2024

Rural Territory	Location	Date
	Lagoinha Quilombola Community in Serra Branca/PB	16/06/2024
Alto Sertão	EMPAER headquarters in Cajazeiras/PB	12/06/2024
Borborema	ASPTA in Remígio/PB	14/06/2024
	Mother Seed Bank in Lagoa Seca/PB	19/06/2024
Brejo	Araçagi/PB Rural Workers' Union	12/06/2024
Curimataú	Administrative Center of Picuí/PB	21/06/2024
North Mata	SEAFDS headquarters in João Pessoa/PB	19/06/2024
	Potiguar people at FUNAI headquarters in Baía da Traição/PB	13/06/2024
Mata Sul	State Council for the Rights of People with Disabilities at the House of Councils in João Pessoa/PB	13/06/2024
	Pilar/PB City Hall Auditorium	14/06/2024
Middle Piranhas	Brejo do Cruz/PB	19/06/2024
Serra de Teixeira	Minister Carlos Alberto Medeiros School in Princesa Isabel/PB	13/06/2024
Maringá Valley	Rural Workers' Union of Pombal/PB	26/06/2024
Paraíba Valley	Eunice Barbosa School in Salgado de São Félix/PB	21/06/2024
Piancó Valley	7th Regional Education Department of Itaporanga/PB	18/06/2024
	ECIT in Itaporanga/PB	15/06/2024
Piranhas Valley	EMPAER headquarters in Sousa/PB	11/06/2024
	Headquarters of the Pedro Maia Gypsy Community in Sousa/PB	01/07/2024
	Headquarters of the Otávio Maia Gypsy Community in Sousa/PB	01/07/2024
	Headquarters of the Manoel Valério Gypsy Community in Sousa/PB	01/07/2024
	Headquarters of the Vicente Vidal Gypsy Community in Sousa/PB	01/07/2024

Source: UGP/PROCASE

**Figure 23 - Image of pre-consultation meeting held in Médio Sertão**



Source: UGP/PROCASE

**Figure 24 - Image of pre-consultation meeting held in Mata Norte**



Source: UGP/PROCASE

**Figure 25 - Image of pre-consultation meeting held in the Paraíba Valley**



Source: UGP/PROCASE

**Figure 26 - Image of pre-consultation meeting held in the Piancó Valley**



Source: UGP/PROCASE

### **5.1.5 Broadcasting room orientation meeting**

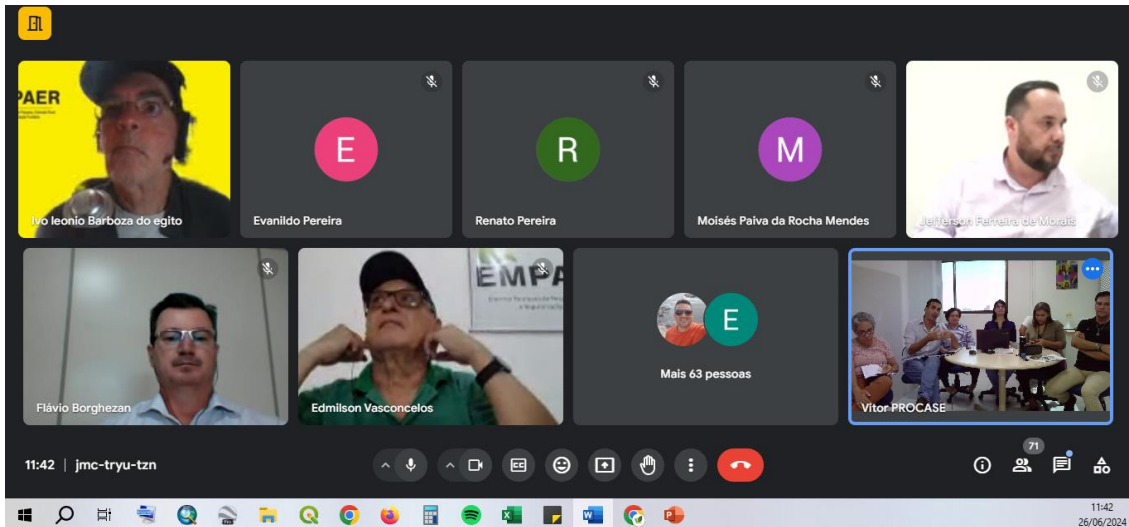
The consultation process also involved the strategy of using broadcasting rooms distributed throughout Paraíba in order to make it possible for interested parties with restricted internet access to take part. These transmission rooms were promoted through partnerships with local organizations that were able to provide structures and manage remote participation at predefined locations closer to the interested public. Examples of these partners include FUNAI and various local authorities, among others.

In order to align the procedure and management of the broadcasting rooms, a virtual meeting was held with the partner organizations involved to provide guidance and training on the process. This guidance reached more than 70 participants who made it possible to implement 110 transmission rooms distributed throughout the territory of Paraíba, which made it possible, in addition to individual virtual participation, to hear from 2,525 people on the day of the Public Consultation (02/07/2024).

The following figures show the meeting held to establish the framework and the interaction with the partners who made the transmission rooms possible, and the images below show the participation and territorial scope of the transmission rooms throughout Paraíba. The list of participation by transmission room during the Public Consultation can be seen in the Annex. 7.4.



Figure 27 - Virtual Meeting image of beaconing and training for the Transmission Rooms



Source: UGP/PROCASE

Figure 28 - Slide of the presentation of the beaconing to those responsible for the Transmission Rooms

## Como participar da Consulta Pública

Passo a Passo

**5. Clique na transmissão da Consulta Pública**

**6. Ao clicar na opção Chat ao vivo, você poderá se apresentar e tirar suas dúvidas**

Atenção

Todas as dúvidas serão respondidas no prazo máximo de 7 dias no site do Procasse, caso não seja respondida na transmissão ao vivo.

Source: UGP/PROCASE

## ORIENTAÇÕES

- Preenchimento da Lista de Presença
- Envio das perguntas/dúvidas;
- Registro fotográficos;
- Envio dos registros até o dia 03/07.

**Figure 29 - Image of the WhatsApp group created to exchange information between the teams responsible for the Broadcasting Rooms**



Source: UGP/PROCASE

**Figure 30 - Image of the Transmission Room on the day of the Public Consultation installed at the Rural Workers' Union in Arara/PB.**



Source: UGP/PROCASE

**Figure 31 - Image of the Transmission Room on the day of the Public Consultation installed in the Municipal Agriculture Department in Caturité/PB**



Source: UGP/PROCASE

**Figure 32 - Image of the Transmission Room on the day of the Public Consultation installed in the Town Hall of Conceição/PB**



Source: UGP/PROCASE

**Figure 33 - Image of the Transmission Room on the day of the Public Consultation installed in the Cultural Center of Sousa/PB**



Source: UGP/PROCASE

**Figure 34 - Image of the Transmission Room on the day of the Public Consultation installed in the City Hall in Princesa Isabel/PB**



Source: UGP/PROCASE

## 5.2 Attention to Gender Issues, Vulnerable Groups and Traditional Communities

PROCASE II will operate throughout the state of Paraíba, targeting family farmers, with priority given to women, youth groups, traditional peoples and communities (quilombolas, gypsies, artisanal fishermen and riverside dwellers), indigenous people, people with disabilities (PCDs) and LGBTQIAPN+.

We therefore took the initiative to mobilize these priority audiences through contacts with their state leaders and with strategic organized movements that represent each people

and community. The aim was to achieve integration with respect for each culture, with its diversity and intersectionality.

Meetings were held with: Groups of organized women, leadership of quilombola communities, leadership of the Potiguaras people (indigenous), leadership of the Tabajaras people (indigenous), Funai - National Foundation for Indigenous Peoples, State Council for People with Disabilities, Leadership of the Calon Gypsy people, State Secretariat for Women and Human Diversity (in its Sexual Rights and LGBTQIAPNB+ managements, Operational for Confronting Violence Against Women, Executive Management for Racial Equity).

These face-to-face contacts provided access to other leaders (of women, young people, gypsies, quilombolas and indigenous peoples) throughout the state, as well as access to communication channels organized through WhatsApp groups. In the meantime, the PROCASE II project has been well publicized and known, as well as recognition of the importance of the consultative public consultation, which offers the opportunity to work together with civil society to build PROCASE II.

These mobilizations brought a significant demand for social participation, triggering another challenge for the team: how to encourage monitoring and participation in the online public consultation, which was consultative and had to be documented. So a partnership was set up with EMPAER, trade unions, SEAFDs - the State Secretariat for Family Farming and Semi-Arid Development, where they provided spaces, transmission equipment and technicians (who were trained to carry out this action), in order to provide civil society with qualitative participation.

Therefore, this strategy of articulation and mobilization, with the operation of the transmission rooms, was one of the keys to the excellent and expressive result of this public consultation. It not only complied with the IDB's safeguard, but also promoted the integration of organized society with PROCASE II, especially with the priority audiences.

During the public consultation event on July 2, specific broadcasting rooms were set up to meet the needs of certain priority audiences. This strategy aimed to ensure effective participation and direct dialog with these groups.

An emblematic example was the broadcasting room in Aldeia Forte, in Baía da Traição/PB, for Potiguaras indigenous leaders. This initiative was fundamental in ensuring the participation and representativeness of this important segment of society.

Another case in point was the transmission room set up in the town of Acaú, in Pitimbu/PB, which brought together the region's shellfish gatherers. This action aimed to provide an adequate space for this historically marginalized group to participate in the Consultation.

In addition, there was a specific room for the Curral Velho/PB Fishermen's Colony, as well as another made up of young representatives of the Agricultural Cultural Association of Young Environmentalists of Paraíba, based in Alagoa Nova/PB. These initiatives reflect PROCASE's commitment to ensuring the participation of diverse audiences, including traditionally under-represented groups.

With regard to the priority publics, the Consultation was attended by various representatives of these publics, including: The women's groups who took part online, the Potiguaras (Mata Norte) and Tabajaras (Mata Sul) Indigenous Peoples, represented by Eugênio Herculano (FUNAI Regional Coordinator), Sandro Gomes (Potiguara General Chief) and Ednaldo (Tabajara Chief), who were present at the face-to-face Public Consultation in João Pessoa (PBPrev Auditorium); the Potiguara women's group YBY-RAPÓ Kunhã, who were online; the Quilombola Communities, represented by CEQNEC/PB - State Coordination of Black and Quilombola Communities of Paraíba,

with the participation of president José Amaro in the virtual room in the municipality of Catolé do Rocha (Médio Sertão), and Raísa Rodrigues representing CEQNEC at the face-to-face consultation in João Pessoa; AACAD-PB - Associação de Apoio aos Assentamentos e Comunidades Afrodescendentes da Paraíba, represented by Francimar Fernandes; and the Gypsy Peoples/CALON, through ASCOCIC - Associação Comunitária dos Ciganos de Condado, with the participation of President Maria Jane Soares - Gypsy Calin and founder of the Association, who took part online, and the Gypsy leaders from Rancho dos Ciganos in Sousa, who took part in the virtual room in Sousa (Centro Cultural); several fishermen took part in the transmission/online rooms and the shellfish gatherers/AMA took part in the specific room in Acaú and in the municipal seat of Pitimbú. There was also representation from organizations representing people with disabilities, such as the Association of Atypical Mothers, who took part in the virtual room in Monteiro, the Group of Mothers in the Regional TEA of PB, who watched online, and the representative of the Paraibana Association for the Inclusion of People with Disabilities, who watched in a broadcast room; the representative of the LGBTQIAPNB+ Forum, Cleber Ferreira, took part in person in the PBPrev auditorium.

This diversity of representatives of the priority audiences demonstrates the effort to ensure the inclusion and protagonism of these groups in the Public Consultation.

**Figure 35 - Public consultation venue with accessibility**



Source: UGP/PROCASE

**Figure 36 - Simultaneous translation of the Public Consultation event into Libras**



Source: UGP/PROCASE

**Figure 37 - Specific mobilization with representation of PwD**



Source: UGP/PROCASE

**Figure 38 - Meeting with local FUNAI representation**



Source: UGP/PROCASE

**Figure 39 - Meeting with representatives of quilombolas and settlers in preparation for the public consultation**



Source: UGP/PROCASE

### 5.3 Query Description

The following is a summary of the Public Consultation held on July 2, 2024, with the main points raised that contribute to the DRAFT. Annex 7.1 you can see the presentation prepared for the consultation.

The Public Consultation was broadcast via the official link on PROCASE's YouTube channel: <https://www.youtube.com/live/gCMA9iYKSvQ>. It was also possible to participate in person at the broadcasting venue, the PBPrev Auditorium - Av. Rio Grande do Sul, s/n, Estados, João Pessoa-PB.

The process began at 10:10 a.m. and ended at 12:10 p.m. It lasted two hours, with a 45-minute presentation of the PROJECT and socio-environmental documents, 30 minutes of interaction with the public with comments and responses, and the rest of the time with other presentations and discussions. It's important to note that the actions taken to capture comments prior to the Consultation, which was made possible by the communication channels and online form, as well as the local meetings and plenary sessions with the communities, resulted in the optimization of the questioning and response process and, even so, other issues were addressed during the ballot.

The video of the public consultation is still available on the official Youtube channel and had 3,900 views by the time this report closed, and the peak number of simultaneous accesses during the live broadcast reached 572, according to Youtube's official *Analytics* report.

Regarding the profile of the public who viewed the Public Consultation video during the month of July, 47.7% of the public were female, with a concentration of 32% of the public between 35 and 44 years of age, reaching 185 municipalities in the area covered by the PROJECT.

Participants included:

- Land reform settlements;
- Traditional peoples and communities;
- Municipal Secretariats;
- State Secretariats;
- NGOs;
- Representatives of social movements;
- Rural workers' unions;
- Community associations;
- Association of specific audiences;
- Associations of family farmers;
- Cooperatives;
- Universities;
- City councils;
- Municipal Councils for Sustainable Rural Development;
- Fishermen's colonies;
- Federal institutes;
- Territorial committees;





- Women's groups;
- ATER institutions and organizations

The following table shows the general data of the participants in the Public Consultation.

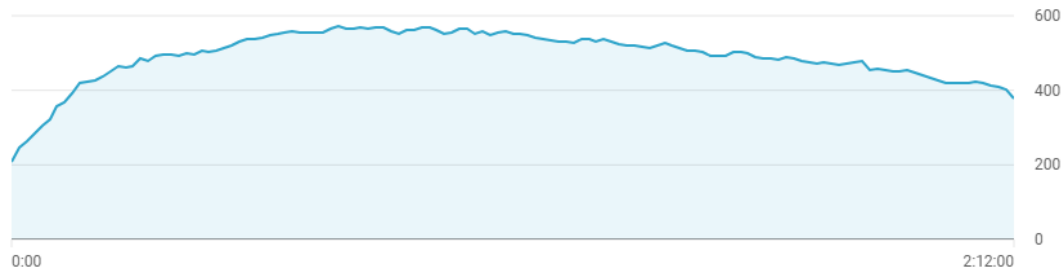
**Table 6 - General data of participants in the Public Consultation**

Information		In person	Broadcast rooms	Virtual
Total face-to-face participants		67	2.525	504
Total participants by gender	Woman	19	1.001	220
	Man	48	1.321	282
	Other	0	203	2
No. of municipalities affected		14	134	136
Participants by age group		<p>The age group with the highest number of participants is 36 to 45 years old, with 19 people, followed by 56 to 65 years old, with 13 participants.</p> <p>Unidentified: 3 participants, corresponding to 4.48% of the total.</p> <p>From 16 to 25 years old: 3 participants, representing 4.48% of the total.</p> <p>From 26 to 35 years old: 12 participants, corresponding to 17.91% of the total.</p> <p>From 36 to 45 years old: 19 participants, equivalent to 28.36% of the total.</p> <p>From 46 to 55 years old: 9 participants, representing 13.43% of the total.</p> <p>From 56 to 65 years old: 13 participants, or 19.40% of the total.</p> <p>From 66 to 75 years old: 6 participants, corresponding to 8.96% of the total.</p> <p>From 76 to 85 years old: 2 participants, representing 2.99% of the total.</p>	<p>The age group with the highest number of participants is 36 to 45, with 575 people, followed by 46 to 55, with 532 participants.</p> <p>Unidentified: 205 participants, corresponding to 8.12% of the total.</p> <p>From 06 to 15 years old: 6 participants, or 0.24% of the total.</p> <p>From 16 to 25 years old: 121 participants, representing 4.79% of the total.</p> <p>From 26 to 35 years old: 317 participants, corresponding to 12.55% of the total.</p> <p>From 36 to 45 years old: 575 participants, or 22.77% of the total.</p> <p>From 46 to 55 years old: 532 participants, representing 21.07% of the total.</p> <p>From 56 to 65 years old: 481 participants, or 19.05% of the total.</p> <p>From 66 to 75 years old: 249 participants, corresponding to 9.86% of the total.</p> <p>From 76 to 85 years old: 39 participants, representing 1.54% of the total.</p>	<p>The age group with the highest number of participants is the 36 to 45 age group, with 154 people, followed by the 46 to 55 age group, with 82 participants.</p> <p>Unidentified: 38 participants, corresponding to 7.54% of the total.</p> <p>From 06 to 15 years old: 2 participants, or 0.40% of the total.</p> <p>From 16 to 25 years old: 57 participants, representing 11.31% of the total.</p> <p>From 26 to 35 years old: 85 participants, corresponding to 16.87% of the total.</p> <p>From 36 to 45 years old: 154 participants, equivalent to 30.56% of the total.</p> <p>From 46 to 55 years old: 82 participants, representing 16.27% of the total.</p> <p>From 56 to 65 years old: 44 participants, or 8.73% of the total.</p> <p>From 66 to 75 years old: 40 participants, corresponding to 7.94% of the total.</p> <p>From 76 to 85 years old: 2 participants, representing 0.40% of the total.</p>

Source: UGP/PROCASE - YouTube Analytics Report

**Figure 40 - YouTube Analytics report on the Public Consultation video**

**Espectadores simultâneos** 572 488  
Durante a transmissão ao vivo Pico Média



**Idade e gênero**

Visualizações - Desde o envio



*Source: YouTube Analytics Report - PROCASE*

**Presentation of the consultation**

The meeting was opened by Mr. Wallene Cavalcante, inviting the representatives to the table, greeting those present and the remote participants and giving a brief reading of the objectives of the Public Consultation. The authorities present and who took part in the Opening Table of the Public Consultation were:

- Mrs. Francimar Fernandes, representing AACAD-PB - Associação de Apoio aos Assentamentos e Comunidades Afrodescendentes da Paraíba (Support Association for Afro-descendant Settlements and Communities in Paraíba)
- Mrs. Raísa Rodrigues, representing CECNEQ/PB - State Coordination of Black and Quilombola Communities of PB
- Mr. Arimatéia França, President of CONSEA-PB
- Ms. Tânia Maria, representative of the CPT - Pastoral Land Commission

- Mr. Aristeu Chaves, CEO of EMPAER
- Mr. Cleber Ferreira, representing the Paraibano LGTQIAPNB+ Forum
- Mr. Eugênio Herculano, FUNAI Regional Coordinator
- Mr. Osvaldo Bernardo, representative of the Movement of Dam-Affected People
- Mr. Sandro Gomes, General Chief of the Potiguara Indigenous People (North Coast)
- Mr. Ednaldo, Chief of the Tabajara Indigenous People (South Coast)
- Mrs. Márcia Dornelles, representative of the State Network of Territorial Collegiates and Forums of PB and the National Network of Territorial Collegiates
- Mr. Frei Anastácio Ribeiro - Secretary for Family Farming and Semi-Arid Development and President of the State Council for Sustainable Rural Development - CEDRS.
- Mr. Bivar Duda - Executive Secretary of SEAFDS
- Ms. Jadiele Berto, representative of the Secretary of State for Women and Diversity
- Mr. Pedro Matias, Executive Secretary for Youth
- Mr. Thiago César, representative of the Secretariat for the Environment and Sustainability - SEMAS
- Mrs. Pollyanna Dutra, Secretary for Human Development and President of CAISAN-PB

During the introduction and presentation, the following were heard: Secretary of SEAFDS, Mr. Antônio Ribeiro (Frei Anastácio), Executive Secretary of SEAFDS, Mr. Bivar de Souza Duda, Secretary of State for Human Development, Ms. Polyana Dutra, State Coordinator of PROCASE, Mr. Nivaldo Moreno de Magalhães, and Governor of the State of Paraíba Mr. João Azevedo.

After the Governor's speech, a technical panel was called with PROCASE experts to explain and answer questions:

- Ms. Aparecida Henriques, from the Social axis of the Project;
- Ms. Carleuza Andrade, from the Monitoring and Evaluation axis;
- Ms. Natália Cavalcanti, from the Productive axis of the Project;
- Mr. Vitor Andrade, from the Environmental axis.
- PROCASE State Coordinator, Mr. Nivaldo Magalhães;
- Executive Secretary of SEAFDS, Mr. Bivar de Souza Duda;
- Secretary for Human Development, Ms. Pollyanna Dutra.

The floor was passed to the Technical Coordinator of PROCASE II, Mr. Nicholas Lucena Queiroz, to discuss all the details of PROCASE II. In this section, the following sequence of information was given:

- Presentation of the dynamics of the Public Consultation and the issues to be addressed;
- Presentation of PROCASE II projects and components;
- Information on the preparation's socio-environmental documents;
- Expected impacts/risks and mitigation measures listed in the ESMP;

- Channels available for expressions of interest and complaints (MQR);
- Questionnaire response section.

Finally, he said that the answers to the questions would be answered and made available on the PROCASE II website. Afterwards, questions from the public were sent in, which were read out by Mr. Wallene Cavalcante in 2 blocks.

**BLOCK 1** - I was asked in the First Block about:

- 1 - Socio-environmental documents: it was stated that the documents are lengthy, making it difficult for the beneficiaries to access and understand them. The question was asked whether there would be practical guidance on how to deal with the demands;
- 2 - How the beneficiary communities and families will be selected, what criteria will be used, whether through public notices or draws;
- 3 - Priority public (access to actions and the project) How women, young people, PCTs, PCDs can access the projects; and whether LGBTQIAPNB+ communities will be included;
- 4 - Type of contract and documentation required; what types of activities and investments the project can support;
- 5 - Organizations, associations and cooperatives in default have the right to access projects and benefits;
- 6 - Types of investments that the project will support, such as water access actions (wells, underground dams, wet crossings, machinery and equipment and mechanized patrols).

The floor was passed to Mr. Vitor Andrade, who greeted everyone and explained that there is no need for farmers to read and understand all the socio-environmental safeguard documents that have been made available, since they are technical instruments, based on the logic of making a diagnosis considering the biotic, physical and socio-economic environments. And the size of this document is due to the fact that we are dealing with an entire state, with 223 municipalities, which means a large amount of information to carry out a diagnosis, as well as the fact that these documents will provide guidance, as a series of guidelines to be followed by the PROCASE technical team and the Technical Assistance that will support farmers. He added that the documents help PROCASE's actions to converge with the state's environmental policy and environmental legislation. It is important to point out that all of this collection and the actions that are planned are exhaustive because the typologies will take into account the specific characteristics of each community, which is why they have resulted in a large amount of information that needs to be discussed in order to take into account this panorama. That's why the documents are extensive. Each plan will be screened. And this screening will bring the demands into line. The questions will be answered and the documents will be available for consultation by the institutions and the entire population for the duration of the project. After answering the first question, the floor was passed to Ms. Carleuza Andrade. Carleuza Andrade was given the floor to answer the question about how the beneficiary communities and families will be selected (criteria). She began by greeting everyone, introduced herself and went on to clarify that the criteria for selecting PROCASE II communities and families will be slightly different from the PROCASE 1 criteria, pointing out that for the 200 PIR, there will be an active search, in which a survey will be carried out in all the municipalities of Paraíba, identifying the most priority communities considering the criteria: communities of families linked to family farming, both agricultural and non-agricultural; communities with a high number of

families registered with CadÚnico; adding that a degree of prioritization of these communities will be applied. Prioritization criteria: one of the priorities is for communities to be part of the group of traditional peoples and communities - PCT (including indigenous peoples, quilombolas, gypsy communities, riverine communities and fishermen); communities that have difficulty accessing water, families that have not benefited from other projects; a higher proportion of families represented by women, young people, people with disabilities - PCD, evidence of environmental degradation, lack of or low level of access to Technical Assistance; Calls for Proposals will only apply to some specific actions in the PN (Business Plans). She clarified that there would be no lottery. Ms. Aparecida Henriques was given the floor to answer the question of whether the LGBTQIAPNB+ population would be included. She began by greeting everyone, stating that we will have priority groups, and all priority groups will have access to PROCASE II, as well as training moments, moments for dialogue to help tackle the difficulties these groups face in rural areas. He explained that there will be four plans in the Subcomponent: a gender plan, a diversity plan, a youth plan and a food security plan. She closed. Ms. Natália Cavalcanti was given the task of answering the question regarding the documents and the form of contracting: she greeted everyone and clarified that the contracting for the Resilient Investment Plans (PIR) that will serve the communities will be via associations, and the Business Plans (PN) will be via cooperatives; informing that the partnership between the Public Administration and the associations and cooperatives will be through the signing of a Development Agreement, which delimits the obligations and responsibilities. He then explained that the beneficiaries must be in good standing and listed the documents that must be presented. He explained that the following cannot be financed by PROCASE II: the purchase of real estate, current expenses (salaries, social charges, water, electricity, operational maintenance costs), the expansion and modernization of certain works, the purchase of cattle, the purchase of agrochemicals, pesticides, wet crossings, mechanized patrols, are also not included in the types of financing.

**BLOCK 2** - I was asked in the Second Block about:

1 - Referring to land regularization, the floor was passed to the PROCASE State Coordinator, Mr. Nivaldo Moreno de Magalhães. Nivaldo Moreno de Magalhães, who said that US\$10 million reais would be allocated to land regularization in PROCASE II, with agrarian reform settlements as the criterion, and in a partnership with INCRA, land regularization would be carried out on properties that were not in dispute; quilombola settlements that are suitable according to INCRA will be regularized; informing that in the rest, the 9 municipalities bordering Cariri (up to 25 hectares) will receive land regularization to be carried out by EMPAER (sub-executor of PROCASE II). The goal is to reach 10,000 rural properties, with 20,000 families covered.

2 - Ms. Carleuza Andrade then asked about the strategy to avoid overlapping actions, and how the project's social control would be carried out. She replied that we have numerous policies and projects underway that converge with each other in the state of Paraíba, and that the strategy is to integrate all the actions in order to plan in the best possible way, so that as many families as possible are served. He emphasized that social control begins with the association itself. He said that in each municipality we have the Sustainable Rural Development Councils, which carry out the social control of all the public policies aimed at family farming in the municipality, as well as the territorial collegiate body, CEGIP - the Executive Committee for the Management of Productive Investments, which is made up of a composition between the government and civil society, mainly the large social movements, which has the role of checking, approving the projects, monitoring the set of indicators of products and results and impact, in which PROCASE is accountable not only for the resources, but for the results achieved by the project's actions.

Below are images from the Public Consultation.

**Figure 41 - Speech by PROCASE State Coordinator Nivaldo Magalhães. Emphasis on the translation into pounds throughout the event.**



Source: UGP/PROCASE, 2024

**Figure 42 - Presentation of Proc case II by Technical Coordinator Nicholas Queiroz**



Source: UGP/PROCASE, 2024

**Figure 43 - PROCASE team supporting the consultation**



Source: UGP/PROCASE, 2024

**Figure 44 - Participants who stayed until the end of the in-person Public Consultation Plenary Session (PBPrev Auditorium, João Pessoa)**



Source: UGP/PROCASE, 2024

The Annex 7.1 shows the presentation prepared by the PMU/PROCASE team and Annex 7.3 shows the registered participants.

### **Participation Tools and Results**

The PROCASE II consultation process was an enriching moment that allowed for a wide range of comments from the various actors, movements, organizations and institutions linked to family farming and sustainable rural development. Participants in the public consultation made their views known in two different ways. The first was through the online form, which sought to identify the territory/municipality, profile, organizations/institutions, as well as wishes and expectations, doubts and observations and suggestions. The form was open from June 10 to July 3 and received 1,338 submissions from all of Paraíba's rural territories.

The participation of the territories was quite significant, with Borborema, Vale do Piancó and Cariri standing out. In terms of participation by municipality, applications were received from 165 of them, which corresponds to 74% of the state's municipalities.



**Figure 45 - Number of online forms by rural territory**



Source: Procace/public consultation/2024

With regard to the profile of the organizations that took part in the online form, 52% of them were rural organizations (producer associations, community associations, cooperatives and others), 26% public institutions and/or civil society entities that work directly with family farming and sustainable rural development. This category also included universities and colleges, as well as representative bodies such as unions, councils, town councils, associations representing priority publics, etc. Around 22% of the questionnaires were filled in by individuals - farmers, indigenous people, quilombolas, fishermen, river dwellers, disabled people, atypical mothers, technicians and students. According to the graph below, the participation of the different categories of organizations and individuals was quite significant, reflecting the diversity of actors involved.

**Figure 46 - Profile by type of representation**

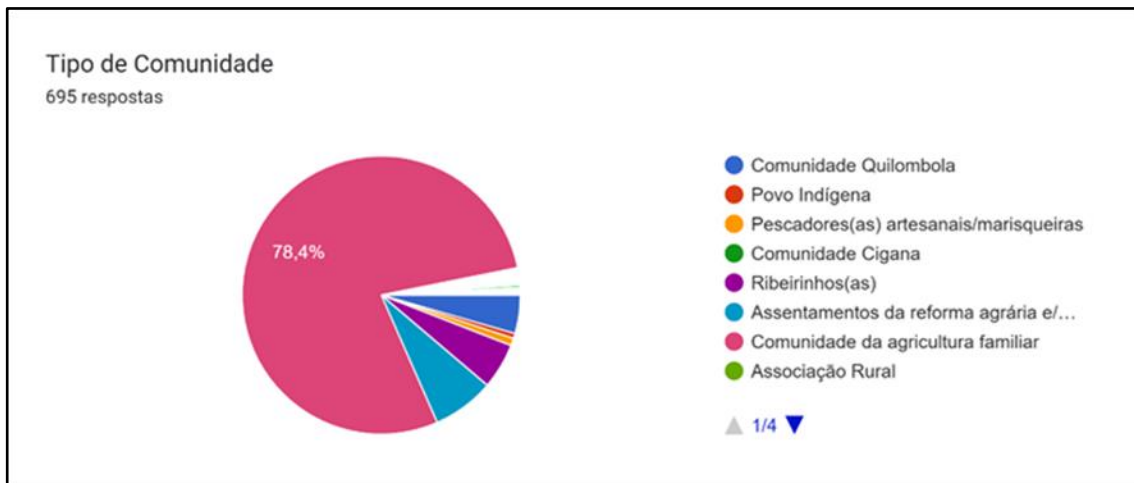


Source: Procace/public consultation/2024

When we look at the group of rural organizations that responded to the form, we can see the diversity of the types of rural communities that took part in the process. The highest

percentage, 78%, corresponds to family farming communities, but there was also representation from priority public communities such as Quilombolas, indigenous people, fishermen/ shellfish gatherers, gypsy communities, among others.

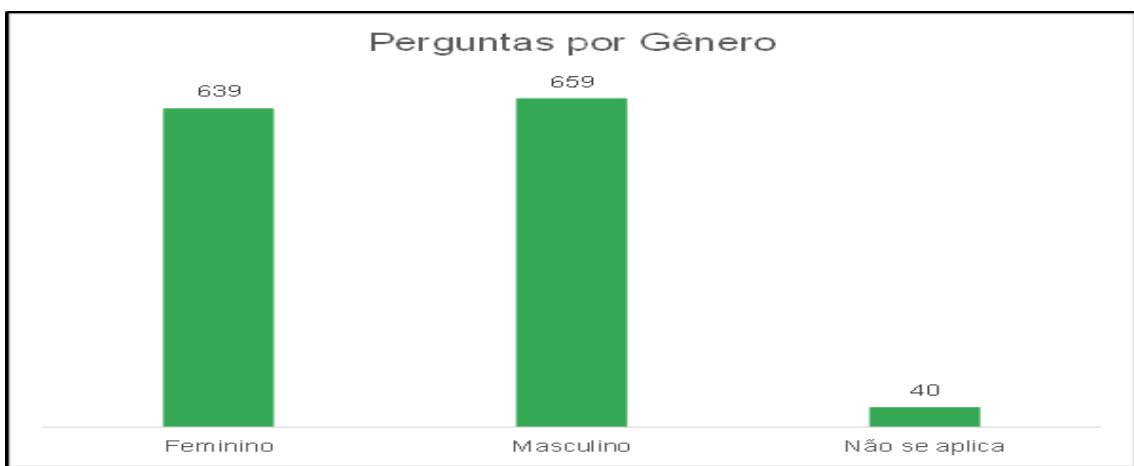
**Figure 47 - Profile of rural organizations/communities**



Source: Procace/public consultation/2024

With regard to gender, 48% of the participants were female, 49% male and 3% had no gender identification

**Figure 48 - Gender profile in the responses to the online form**



Source: Procace/public consultation/2024

The systematization of the online forms in the fields of desires and expectations, doubts/questions and observations and suggestions, regarding the project and the socio-environmental documents, resulted in very rich material for the project, allowing the possibility of guiding elements for its actions, as well as identifying possible future demands and partnerships.

In relation to the wishes and expectations expressed, the systematization was organized into axes and sub-axes, as shown below:

- Strengthening Family Farming (Projects and resources);
- Sustainable Development and Improved Quality of Life (Economy and environment, Infrastructure and water resources, Expectations of improvement);

- Support for Communities and Associations (Inclusion and participation and Social Development);
- Project Specifications (Initiatives to improve infrastructure and support production and marketing).

The same structure of axes was also used in the field of observations and suggestions, with some different sub-axes.

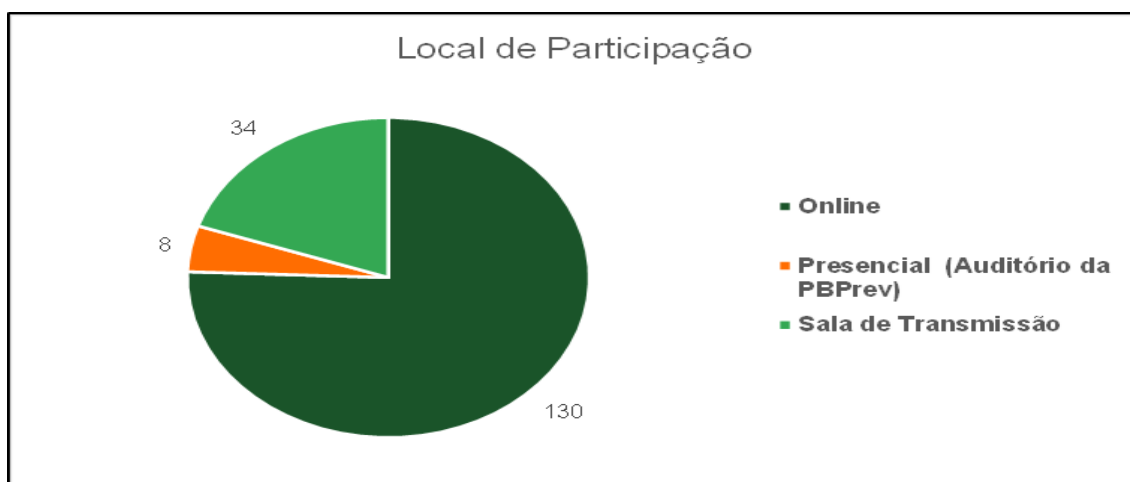
- Strengthening Family Farming (Projects and resources);
- Sustainable Development and Improving Quality of Life (Projects and resources, Economy and environment and Land regularization);
- Support for Communities and Associations (Exchange and Advice, Communication and Expectations of Improvement);
- Project Specifications (Access to Projects).

The systematized material on wishes and expectations and observations and suggestions will be attached to this report.

The set of doubts and questions was systematized together with the manifestations of the second stage of the Public Consultation, which took place through questions asked during the live broadcast. A YouTube link was created for this stage, where 172 interactions were recorded, including questions and queries from participants.

The majority of these interactions, around 75%, came from the public following the online broadcast. Another 20% of the questions came from the broadcasting rooms spread across the rural territories, and 5% from the PBPrev office, from where the consultation was broadcast.

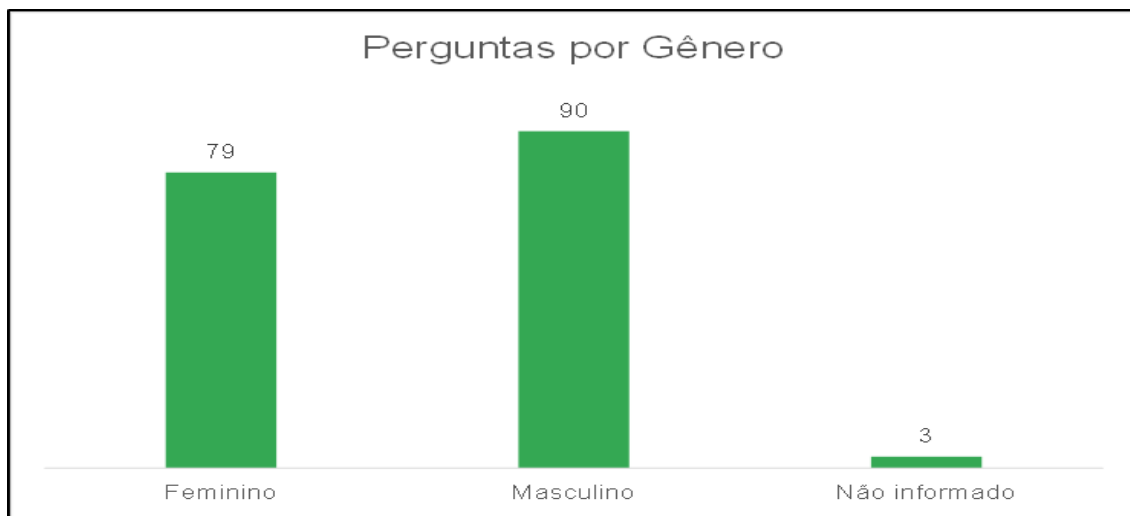
**Figure 49 - Where to ask questions on the link during the consultation**



Source: Procasse/public consultation/2024

With regard to gender, 52% of the questions were asked by men and 46% by women, and 2% could not be identified.

**Figure 50 - Gender profile in the questions on the link during the consultation**



Source: Procasse/public consultation/2024

Most of the questions asked via the YouTube link were in line with the doubts and questions already registered on the online form. When you add up the interactions on the online form and the link during the consultation (172 comments), you reach a total of 1,510 comments throughout the Public Consultation process carried out as part of the preparation of the PROJECT.

Not all of the 1,510 interactions corresponded to doubts or questions per se, but a significant number of questions were asked, mainly in relation to direct aspects of the PROJECT. In order to make clarifications easier and more efficient, the questions that required answers were organized into blocks and quantified according to the frequency of repetition of the question or theme. In this way, it was possible to identify the most recurrent questions asked through the channels. Once the questions had been systematized, it was possible to analyse and identify which of them could be answered during the presentation of the Public Consultation and which would require additional answers, to be provided during the plenary session and on the PROJECT website.

The questions that required specific answers therefore totaled 195, which were condensed into 17 questions grouped by similarity. The following table shows the consolidation of these questions, the frequency with which they were asked, as well as their origin (profile of the protester) and the respective response structured by the PROCASE team. Some of these questions were answered in the plenary session, and all of them are being organized and made available on the PROJECT website.

**Table 7 - Summary of the main doubts/questions from the Public Consultation**

Questions	Number of times the question was asked	Origin of the questions	Answers
1- The documents are a lot of pages long, it's a lot of reading for farmers to analyze and understand, will you have guidance support in practice and to forward demands?	2	Rural organizations and family farmers	The documents are extensive due to the volume of information needed to compose the environmental diagnosis of the entire state of Paraíba, covering 223 municipalities. In addition, the various types of possible actions broaden the analysis and proposals, resulting in detailed and comprehensive documents. Farmers do not need to read the technical documents in full. These documents are designed to serve as a reference for PROCASE technicians and contracted technical assistance and rural extension (ATER). Practical guidance support will be provided to ensure that farmers understand and apply the recommendations effectively.
2- How will the beneficiary communities and families be selected? What criteria will be established? Will there be public notices or draws?	78	Rural organizations and family farmers	In PROCASE II, the identification/selection of the communities that will benefit from the PIRs will be carried out by means of an active search in which detailed work will be done to identify these communities, taking into account criteria and an appropriate methodology. The general criteria for community eligibility are: <ul style="list-style-type: none"> <li>i) Be rural communities of family farmers who develop agricultural or non-agricultural activities aligned with the productive activities of the Project;</li> <li>ii) High percentage of families registered with CadÚnico;</li> </ul> From the set of communities identified, a list will be drawn up by Rural Territory of the possible communities to be supported by the Project. The territorial collegiate will validate this list. However, for the final choice of communities, the following prioritization criteria will also be used: <ul style="list-style-type: none"> <li>i) Being a traditional and original community (quilombola, indigenous, artisanal fishermen, riverine, gypsy and others);</li> <li>ii) High rate of families registered with CadÚnico;</li> <li>iii) A higher proportion of families needing a cistern for drinking water and sanitation;</li> <li>iv) Prioritize families that have not benefited from other projects to finance activities similar to those that the PIR will finance;</li> <li>v) A higher proportion of families represented by women and young people and families with PwD;</li> <li>vi) Evidence of environmental degradation (using the appropriate platform); and</li> <li>vii) No or low level of access to ATER services.</li> </ul> With regard to the launch of calls for proposals, some of the project's actions may be carried out in this way, as is the case with the Business Plans action. Procasse will not use the lottery method in any way. It's important to note that once the communities have been defined, the diagnosis is made, the projects are drawn up (parameters for preparation) and when they are approved, there are also the evaluation criteria.

Questions	Number of times the question was asked	Origin of the questions	Answers
<p>3- How can priority audiences such as women, young people, PCTs and PCDs access the actions and projects? Will the LGBTQIAPN+ population be included?</p>	<p>6</p>	<p>Organizations representing priority audiences: women, young people, quilombolas, indigenous people, PWD (atypical mothers) and the LGBTQIAPN+ community.</p>	<p>In all the activities carried out by PROCASE, women must be a priority, as the project aims to serve 60,000 families, 50% of which are led by women, considering the importance of rural women for the family economy and community development. They are the guardians of life, caring for children, the elderly and the sick. They take care of their surroundings, making them productive, looking after animals and water.</p> <p>Women and traditional peoples and communities will have access to PROCASE in the investment plans, will have access to TA and will also take part in training and exchanges.</p> <p>As well as having access to training in both agricultural and non-agricultural activities and exchanges, young people will be able to participate as Local Development Agents as scholarship holders and also benefit from RIPs in their communities.</p> <p>Impacted by countless forms of discrimination, the LGBTQIAPNB+ community faces major obstacles in participating in decisions that affect their well-being and rights. PROCASE will promote thematic meetings, with topics demanded by the group itself, as well as raising awareness about their rights and coping with adversity and violence, and encouraging and collaborating in the search for access to public policies. This population will also be able to take part in PIRs in their communities of origin.</p> <p>Families who happen to have a PCD member will be prioritized in the activities and PIR.</p> <p>It should also be noted that PROCASE will draw up an action plan on the themes of gender, diversity, youth and food security.</p>
<p>4- How are the projects contracted and what documentation does the organization/association/cooperative need? Are organizations that are in default entitled to access the projects/benefits?</p>	<p>59</p>	<p>Rural organizations and family farmers</p>	<p>The contracting modality will be through the Termo de Fomento, which is a document that formalizes partnerships between the government and civil society organizations to carry out projects in the public interest. The document will be signed between the associations and cooperatives and the Sustainable Rural Development Project - Procasse II/Secretariat of State for Family Farming and Semi-Arid Development/SEAFDS, establishing obligations and rights and allowing the transfer of funds.</p> <p>The documentation required from the organizations to formalize the Agreement, after the Resilient Investment Plans (RIPs) and Business Plans (BPs) have been drawn up, is as follows: i) Association Bylaws; ii) Minutes of Election of the Board of Directors; iii) Proof of CNPJ; iv) Documents of the President, (ID; CPF; Proof of Residence and List of Officers with CPF); v) Federal Tax Clearance Certificate; vi) State Tax Clearance Certificate; vii) Municipal Tax Clearance Certificate; viii) Labor Debt Clearance Certificate; ix) FGTS Clearance Certificate.</p> <p>Organizations will need to be in compliance in order to be beneficiaries. However, in view of the timetable for starting to implement the plans (2nd year of Procasse II), they will have time to comply.</p>

<p>5- What types of activities and investments will PROCASE be able to support? Will it be able to have wells, underground dams, wet passes, machinery/equipment and mechanized patrols?</p>	<p>7</p>	<p>Rural organizations, family farmers, technicians, students, etc.</p>	<p>The activities and investments are divided into three areas: production and marketing, environmental and social technology.</p> <p>For the Productive axis:</p> <p>i) Agroforestry systems (SAFs) for diversified production; ii) Backyards for the production of fruit, vegetables, including unconventional food plants (PANCS) and medicinal plants; iii) Beekeeping and Meliponiculture; iv) Agroecological consortia for organic production, including cotton; v) Goat and sheep farming for milk and meat with forage SAFs; vi) Dairy cattle farming with forage SAFs; and vii) Poultry farming with forage SAFs. It is important to mention that in the case of support for cattle breeding, the project's strategy will be to support dairy production exclusively (it will not be possible to support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, with the exception of the purchase to replace breeding stock. The list is not exhaustive and other activities may be considered, as long as they are in line with the demand of the beneficiaries and the objectives and criteria of the project.</p> <p>For the environmental axis, the aim will be to manage and restore the environment, whether or not associated with the activities of the PIR's Productive Axis at Local Territory level.</p> <p>The PIRs will have specific resources for collective use to encourage the implementation of territorial environmental actions, such as: i) Casas de Sementes da Paixão (Seed Houses of Passion); ii) Implementation of nurseries focused on the production of native species; iii) Reforestation, recovery of permanent preservation areas (such as springs, riparian forests, areas with a slope of more than 45º, etc.) and degraded areas; iv) Soil and water protection actions; v) Recycling or composting plans, etc.</p> <p>The social technology axis consists of implementing social technologies at the family level, such as: i) 2nd water cisterns (agricultural production); ii) gray water reuse systems; and iii) trench dams (underground dams). In addition to these technologies, 1st water cisterns (for human consumption) and other household sanitation solutions will also be implemented, such as evapotranspiration basins, or access to more sustainable domestic energy, such as biodigesters and eco-efficient stoves.</p> <p>Investments not eligible for RIP funding:</p> <p>Some types of investment will not be financed by the project. Among other things, they cannot be financed:</p> <ul style="list-style-type: none"> <li>- Purchase of real estate of any kind;</li> <li>- Spending on land and environmental regularization;</li> <li>- Current expenses (salaries and social charges for existing staff, water, electricity, internet, telephone);</li> <li>- Operating and maintenance costs, construction, expansion, modernization, renovation and construction of civil or water works on properties that do not have ownership of the land, but can present a declaration of ownership, a declaration of purchase and sale or a lending agreement;</li> <li>- Purchase of bovine matrices;</li> <li>- Purchase of agrochemicals such as herbicides, fungicides and insecticides;</li> <li>- Construction or refurbishment of processing plants that use firewood as a source of energy, in whole or in part.</li> </ul>
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Questions	Number of times the question was asked	Origin of the questions	Answers
6- Will the arrival of Procasa II also bring land regularization to the communities?	5	Rural organizations and family farmers	<p>With regard to priority communities, it should be noted that only communities and settlements that are not in a situation of conflict or litigation can benefit from this action. Therefore, when the project comes into force, it will be up to the PMU, in partnership with the other relevant bodies/entities (INCRA, EMPAER and the federal and state bodies promoting racial equality in the case of quilombola communities), to identify and validate the eligible quilombola settlements and communities based on this first criterion. Preliminarily, 33 quilombola communities (out of 47 in the state) were mapped in 21 municipalities, as well as 28 agrarian reform settlements in 27 municipalities. It is understood that there will also be the possibility of serving 'traditional' rural communities, albeit in limited numbers. The project will have to define the prioritization criteria that will allow this choice to be made. The communities/settlements to be targeted should then be defined.</p> <p>Thus, 40% of the target will be focused on serving quilombola communities and federal land reform settlers (preferably those already served with productive projects in phase I of PROCASE, and which have already been previously mapped). The other 60% of the target will be focused on 09 municipalities in the state, on properties of around 25 hectares (an average of 8 hectares per property) belonging to beneficiaries of the PNCF, the ECOPRODUCTIVE project, state agrarian reform settlements, the riverside population and other groups of family farmers.</p> <p>The municipalities preliminarily mapped by EMPAER are Barra de São Miguel, Boqueirão, Cabaceiras, Camalaú, Caraúbas, Congo, Monteiro, São Domingos do Cariri and Sumé. These municipalities were worked on by Procasa I through production projects, mechanized patrols and technical advice to riverside communities benefiting from the São Francisco River water transposition project. In these 9 municipalities, the plan is to work with up to 150 communities, which have already been mapped.</p>
7- Will informal groups without a CNPJ be able to participate or join their project with a partner that has a CNPJ? Can the project support more than one activity with a single association?	3	Rural organizations and family farmers	<p>Yes, informal groups can participate in a PIR through an association that has a CNPJ and current certificates. Each PIR can be made up of up to three communities and will benefit the families in those communities. The PIR can support more than one productive activity, geared towards adapting to climate change, with the potential to guarantee food security and improve income by selling surpluses. It aims to incorporate concepts of good production practices based on the principles of agroecology, nutritional education and food security for families, as well as ensuring integration with social technologies.</p>



Questions	Number of times the question was asked	Origin of the questions	Answers
8- It will be possible to include Soil Education (in addition to Environmental Education) in proposals to strengthen the sense of belonging and appreciation of the soil in order to minimize the advance of degradation processes that lead to desertification.	1	UFCG University Professor	The inclusion of Soil Education, in addition to Environmental Education, in PROCASE's actions is an important strategy to strengthen the sense of belonging and appreciation of the soil by the beneficiary communities. This will be possible through a number of key initiatives: <ol style="list-style-type: none"> <li>1. The project's Agroecological ATER will promote the best soil management and conservation practices among family farmers.</li> <li>2. The Environmental Axis of the Resilient Investment Plans will make it possible to implement actions for the recovery and conservation of degraded areas, protection of water resources and sustainable soil management.</li> </ol> Knowledge management initiatives will be developed, including the collection, systematization and dissemination of relevant information on sustainable agricultural practices. Exchanges, seminars and educational materials will train farmers and share successful experiences.
9- Can an organization that has recently benefited from PROCASE I or other projects make another proposal viable?	1	Rural organizations and family farmers	Priority will be given to organizations that have not benefited from other projects. If these organizations have families that fall within the priority groups (women, young people, quilombolas, indigenous people, artisanal fishermen/ shellfish gatherers, gypsies, riverside dwellers, people with disabilities (PwD) and LGBTQIAPN+), they can be assisted, as long as they are activities that have not been previously funded and that fall within the project's eligible investment.

Questions	Number of times the question was asked	Origin of the questions	Answers
10- What is the strategy to avoid overlapping actions? And how will social control of the project be carried out and at what times?	2	Territorial committees and representatives of public policy councils	<p>To avoid overlapping actions, the first step is to identify the policies and projects that are underway in the state in the area of family farming, whether they have state or federal resources (e.g. the Cooperar Project, the Sertão Vivo Project, the Dom Helder/IDAF Project), and try to integrate them. To do this, planning is essential, so as not to overlap strategies and actions or benefit some families too much to the detriment of others.</p> <p>Social control, on the other hand, can come from the community (the members themselves), and in the municipality it can be done through the CMDRS, which has the role of controlling all policies aimed at rural development. In the case of PROCASE, the communities/projects will be presented to the territorial collegiate body, which will have the role of validating/validating the communities identified, and there is also the Executive Committee for the Management of Productive Investments (CEGIP), which will be made up of government and civil society and will have the role of:</p> <ul style="list-style-type: none"> <li>I. To assess and approve the Resilient Investment Projects (RIP) submitted by the PMU/PROCASE;</li> <li>II. To request, at any time, information from the PROCASE State Coordinator on projects and investments carried out within the scope of the territorial collegiate bodies in the state of Paraíba;</li> <li>III. Monitoring the efficiency of the socio-environmental safeguard policies and actions adopted by PROCASE in the Strategic Environmental and Social Management Plan - PGASE;</li> <li>IV. To monitor, every six months, the progress measured by the results indicators and products delivered by the Sustainable Rural Development Project, in accordance with the guidelines of the Project Operational Report (ROP).</li> </ul> <p>In addition to the spaces/instruments mentioned above, the public can also use the official channels for protests and complaints.</p> <ul style="list-style-type: none"> <li>- E-mail: <a href="mailto:contato@procase.pb.gov.br">contato@procase.pb.gov.br</a></li> <li>- Phone: (83) 3214-9248</li> <li>- PROCASE's "Contact Us" channel: <a href="https://www.procase.pb.gov.br/contato">https://www.procase.pb.gov.br/contato</a></li> <li>- Paraíba Government Ombudsman: <a href="https://ouvidoria.pb.gov.br/">https://ouvidoria.pb.gov.br/</a></li> <li>- IDB Complaints Channel: <a href="https://www.iadb.org/pt-br/quem-somos/enviar-uma-alegacao/reclamacoes-ambientais-e-sociais">https://www.iadb.org/pt-br/quem-somos/enviar-uma-alegacao/reclamacoes-ambientais-e-sociais</a></li> <li>- IFAD Complaints Channel: <a href="mailto:ethicsoffice@ifad.org">ethicsoffice@ifad.org</a></li> </ul>
11- When the projects are approved by the rural organizations, will the funds go straight to the organizations or will there be local political interference?	1	Rural organizations and family farmers	<p>The funds related to both the Resilient Investment Plans (RIPs) and the Business Plans will be passed on directly to the associations and/or cooperatives, which will receive technical advice on how to carry them out. In addition, the approved projects will have to pass technical evaluation criteria, thus avoiding any political interference.</p>

Questions	Number of times the question was asked	Origin of the questions	Answers
12- Will the project include investment in construction/works?	1	Rural organizations and family farmers	Procasa II will cover renovations and small social technology projects implemented by contracted entities, such as drilling wells, building dams and installing cisterns. In Resilient Investment Plans (PIRs), carried out by associations, and Business Plans (PNs), conducted by cooperatives, the reforms may represent a maximum of 20% of the value of each plan.
13- Will the projects offer conditions to increase production and marketing?	1	Rural organizations and family farmers	Yes, PROCASE II projects will offer conditions to increase production and the marketing of agricultural products. The central objective is to promote sustainable rural development and the productive and social inclusion of family farmers. To this end, key strategies will be implemented. Among them, resilient investment plans will include an axis focused on productivity and the insertion of products into the market, prioritizing practices that increase farmers' resilience to climate change and market variations. There will also be significant investments in business plans for cooperatives of different sizes. In addition, another important initiative will be to improve the infrastructure and logistics of local fairs and marketing centers, giving farmers more opportunities to sell their products directly to consumers. Events will also be organized to facilitate farmers' access to programmes such as PAA and PNAE, providing information and support so that they can benefit from these policies and expand their market opportunities. These strategies aim to create a favorable environment for a sustainable increase in production and improved marketing conditions, contributing to the economic sustainability of rural communities.
14- Who will draw up the projects? Will there be training on how to prepare the projects?	2	Rural organizations, family farmers and ATER technicians	PROCASE II projects will be drawn up by ATER in a participatory way with the communities, with the technicians undergoing further training. Practical workshops and training will be offered, as well as teaching materials adapted to the farmers' reality and ongoing support from the ATER teams to guarantee the quality of the projects. The projects will be drawn up in a participatory manner between the Technical Assistance and Rural Extension (ATER) teams and the beneficiary rural communities. To guarantee the quality of the projects, the ATER technicians will undergo a process of improvement and training and throughout the process, the ATER teams will have the continuous support of PROCASE, ensuring that the projects are built collaboratively, reflecting the needs and potential of the communities.
15- Can we take part in all the projects/actions offered by Procasa?	5	Rural organizations and family farmers	The work of PROCASE is to assist farming families through organizations (associations and/or cooperatives), so each family will have a single registration, so that family/beneficiary can participate in a single action and/or complementary actions (for example, a family that is a beneficiary of a PIR project will also receive ATER and training activities). The same family cannot participate in two different projects.
16- Is Procasa II interested in formulating/supporting projects in Agrarian Reform settlements? My question is why the settlers didn't appear as priorities.	1	Agrarian reform settlers	Family farmers, whether supported by agrarian reform or not, can benefit from Procasa II investments and actions.

<b>Questions</b>	<b>Number of times the question was asked</b>	<b>Origin of the questions</b>	<b>Answers</b>
17- Will it be less bureaucratic than other projects? Will there be agility in the processes?	20	Rural organizations and family farmers	The administrative processes, which we call "bureaucratic", exist to give transparency to the public resources involved in the bidding process, but the technical advisory companies that will monitor the implementation of the PIRs will be trained to speed up the purchasing and procurement processes of the bidding committees that each association will have.

## **Continuous Participation Process**

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After the end of the consultations, the video was published and available for consultation, with the option for new questions and contributions to be made by any interested party.

The process of collecting contributions remains active so that people can take the time to consult the studies, watch the consultation videos and speak out if they wish.

All the questions asked during the consultation process (whether spoken, written or sent via the website) have been consolidated and are presented together with the relevant answers in the table above.

To facilitate access to information, all PROCASE-related documents remain available for download on the project's official website. In addition, the video of the consultation session held on July 2 is also open to the public on PROCASE's YouTube channel, allowing those who were unable to attend to follow the clarifications.

In view of the large number of contributions and questions raised at this initial stage, the team responsible for PROCASE remains committed to responding to these queries as quickly as possible. In the meantime, new suggestions and questions continue to arrive by e-mail and will be answered.

## **6 CONCLUSION**

When the public consultation was held/broadcast on July 2, there was a significant turnout of more than 3,000 people (in person, online and in the broadcasting rooms) in Paraíba's 15 rural territories, with Borborema, Cariri, Vale do Piranhas, Vale do Paraíba, Médio Sertão and Serra do Teixeira being the most prominent in terms of participation.

Coverage by municipalities in the state was 82%, involving 183 municipalities. Regarding gender when the consultation was broadcast, participation was 53% male and 40% female, and 7% could not be identified. Female participation was higher online at 44%, in the transmission rooms at 40% and in the face-to-face/PBPrev part at 28%. This expresses the importance of the model chosen to carry out the consultation, which allowed women to participate more expressively, especially online and in the broadcasting rooms.

The consultation also enabled the participation of various institutions, organizations, entities and social movements directly linked to family farming and sustainable rural development.

37 representatives of institutions, organizations and movements took part in the face-to-face session at the PBPrev auditorium in João Pessoa/PB. The State Secretariats that will be SEAFDS/PROCASE's partners stood out: Secretariat for Women and Human Diversity (SEMDH), Secretariat for Human Development (SEDH), Secretariat for Youth and Secretariat for the Environment and Sustainability (SEMAS); as well as EMPAER (co-executor of Proc case II); INCRA; FUNAI; PB/Prev; Social Movements (CPT - Pastoral Land Commission and MAB - Movement Affected by Dams); Public policy councils (CEDRS, CONSEA, COSEMS/PB and Rede Nacional de Colegiados e Fóruns Territoriais/Colegiado Estadual da Mata Norte); Banco do Nordeste (BNB); ODE/PB; SESCOOP/OCB-PB; PLANES; town halls; and production organizations such as Capribom, CONAP, COOPERVALE, COOPRAFE, FRUTIACU, INOVAGRO. The leaders of the priority groups were also present in the classroom.

In the broadcasting rooms and online, participation was expressive and diverse, encompassing 540 organizations and institutions, involving the participation of: organizations/cooperatives and/or associations of small producers, and/or family

farmers, and/or specific producers (beekeepers, sheep and goat farmers, melipon farmers, fishermen, animal breeders, and other diversified crops, etc.); Central Cooperatives; community and/or residents' associations; craftswomen's associations; Agrarian Reform settlement associations; Quilombola community associations; Fishermen's Colony; Women's Groups; NGOs, OSCIPs, Institutes, Trade Union Representation (STRs, Cut, Sintraf); Cultural Groups; Public Banks; Universities (public and private); Federal Institutes; City Halls (Agriculture, Environment, Education, Social Assistance, Tourism and Development Secretariats); City Councils; Technical Assistance Institutions and/or Entities (public and private); and Public Policy Councils (CMDRS, Collegiate/Territorial Forums).

With regard to the priority public, the Consultation was attended by various representatives of these publics, including:

- groups of women who participated online;
- Potiguaras (Mata Norte) and Tabajaras (Mata Sul) Indigenous Peoples, represented by Eugênio Herculano (FUNAI Regional Coordinator), Sandro Gomes (Potiguara General Chief) and Ednaldo (Tabajara Chief);
- Potiguara Women's Group YBY-RAPÓ Kunhã;
- Quilombola communities, represented by CEQNEC/PB - State Coordination of Black and Quilombola Communities of Paraíba, with the participation of president José Amaro in the virtual room in the municipality of Catolé do Rocha (Médio Sertão), and Raísa Rodrigues representing CEQNEC in the face-to-face consultation in João Pessoa;
- AACAD-PB - Associação de Apoio aos Assentamentos e Comunidades Afrodescendentes da Paraíba, represented by Francimar Fernandes;
- Povos Ciganos/CALON, through ASCOCIC - Associação Comunitária dos Ciganos de Condado, with the participation of President Maria Jane Soares - Gypsy Calin and founder of the Association, who participated online, and the Gypsy leaders of Rancho dos Ciganos in Sousa, who participated in the virtual room in Sousa (Cultural Center);
- Artisanal fishermen who participated in the broadcast/online rooms;
- Shellfish gatherers/AMA participated in the specific room in Acaú and in the municipal seat of Pitimbú.
- Representatives of organizations representing people with disabilities, such as the Association of Atypical Mothers, who participated in the virtual room in Monteiro, the Group of Mothers in the PB Regional ASD, who watched online, and the representative of the Paraibana Association for the Inclusion of People with Disabilities, who watched in a broadcast room;
- A representative of the LGBTQIAPNB+ Forum, Cleber Ferreira, took part in person in the PBPrev auditorium.

The decision to hold the PROCASE consultation in a hybrid format further qualified the presence and diverse profile of the public present and interested parties in learning about and interacting with the project's socio-environmental commitments. The virtual transmission, organized in the most diverse spaces (town halls, universities, schools, rural unions, councils, in addition to the regional offices of EMPAER/SEDAP and SEAFDS itself, ensured a greater reach in collecting suggestions, expectations and questions for the Project in this phase of qualified and attentive listening to the participating public and stakeholders.

During the public consultation held on 02/07/2024, 172 interactions were recorded via the Question Form in the broadcast. These interactions came mainly from the public participating online (75%), but also from broadcast rooms in rural territories (20%) and from the face-to-face room in the PBPREV auditorium (5%). The gender breakdown was 46% female, 52% male and 2% with no gender identification.

When you add up the interactions registered on the online Contribution Form and the Question Form during the broadcast, you reach a total of 1,510 manifestations. This significant number of participations demonstrates a high level of interaction and engagement by the public with the public consultation.

Participation in the holding and broadcasting of the consultation was very diverse, guaranteeing an audience of more than 3,000 participants.

The public consultation held for PROCASE/SEAFDS had several success points, such as the coordination established with the territorial councils, EMPAER and the SEAFDs, which made it possible to effectively mobilize the target audience. The meetings held with this public were important for clarifying specific doubts, and the distribution of the PROCASE field team across the rural territories also made a positive contribution. Another noteworthy aspect was the use of dates for plenary sessions and meetings of councils and collegiate bodies, as well as the operation of more than 100 rooms for live transmission of the consultation, which significantly increased participation, especially for those without internet access. The hiring of a specialized company for the broadcast, with audio and video quality, also proved to be a positive point.

The 1,510 interactions that took place via the online form and questions via the link provided a vast array of expectations, desires and suggestions that will help to strategically guide the demands of family farmers from the priority audiences. We tried to focus the responses during the consultation process on doubts and questions that required an explanation, and most of the comments were linked to contributions and ideas for the design of the project. Among the elements contributing to the design of the project, the suggestion to use information from health workers to identify rural communities that are not yet organized or to include some productive sectors in the development of the PIR/PN stands out.

It can be concluded that the public consultation achieved the expected objective with great excellence, reaching a significant number of interested parties, transmitting the necessary and appropriate information, as well as answering the questions raised, since the focus of the comments was on the scope of PROCASE, and not on the socio-environmental documents. This is understandable, given that the project is based on sustainable rural development, with positive results in many aspects.

## 6.1 Recommendations

Based on the results of the Public Consultation, we recommend:

- Follow up on the specific Public Consultation process according to the official selection of the communities to benefit from the PROJECT, also considering the actions established in the Socio-Cultural Analysis aimed at traditional peoples;
- Consider in the debate on the design of the PROJECT the various contributions/suggestions related to subproject proposals (PIR/PN), arising from the Public Consultation process.



## 7 ANNEXES





## 7.1 Annex - Presentation/slides from the Public Consultation in Belém and Santarém

## 7.2 Annex - List of Stakeholders who received an official invitation

Name / Institution (some community members also sit on the board of local institutions)	Type of Stakeholder (institutional, community representative)	Form of invitation



### 7.3 Annex - List of Participants in the Public Consultation

Name	Territory of Identity	Association or Entity



## 7.4 Annex - List of participants in the Breakout Rooms

**Table 8 - Locations and results of stakeholder participation in the Transmission Rooms during the Public Consultation**

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
1	White Water	Serra do Teixeira	City Hall Headquarters (Auditorium)	PB 306 - Center, Água Branca/PB, 58.748-000	18
2	Aguiar	Piancó Valley	Department of Culture	Rua Eptácio Tavares, s/n - Aguiar/PB, 58.778-000	28
3	Alagoa Nova	Borborema	Center for Culture and Citizenship of the Cultural and Agricultural Association of Young Environmentalists of Paraíba - ACAJAMAN	R. Antunes Brandão, 380 - Alagoa Nova/PB, 58.125-000	31
4	Alagoa Grande	Borborema	Rural Workers' Union	R. Dr. Francisco Montenegro, 364, Alagoa Grande - PB	5
5	Alagoinha	Brejo	CRAS	R. Dr. Francisco Beltrão, 2-80, Alagoinha - PB, 58390-000	9
6	Aparecida	Piranhas Valley	Rural Workers' Union	Rua Josefa Cassimiro de Almeida, 257, Centro - Aparecida - PB	63
7	Araçagi	Brejo	Rural Workers' Union	Av. José Rosa Filho, 243, Araçagi - PB, 58270-000	12
8	Macaw	Piemont da Borborema	Rural Workers' Union	R. Solon de Lucena, nº 16, Arara- PB, 58396-000	23
9	Sand	Borborema	Minerva Theater Auditorium	Address: Rua Eptácio Pessoa - Areia- PB	14
10	Areial	Borborema	Rural Workers' Union	Rua Joaquim Fonseca, 923, Centro, Areial-PB. ZIP CODE: 58140-000	12
11	Baía da Traição	North Mata	Funai	Aldeia do Forte, S/N - Rural Area- Baia da Traição - PB	5
12	Banana trees	Piemont da Borborema	Oscar de Castro Cultural Space	R. Henrique Lucena Costa, 21, Bananeiras - PB, 58220-000.	19

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
13	Bethlehem	Piemont da Borborema	Rural Workers' Union	R. Joaquim Rodrigues - Belém, PB, 58255-000	9
14	Good Success	Middle Piranhas	City Hall Headquarters (Meeting Room)	R. Sebastião Alves Teixeira, Bom Sucesso - PB, 58887-000	15
15	Bonito de Santa Fe	Alto Sertão	Municipal Administrative Center (Auditorium)	Rodovia PB 400, S/N, Bonito de Santa Fe - PB, 58.960-000	14
16	Brejo do Cruz	Middle Piranhas	City Hall Headquarters (Auditorium)	R. Sólton de Lucena, 47-133, Brejo do Cruz - PB, 58890-000	19
17	Cabaceiras	Borborema	Entrepreneur Room	Rua Raul Albuquerque Dinca, 15, Cabaceiras - PB, CEP: 58.480-000	17
18	Cacimbas	Middle Hinterland	Municipal Department of Agriculture (Auditorium)	Rua São José, 35 - Centro CEP: 58.698-000 Cacimbas - PB	38
19	Caiçara	Piemont da Borborema	City Hall	Av. Rio Branco, 155 - Centro, Caiçara - PB, 58253-000	12
20	Cajazeiras	Alto Sertão	CPT Sertão	R. Francimeire Rolim de Albuquerque, 222 - Sala 1, Lot - Giliard II, Cajazeiras - PB, 58900-000	58
21	Cajazeiras	Alto Sertão	Empaer Regional Management	Cajazeiras Regional Management Headquarters - PB	6
22	Cajazeirinhas	Maringá Valley	Empaer's Operational Management	R. Francisco Alves de Lima, Cajazeirinhas - PB, 58855-000	12
23	Camalaú	Cariri	Rural Workers' Union	R. Nominando Firmo, 74 - Camalau, Camalaú - PB, 58530-000	11
24	Campina Grande	Borborema	Empaer Regional Management	Av. Assis Chateaubriand, s/n - Distrito Industrial CEP: 58411-450	21
25	Caraúbas	Cariri	Rural Producer Support Center	Rua Projetada. CEP: 58.595-000	9

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
26	Catingueira	Middle Hinterland	Empaer's Operational Management	Rua Severino Tiburcio, S/N, Centro, 58715-000	8
27	Catolé do Rocha	Middle Piranhas	Auditorium of UEPB's Campos IV - Cajueiro Agrotechnical School	Auditorium of UEPB Campus IV, Cajueiro Agrotechnical School	13
28	Caturité	Borborema	Department of Agriculture	Rua Joao Queiroga, 44, Centro - Caturité / PB - CEP: 58455-000	16
29	Conceição	Piancó Valley	City Hall	Av. Governador Dr. Wilson Leite Braga - Conceição -PB	66
30	Congo	Cariri	City Hall	R. Sen. Rui Carneiro, 38, Congo - PB, 58535-000	66
31	Coremas	Piancó Valley	Shaolin Cultural Center	R. Maria Barbosa - Cureminha, Coremas - PB, 58770-000	15
32	Coxixola	Cariri	City Hall	Av. Manoel José das Neves, 44, Coxixola - PB, CEP 58.588-000	17
33	Curral Velho	Piancó Valley	City Hall Headquarters (Auditorium)	R. Tenente Irineu Lacerda, S/N, Centro	9
34	Curral Velho	Piancó Valley	Curral Velho Fishermen's and Aquaculture Colony Z80 Antonio Gomes de Carvalho	Avenida Jose Salviano de Lacerda - Centro, Curral Velho - PB, CEP: 58.990-000	14
35	Diamond	Piancó Valley	Education Center (Auditorium)	R. Possidônio José da Costa - Diamante, PB, 58994-000	19
36	Dona Inês	Piemont da Borborema	City Hall Headquarters (Auditorium)	Av. Maj. Augusto Bezerra, 2, Dona Inês - PB, 58228-000	13
37	Two Roads	Brejo	Municipal Department of Education	R. Vereador Jader Godin, S/N, Centro, Duas Estradas, Cep 58265-000	10
38	Hope	Borborema	Municipal Administrative Center	Rua Antenor Navarro, 837, Lírio Verde, Esperança-PB. CEP: 58.135-000	61

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
39	Fagundes	Borborema	Rural Workers' Union	Av. Dr. Elpídio de Almeida, 960 - Catolé, Campina Grande - PB, 58410-215	27
40	Gado Bravo	Borborema	Municipal Department of Agriculture (Auditorium)	R. José Mariano Barbosa, 478. Bairro: Centro CEP: 58492000.	12
41	Guarabira	Brejo	Rural Workers' Union	R. Bela Vista, Guarabira - PB, 58200-000	14
42	Gurinhém	Paraíba Valley	Rural Workers' Union	Rua Largo do Mercado, n 57, Centro.	84
43	Ibiara	Piancó Valley	City Hall	R. Joaquim Lopes Ribeiro, 1 - Centro, Ibiara - PB, 58580-000	19
44	Ingá	Paraíba Valley	Municipal Department of Education (Auditorium)	Rua Floriano Peixoto, nº 860, Centro.	30
45	Itabaiana	Paraíba Valley	Municipal Department of Agriculture (Auditorium)	Avenida Prefeito Dr. Antônio Batista Santiago, nº 113, centro	19
46	Itaporanga	Piancó Valley	Empaer Regional Management	R. Eluipio de Figueiredo, s/n - Margens, PB 386 - Lot. João Silvino	52
47	Itatuba	Paraíba Valley	Cine Santo Antônio	Rua Praça Andrade Lima, 14, Centro	38
48	Jacaraú	North Mata	Municipal Department of Agriculture (Auditorium)	R. Margarida Dias, 102 - Jacaraú, PB, 58278-000	18
49	Jericho	Middle Piranhas	City Hall	R. Hospirio de Souza Melo, 1 - Centro, Jericó - PB, 58830-000	9
50	Juarez Távora	Paraíba Valley	City Hall	Av. Cel. Francisco Luís, 2116, Juarez Távora/PB	26
51	Junco do Seridó	Middle Hinterland	CRAS	Av. Balduino Guedes, 306-426, Junco do Seridó - PB, 58640-000	14
52	Lagoon	Maringá Valley	City Hall	Rua Guarda José Ferreira Jeferson - Centro, Lagoa - PB, 58835-000	12
53	Lagoa Seca	Borborema	Rural Workers' Union	R. José José Gerônimo da Costa, 422, Lagoa Seca - PB, 58117-000	38



Cod	Municipality	Rural Territory	Location	Address	Total number of participants
54	Lagoa Seca	Borborema	City Hall	Address BR-104, 334, Lagoa Seca - PB, 58117-000	13
55	Street	Piemont da Borborema	Empaer's Operational Management	Rua Clécio Moreira Ramalho, S/N - Centro - CEP: 58254-000 - Logradouro-PB	22
56	Malta	Middle Hinterland	Empaer's Operational Management	Rua Cel José Fernandes Vieira, 122, Centro, 58713-000	9
57	Manaíra	Serra do Teixeira	City Hall	Praça Padre Cícero, 246 - Centro, Manaíra - PB, 58995-000	44
58	Marking	North Mata	APLANCAIP	Jacaré Village, S/N, Rural Area - Marcação PB	12
59	Massaranduba	Borborema	Rural Workers' Union	R. Constantina Machado, 1, Massaranduba - PB, 58120-000	3
60	Maturéia	Middle Hinterland	Citizenship Center	Sítio Otávio, 01 - Zona Rural, Maturéia - PB, 58737-000	16
61	Mogeirol	Paraíba Valley	Events Center	R. Osvaldo da Silva, 756 - 818, Mogeirol - Centro - PB, 58375-000	35
62	Mounted	Borborema	Rural Workers' Union	Rua José Cirino da Silva, 233, Montadas - PB, 58145-000	5
63	Monteiro	Cariri	Federal Institute of Paraíba - Monteiro Campus	PB-264, S/N - Serrote, Monteiro - PB, 58500-000	3
64	Monteiro	Cariri	Paraibana Association for the Inclusion of People with Disabilities	Rua Sizenando Rafael,434-Centro - Monteiro -PB, 585.500-000	62
65	Nova Olinda	Piancó Valley	Genésio Pinto Ramalho Municipal School	Rua Vereador Antônio Gonçalves, SN - CENTRO, Nova Olinda - PB, 58798-000	11
66	Ducks	Middle Hinterland	Federation of Agricultural Workers - FETAG	R. José Jorge, 87 - Santo Antonio, Patos - PB, 58701-210	8
67	Paulista	Maringá Valley	City Hall	R. Cândido de Assis Queiroga, 30 - Paulista, PB, 58860-000	16

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
68	Piancó	Piancó Valley	City Hall	R. Ademar Lucio Da Silva, 200, Piancó - PB, 58765-000	25
69	Picuí	Curimataú	Municipal Administrative Center (Auditorium)	R. Antônio Firmino de Araújo, 171-205, Picuí - PB, 58187-000	36
70	Pilar	Paraíba Valley	City Hall Headquarters (Auditorium)	Rua Praça 31 de Março S/N, Centro.	34
71	Pitimbu	Mata Sul	Acaú shellfish gatherers' association	Rua Almirante Tamandare SN Acau Pitimbu PB 58324-000	47
72	Pitimbu	Mata Sul	Tourist Center	Rua Antonio Tavres Guarita, center	17
73	Pocinhos	Borborema	City Hall	Rua Getúlio Vargas, 32 - Centro CEP: 58150-000 - Pocinhos-PB.	17
74	Poço Dantas	Alto Sertão	Municipal Department of Education (Auditorium)	Rua Odilon Francisco de Oliveira, S/Nº, Centro, Poço Dantas - PB, CEP: 58.933-000.	9
75	Pombal	Maringá Valley	Rural Workers' Union	R. João Pessoa, 110 - Centro, Pombal - PB, 58840-000	24
76	Princess Isabel	Serra do Teixeira	City Hall	Rua Francisco Sales Maia, nº 23,	80
77	Quixaba	Middle Hinterland	Cras Auditorium	Januncio Candeia, 1, Centro, CEP: 58733-000	17
78	Remígio	Borborema	Rural Workers' Union	R. Bento Vitório, 15, Remígio - PB, 58398-000	16
79	Salgado de São Félix	Paraíba Valley	Municipal Department of Agriculture (Auditorium)	Rua José Silveira s/n center	12
80	Santa Cruz	Piranhas Valley	Rural Workers' Union	Rua Maria Oliveira de Sousa, 56, Centro, Santa Cruz - PB, CEP:58.824-000	12

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
81	Santa Inês	Piancó Valley	Unified Municipal Council for Sustainable Rural Development - CMDRSU	Rua Vereador José Pereira da Silva, Sn, Centro Santa Inês -PB	40
82	Saint Lucia	Middle Hinterland	Empaer's Operational Management	Rua Major Inácio Machado, 28, Centro, 58600-000	5
83	Santana de Mangueira	Piancó Valley	President Kennedy State School	Rua Projetada Três, S/N	30
84	Santana dos Garrotes	Piancó Valley	Entrepreneur's Room	José Paulo Leite Events Square Center	7
85	São Bentinho	Piancó Valley	City Hall	R. José João de Almeida, São Bentinho - PB, 58857-000	67
86	São Bento	Middle Piranhas	Empaer's Operational Management	Avenida Sergio Silveira, Nº 382 - Centro - CEP: 58.865-000	11
87	São Domingos	Maringá Valley	City Hall	R. Antonio Lourenco De Sousa, 56, São Domingos - PB, 58853-000	34
88	São Domingos do Cariri	Borborema	Municipal Administrative Center	R. José Fortunato de Aquino, São Domingos do Cariri - PB, 58485-000	12
89	San Francisco	Piranhas Valley	Empaer's Operational Management	R. Seledon Pereira Lopes, S/N, Centro - CEP: 58818-000, São Francisco-PB	6
90	São João do Tigre	Cariri	Municipal Department of Agriculture (Auditorium)	R. Antonio Ventura Caraciolo, 95, Center, São João do Tigre - PB	10
91	São José da Lagoa Tapada	Piranhas Valley	Social Assistance (Auditorium)	R. João Rocha de Lima, S/N, São José da Lagoa Tapada - PB, 58815-000	40
92	São José de Caiana	Piancó Valley	City Hall	R. dos Três Poderes, 482-522, São José de Caiana - PB, 58784-000	29

Cod	Municipality	Rural Territory	Location	Address	Total number of participants
93	São José de Princesa	Serra do Teixeira	City Hall	Rua Capitão Manoel Lopes, S/N, Centro São José de Princesa	26
94	São José do Brejo do Cruz	Middle Piranhas	City Hall Headquarters (Auditorium)	Av. Fundador, R. Mario C Saraíva Leão, 192 - Centro, 58893-000	6
95	São José do Sabugi	Middle Hinterland	Rural Workers' Union	R. Maria Filomena de Araújo, 125, São José do Sabugi - PB, 58610-000	12
96	São Sebastião de Lagoa de Roça	Borborema	Rural Workers' Union	Rua Juvino Sobreira de Carvalho, 39, center	7
97	São Sebastião do Umbuzeiro	Cariri	Rural Workers' Union	R. Antônio Heráclito do Rêgo, s/n - Umbuzeiro, PB, 58497-000	10
98	Serra Branca	Cariri	Empaer Regional Management	Gereg Meeting Room Serra Branca - Center - Serra Branca	9
99	Serra da Raiz	Brejo	City Hall	R. Maj. Costa, 97, Serra da Raiz - PB, 58260-000	18
100	Sertãozinho	Brejo	City Hall	Rua Sindulfo Arruda Alcoforado, 154, Sertãozinho - PB, 58268-000	12
101	Solânea	Piemont da Borborema	Rural Workers' Union	Rua Josefa Crispim, 50, Centro, Solanea, PB, CEP:58.225-000	23
102	Sousa	Piranhas Valley	Professor Dodora Historical Cultural Center	R. Presidente João Pessoa, nº 39, Sousa - PB	120
103	Sumé	Cariri	Cariri College - UNICIR	Sítio Novo Oriente, S/N, Zona Rural, Sumé-PB	5
104	Sumé	Cariri	ECITE José Gonçalves de Queiroz	Rua Professora Guiomar Coelho, 201 - Pedregal	52

<b>Cod</b>	<b>Municipality</b>	<b>Rural Territory</b>	<b>Location</b>	<b>Address</b>	<b>Total number of participants</b>
105	Tavares	Serra do Teixeira	Reunidas School Auditorium	Avenida Castelo Branco Centro Tavares - PB CEP: 58753-000	28
106	Teixeira	Middle Hinterland	Municipal Department of Agriculture (Auditorium)	Rua José Ramalho Xavier, N. 86 - Centro	15
107	Uiraúna	Alto Sertão	Lica Claudino Educational Foundation	R. São Vicente de Paula, 60, Uiraúna - PB, 58915-000	27
108	Umbuzeiro	Borborema	Empaer's Operational Management	Street: Praça Coronel Antônio Pessoa, nº 18, Centro	14
109	Mountain View	Maringá Valley	City Hall	Rua João Francisco Filho, 110, Centro CEP:58710-000	17
110	Zabelê	Cariri	Municipal Department of Agriculture (Auditorium)	Rua Jose Vaz de Medeiro S/N, Zabelê - PB	9



## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 8.8 Secap Environmental And Social Management System**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department







## PARAÍBA RURAL SUSTAINABLE DEVELOPMENT PROJECT - PROCASE II

<p><b>ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM - ESMS</b></p> <p><b>Preliminary version</b></p>
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**Paraíba**  
**July 2024**

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**IDB - INTER-AMERICAN DEVELOPMENT BANK**

**IFAD - INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT**

**STATE OF PARAÍBA**

**Consultants**

Marcelo da Costa

Rogério Peter

## SUMMARY

1. INTRODUCTION.....	5
2. PROJECT-SPECIFIC ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK.....	6
3. APPLICABLE STANDARDS AND LEGAL FRAMEWORK.....	7
3.1. International agreements.....	7
3.2. Federal legislation.....	16
3.3. State legislation.....	21
3.4. IDB's Environmental and Social Policy Framework.....	22
3.5. IFAD's Environmental, Social and Climate Standards.....	31
3.6. Entities involved in environmental licensing.....	36
3.7. Gap analysis.....	39
4. ORGANIZATIONAL COMPETENCE.....	46
4.1. DECLARATION OF COMMITMENT.....	46
4.2. RESPONSIBILITY FOR ESMS.....	50
4.3. COMMUNICATION AND DISSEMINATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK.....	50
4.4. ORGANIZATION AND COMPETENCES.....	50
4.4.1. Teams Involved in Environmental and Social Management.....	52
4.4.2. Management system process.....	65
4.4.3. Environmental and Social Management Report.....	67
5. PROCESS FOR IDENTIFYING AND ASSESSING THE PROGRAM'S ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS.....	68
5.1. Screening Measures, Classification and Scope for Subprojects.....	68
5.1.1. Environmental and social analysis.....	69
5.1.2. Eligibility criteria.....	70
5.2. Suggested Methodology for Identifying and Assessing Environmental and Social Risks and Impacts.....	70
5.2.1. Suggested Impact Assessment Methodology.....	74
5.2.2. Suggested Methodology for Assessing Cumulative Impacts.....	78
5.2.3. Suggested Methodology and Concepts for Determining Disaster Risks.....	82
6. EMERGENCY RESPONSE PREPAREDNESS.....	87
7. STAKEHOLDER ENGAGEMENT AND GRIEVANCE MANAGEMENT.....	87
8. MONITORING AND EVALUATION.....	87
9. ENVIRONMENTAL AND SOCIAL PROGRAMS.....	92
10. ENVIRONMENTAL AND SOCIAL SUPERVISION OF SUB-PROJECTS.....	94
11. ANNEXES.....	98
11.1. Annex - Other relevant international agreements.....	99
11.2. Annex - Other complementary federal laws.....	108



11.3. Annex - Checklist and model sheets for environmental and social supervision  
122

## 1. INTRODUCTION

The Government of the State of Paraíba, through the State Secretariat for Family Farming and Semiarid Development (SEAFDS), has started a credit operation with the Inter-American Development Bank (IDB) and the International Fund for Agricultural Development (IFAD), aimed at supporting the development of the "**Paraíba Rural Sustainable Development Project - PROCASE II (PROJECT)**".

The intended PROJECT with the IDB and IFAD was structured into the following components: (i) Resilient production systems to reduce rural poverty; (ii) Organizational strengthening, capacity building and knowledge management. The Project has also Project Management, Monitoring and Evaluation.

This is a multiple works program, with socio-environmental documents being drawn up in the Framework Approach format<sup>1</sup>, in accordance with the IDB's new Environmental and Social Policy Framework and IFAD's Social, Environmental and Climate Assessment Procedures - SECAP, and guided by the PROJECT's Environmental and Social Management System - ESMS, made up of seven main pillars, including the environmental and social documents:

- Strategic Environmental and Social Assessment - AASE: involves assessing different decision-making strategies, so that the alternatives are coherent and harmonious with the relevant socio-environmental aspects for the region where the sub-projects are located and the sector where they will be implemented, and with the institutional framework of the executing agency in force and with good international practices. The AASE includes an analysis of the alternative types of sub-projects proposed for funding, as well as the institutional structure and applicable legislation, identifying the impacts and risks that must be mitigated;
- Strategic Environmental and Social Management Plan - PGASE: which determines, based on the results obtained in the AASE, the levels of studies required and the social and environmental programs that are essential to mitigate the impacts of the PROJECT's subprojects, as well as presenting guidelines for the adequacy and eligibility of subprojects that are under development through a mitigation hierarchy.
- Strategic Socio-Cultural Analysis - ASCE: which aims to prepare the instruments for identifying and managing potential negative socio-environmental impacts and socio-environmental risks that may arise from the actions envisaged in PROCASE II on traditional communities.

AASE identified risks and impacts in accordance with the requirements of PDAS 1 to 10 of the IDB's MPAS and the Standards established in IFAD's SECAP, confirming the negative and positive environmental and social impacts of the PROJECT. The ESMP (Environmental, Social and Climate Management Plan) includes measures to prevent impacts from materializing.

The AASE and PGASE are used to identify the possible key social and environmental risks and impacts of the PROJECT and the effective measures to be adopted to manage them.

The purpose of this Environmental and Social Management System (ESMS) is to present the structure and instruments for environmental and social management and to propose Action Plans for the PROJECT. The proposed PROJECT must present mechanisms that guarantee adequate management in order to meet the requirements defined in the PDAS1 of the IDB's MPAS. This ESMS is directly related to the Impact Mitigation and Control Programs defined in the Strategic Environmental and Social Management Plan

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<sup>1</sup> Or *Framework Approach* (IDB - ESPF, 2020)

(PGASE), guaranteeing their execution and compliance, as well as the monitoring and continuous improvement of processes.

In the PROJECT's Environmental and Social Management System, a framework of rules and instructions has been established involving socio-environmental management and control, worker protection, proper communication and control of complaints received. Team training and the clear definition of responsibilities are also addressed.

Subsequently, a set of practical procedures is drawn up, with simple routines and organization of documentation to comply with the framework of standards and instructions.

It is important to note that it will be up to the PMU, with the support of the contracted sub-executing agency, to control the documentation received and to pay attention to the instructions and standards that make up this ESMS, always considering the possible need for its revision and adaptation to national and international legislation and best practices.

## **2. PROJECT-SPECIFIC ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)**

The Environmental and Social Management Framework is structured in such a way as to meet all the environmental and social demands identified, covering the care and control, prevention and correction measures, and socio-environmental monitoring relating to the mitigation and/or compensation of adverse or negative environmental impacts, as well as the enhancement of positive impacts (care and measures aimed at guaranteeing and amplifying the beneficial impacts caused by the project) diagnosed within the scope of the socio-environmental studies on the interventions planned for **PROCASE II**.

Programs with different components or when it involves the financing of sub-projects through International Financial Institutions (IFIs), or institutions or agencies acting as intermediaries, it is necessary to position the Environmental and Social Management System (ESMS) at a sufficiently high level in the organizational structure so that the borrower can establish the depth and breadth of supervision necessary for the effective management of environmental and social risks and impacts. In addition, it may be necessary to delegate certain aspects of the ESMS, which will require appropriate management oversight from the borrower. When PROJECTS consist of several works or multiple sub-projects, the ESMS can be consolidated with an Environmental and Social Management Framework.

Thus, the ESMF was prepared in accordance with the IDB's Environmental and Social Policy Framework - MPAS and its respective Environmental and Social Performance Standards - PDAS 1 to 10, as well as IFAD's Social, Environmental and Climate Assessment Procedures - SECAP and its respective Environmental, Social and Climate Standards. for the works or sub-projects that have not yet been defined by PROCASE II. These Frameworks and Procedures established by the IDB and IFAD are a guiding framework for the systematic management of the PROJECT's environmental and social performance throughout its life cycle. The identification of gaps in relation to the requirements of the IDB's MPAS and IFAD's SECAP made throughout the environmental and social assessments served as input for the definition of the socio-environmental action plan in which the necessary actions are set out in the PGASE's Environmental and Social Programs, allowing the PROJECT to comply with the Environmental and Social Performance Standards and Norms established within an adequate period of time.

Details of the content and guidelines set out in this item are available for review in the relevant PGASE document.

### 3. APPLICABLE STANDARDS AND LEGAL FRAMEWORK

The following are the rules and regulations applicable to the study area and related to the types of work and investments envisaged in the PROJECT, including the federal and state rules and regulations that affect the actions envisaged. It also presents the international environmental and social agreements and conventions applicable to the sub-projects/works. The assessment of the legal framework covers the environmental licensing system, land and natural resource use and ownership permits, workers' rights, health and safety, cultural heritage, landscape, social protection, and security, among others.

To elucidate the work of the entities responsible for the main regulations, a description is given of these institutions, considering their involvement with PROCASE II sub-projects.

Following on from the sub-items presented, the IDB's MPAS and IFAD's SECAP are presented, highlighting the Environmental and Social Performance Standards - PDAS and Norms triggered for the sub-projects assessed in the preparation of the PROJECT, including a comparative table and gap analysis with recommendations to be followed by the PMU in order to generate adherence with the requirements envisaged.

#### 3.1. International agreements

The main environmental agreements ratified by Brazil are presented below. Other agreements that complete the list are presented in Annex 11.1.

##### **United Nations Framework Convention on Climate Change - UNFCCC**

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The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty resulting from the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992 (ECO-92).

This treaty aims to stabilize the concentration of greenhouse gases (GHG) in the atmosphere at levels that prevent dangerous interference with the climate system.

The treaty did not initially set mandatory limits for GHG emissions and contained no coercive provisions. Instead, the Treaty included provisions for updates (called "protocols"), which were supposed to create mandatory emission limits. The main one is the Kyoto Protocol.

Due to the fact that GHGs remain in the atmosphere for many decades after they are emitted, it is not possible to halt or reverse climate change and, for this reason, the measures to be taken are mitigating, in the sense of reducing the impact of such changes, and adapting, in the sense of creating mechanisms to adapt to the changes that will occur.

The member countries of the Convention meet periodically in meetings called the Conference of the Parties.

The first Conference of the Parties (COP 1) took place in Berlin in 1995 and saw the signing of the Berlin Mandate, in which the Annex I countries (industrialized countries) made greater commitments to stabilizing the concentration of GHGs, through policies and measures or quantitative emission reduction targets.

In 1997, the Kyoto Protocol was approved in Kyoto, which followed the guidelines of the Berlin mandate and placed greater emphasis on quantitative targets as a way of minimizing the costs of mitigation in each country. To this end, mechanisms such as the

Clean Development Mechanism (CDM) were also established, which enables both the reduction of emissions in industrialized countries and the transfer of resources from industrialized countries to developing countries.

In mid-2001, discussions resumed at COP 6 in Bonn, which became known as COP 6 BIS. At this meeting, the Bonn Agreement was established, in which concessions were made to guarantee the permanence of countries such as Japan and the Russian Federation, which was necessary for the Protocol to enter into force. This agreement also allowed for different interpretations of issues such as LULUCF (*Land use, Land use change and Forestry*), by countries that started to review their positions when the USA left, and the concessions made to other countries.

At the end of 2001, COP 7 was held in Marrakech and the Marrakech Accord was reached, which included the political aspects of the Bonn Agreement and the environmental aspects of the Kyoto Protocol. This agreement defines the operational rules for LULUCF, flexibility mechanisms, definition of the national emissions inventory system, additional information derived from the Kyoto Protocol and the process for reviewing national communications. It was necessary for the countries of the European Union and the G77 and China to give way to the countries of the *Umbrella Group* (Japan, Australia, Canada, and the Russian Federation). Even if the reductions provided for in the Kyoto Protocol are achieved, they will not be enough to significantly reduce man's interference in the climate system. COP 7 also saw the creation of the CDM Executive Committee and the drafting of a declaration emphasizing the relationship between sustainable development and climate change, defining poverty eradication and development as priorities for developing countries.

COP 17 was held in 2011 in Durban, South Africa. During this meeting, a legally binding agreement was reached, integrating all the participating countries, which will be prepared by 2015 and will enter into force in 2020.

COP 18 was held between November 26 and December 7, 2012, in Doha, Qatar. Its main objective was to reach an agreement on the emission targets of Annex I countries. At the same time, the Doha Amendment was approved, which extended the validity of the Kyoto Protocol until 2020. Canada, Japan, and New Zealand chose not to sign the amendment, joining the United States as countries that have not ratified the Protocol.

COP 19 took place in 2013 in Warsaw, Poland, with the aim of defining several important aspects, but it was a tumultuous and controversial meeting, and progress was only made in the negotiations on payment for reduced emissions from deforestation and forest degradation (REDD+), reaching a commitment to raise 280 million dollars for funding. It was also established that countries should set voluntary emission targets by 2015.

COP 20 took place between December 1 and 14, 2014 in Lima, Peru, with the aim of defining the text of the agreement that would replace the Kyoto Protocol, to be sealed in Paris in 2015. A first draft, entitled the Lima Call to Action on Climate, was approved, but the resolutions were modest and most of the important decisions were postponed.

COP 21, held in Paris between November 30, 2015, and December 12, 2015, fulfilled its main objective of approving the Paris Agreement, which established that global warming should be contained below 2 °C, preferably 1.5 °C. However, although widely praised as an important step forward, the Agreement was also heavily criticized for being unambitious, leaving it up to the countries to decide what their emission targets would be, for not being very clear about the means of financing, for not redefining mitigation and adaptation mechanisms that have already proved to be inefficient, and for not penalizing non-compliance with the targets, which brings a risk in the event that the voluntary targets set are not met and warming is not contained at the desired level.



COP 22 was held in Marrakech in 2016 and managed to set some important measures, especially in terms of starting to define the rules for the practical implementation of the Paris Agreement. In addition, countries pledged to donate 80 million dollars to the Adaptation Fund; announced more than 23 million dollars for the *Climate Technology Center and Network*, aimed at supporting technology transfer to developing countries, and the Green Climate Fund announced the approval of the first proposals for formulating National Adaptation Plans. A series of other initiatives have been launched in parallel by individual countries or groups of countries to increase the efficiency and transparency of mitigation and adaptation plans, expand funding, promote sustainable development, and focus on the special needs of vulnerable countries and indigenous communities.

COP 23 took place in Bonn, Germany, from November 6 to 18, 2017. The difficulties in implementing the Paris Agreement were discussed and preparations were made for the Talanoa Dialogue, which should facilitate the expansion of countries' voluntary emission targets. National and group projects offered specific improvements in various aspects of the fight against global warming.

COP 24 was held in Katowice, Poland, in December 2018. The main goal was to define the practical rules for implementing the Paris Agreement, which were approved, especially the mechanism for measuring national emissions and integrating them into an international system, but the results were hampered by the opposition of a group of countries, including Saudi Arabia, the United States, Russia and Kuwait, to the official recognition of the conclusions of the IPCC special report on warming of 1.5 °C. In the end, the rules set were limited to inviting countries to make use of the report, did not make much progress on the means of financing and did not oblige countries to increase their emission targets. On the other hand, the World Bank announced the allocation of 200 billion dollars to tackle the climate challenge.

COP 25 was due to take place in Brazil in November 2019, but the Brazilian government announced that it would not be hosting the event. The possibility of holding it in Chile was then mooted, but - due to various social demonstrations that were taking place during this period - an agreement was reached for COP 25 to be held in Madrid, Spain. One of the most important issues of the event was related to the regulation of the carbon credit market, which ended without an agreement.

COP 26 was supposed to take place in 2020 - however, due to the Covid-19 pandemic scenario, the event ended up taking place in November 2021 in Glasgow, Scotland. This Conference also included the 15th meeting of the parties to the Kyoto Protocol (CMP16) and the 2nd meeting of the parties to the Paris Agreement (CMA3). COP 26 ended with the signing of the Glasgow Pact, which aims to ensure that the increase in global temperatures does not exceed 1.5 °C. The Pact also recognizes that it will be necessary to reduce global carbon emissions by 45% by 2030 compared to the 2010 level and to achieve net zero emissions (an emission equivalent to what is removed from the atmosphere, leading to a total of zero emissions) by the middle of the century, as well as significant reductions in other greenhouse gases. Countries were encouraged to act more transparently on their climate commitments and to accelerate the transition to low-carbon energies. What was considered one of the biggest victories of the negotiations to be included in the Glasgow Pact was the approval of the Paris Article 6 rules, which deal with the international carbon market.

COP 27 took place in 2022 in Egypt, when world leaders discussed the practical rules of the Climate Convention, a global agreement to combat climate change. The main outcome was the creation of a fund to help the poorest countries cope with natural disasters caused by global warming.

COP28 was held from November 30 to December 12 at Expo City in Dubai, United Arab Emirates. COP28 began with the announcement of a concrete result, with the opening session officially approving the Loss and Damage Fund, the creation of which dates back to last year's COP27 negotiations. Immediately after the announcement, the United Arab Emirates, Germany, and Japan presented their first contributions to the fund, which will initially be administered by the World Bank and designed to address the challenges of countries highly vulnerable to climate effects. By the end of the COP, pledges had already amounted to US\$ 800 million. It was also decided that the venue for COP 29, to be held in 2024, will be Baku, the capital of Azerbaijan. A novelty emerging from the COP processes is the launch of a *troika*, which will be made up of the presidents of COP 28, COP 29, and COP 30. Thus, the United Arab Emirates, Azerbaijan and Brazil must lead the efforts to raise the parties' climate ambitions and safeguard the goal of limiting the global temperature increase to 1.5° C.

Another great expectation surrounding COP28 was the completion of the first global *stock take* of the Paris Agreement, the *Global Stock take*. This is a huge inventory that aims to determine how far we are from achieving the goals of the agreement and based on the best available science, outline the next steps to prevent the window of opportunity for guaranteeing a safe climate future for people and the planet from closing. In this sense, the content of the global stocktaking should inform the process of updating the next round of Nationally Determined Contributions (NDCs) to be submitted by COP 30. The document pointed to the need to achieve net zero emissions globally by 2050 and to reduce global emissions by 43% by 2030 and 60% by 2035. It also highlighted the centrality of the means of implementation and of scaling up climate finance to ensure that global emissions are reduced at the pace required for a 1.5°C scenario. The document also highlights the growing importance of adaptation initiatives, which must be informed by local priorities and context.

### **Kyoto Protocol to the United Nations Framework Convention on Climate Change**

The Kyoto Protocol is a complementary treaty to the United Nations Framework Convention on Climate Change, setting emission reduction targets for developed countries and those that, at the time, had economies in transition to capitalism, considered to be historically responsible for the current climate change.

Created in 1997, the Protocol entered into force on February 16, 2005, shortly after meeting the conditions that required ratification by at least 55% of all member countries of the Convention and that were responsible for at least 55% of total emissions in 1990.

During the first commitment period, between 2008-2012, 37 industrialized countries and the European Community committed to reducing greenhouse gas (GHG) emissions by an average of 5% compared to 1990 levels. In the second commitment period, the Parties pledged to reduce GHG emissions by at least 18% below 1990 levels over the eight-year period 2013-2020. Each country negotiated its own emissions reduction target based on its view of its ability to achieve it in the period considered.

Brazil ratified the document on August 23, 2002, and it was approved by Legislative Decree No. 144 of 2002. Among the main emitters of greenhouse gases, only the United States has not ratified the Protocol. However, they continue to have responsibilities and obligations under the Convention.

### **Paris Agreement (2015)**

At the 21st Conference of the Parties (COP21) to the UNFCCC in Paris, a new agreement was adopted with the central aim of strengthening the global response to the

threat of climate change and reinforcing the capacity of countries to deal with the impacts resulting from these changes.

The Paris Agreement was approved by the 195 countries party to the UNFCCC to reduce greenhouse gas (GHG) emissions in the context of sustainable development. The commitment is to keep the global average temperature increase to well below 2°C above pre-industrial levels and to make efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Following approval by the National Congress, Brazil completed the ratification process of the Paris Agreement on September 12, 2016. On September 21, the instrument was delivered to the United Nations. With that, Brazil's goals ceased to be aspirational and became official commitments. Now, therefore, the acronym has lost the letter "i" (from the English, *intended*) and is now just called NDC.

Brazil's NDC committed it to reducing greenhouse gas emissions by 37% below 2005 levels by 2025, with a subsequent indicative contribution of reducing greenhouse gas emissions by 43% below 2005 levels by 2030. To this end, the country has committed to increasing the share of sustainable bioenergy in its energy matrix to approximately 18% by 2030, restoring and reforesting 12 million hectares of forests, as well as achieving an estimated 45% share of renewable energies in the composition of the energy matrix by 2030.

### **Escazú Agreement**

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This is a Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean, signed by the UN in Escazú (Costa Rica) in 2018.

The Escazú Agreement is a regional treaty signed by 24 Latin American and Caribbean nations on the rights of access to environmental information, public participation in environmental decision-making, environmental justice, and a healthy and sustainable environment for current and future generations.

The Escazú Agreement strengthens the links between human rights and environmental protection by imposing requirements on member states in relation to the rights of environmental defenders. In addition, it aims to provide full public access to environmental information, environmental decision-making and legal protection and remedies relating to environmental issues. It also recognizes the right of present and future generations to a healthy environment and sustainable development.

### **ILO Convention concerning Indigenous and Tribal Peoples in Independent Countries No. 169**

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The Convention on Indigenous and Tribal Peoples, which recognizes, along with indigenous peoples, other groups whose social, economic, and cultural conditions distinguish them from other sectors of the national community, establishing specific rights for them.

### **Stockholm Convention**

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The Stockholm Convention on Persistent Organic Pollutants is an international treaty signed in 2001 in Stockholm, Sweden and was sponsored by the United Nations Environment Program. It was designed to globally eliminate the production and use of some human-caused toxic substances.

The Stockholm Convention was signed by 152 countries and currently 34 countries have not ratified it. The ratification of 50 countries is required for the Convention to enter into force 90 days later and for policies to begin to be implemented to eliminate these compounds.

The list of participating signatory countries and their ratification status can be found on the Stockholm Convention's official website.

It had the express aim of becoming an international foundation for the protection of human health and the environment from the harmful effects of persistent organic pollutants (POPs). This convention was the result of long years of negotiation to obtain legally binding commitments from the various countries for the immediate elimination of all persistent organic compounds.

The Convention stipulates that action must be taken as a matter of priority on a dozen compounds, including internationally produced chemicals such as pesticides, biphenyl polychlorides (PCBs), dioxins and furans.

Persistent Organic Pollutants - POPs are chemical substances that have been used as agrochemicals, for industrial purposes or released unintentionally in anthropogenic activities, and which have characteristics of high persistence (they are not easily degraded), are capable of being transported over long distances by air, water and soil, and accumulate in fatty tissues of living organisms, making them toxicologically worrying for human health and the environment.

Aware that POPs represent major and growing threats to human health and the environment, in May 1995 the UNEP Council requested in its decision 18/32 that an international process be carried out to evaluate an initial list of 12 POPs, and that the Intergovernmental Forum on Chemical Safety (IFCS/FISQ) draw up recommendations for international action on these pollutants, for consideration by the UNEP Governing Council and the World Health Assembly by 1997.

From then on, an international negotiation process began to conclude the Stockholm Convention, which was adopted in 2001 and entered into force in 2004, after 50 countries ratified it.

Brazil approved the text of the Convention through Legislative Decree No. 204 of May 7, 2004, and promulgated the text of the Convention in 2005 through Decree No. 5,472 of June 20, 2005.

The Secretariat of Water Resources and Environmental Quality of the Ministry of the Environment acts as the Technical Focal Point of the Convention, together with the Environmental Policy and Sustainable Development Division of the Ministry of Foreign Affairs, which acts as the Official Focal Point.

### **Commitments made**

The Stockholm Convention stipulates that countries parties adopt control measures related to all stages of the life cycle - production, import, export, use and final disposal - of the POPs substances listed in its Annexes. Annex D of the Convention sets out the criteria for a substance to be classified as a POP.

The Convention aims to eliminate and/or restrict POPs, their stockpiles, and residues, reduce the release of their unintentional emissions into the environment, and identify and manage areas contaminated by these substances.

In a preventive stance, the treaty requires governments to promote the best technologies and practices in their technological field and to prevent the development of new POPs. Going further, it sets as its ultimate goal the total elimination of POPs. The Convention

presents innovative and objective options for action to properly manage these substances.

Initially, 12 POPs were listed in the Convention, a number that was expanded in 2009 following a decision by the 4th Conference of the Parties to include 9 more substances, and then in 2011 with the inclusion of Endosulfam. Hexabromocyclododecane was added at COP 6 in May 2013. At COP 7, in May 2015, Hexachlorobutadiene, Pentachlorophenol, its salts and esters and Polychlorinated Naphthalenes were included. In 2017, during COP 8, Decabromodiphenyl Ether and Short Chain Chlorinated Paraffins were listed as POPs.

POPs are listed in three annexes to the Convention, which differ in the specific treatment they receive:

- Annex A - SOPs to be eliminated;
- Annex B - SOPs with restricted uses (but with the prospect of being eliminated);
- Annex C - SOPs produced unintentionally.

### **List of POPs Substances:**

#### **Annex A:**

Pesticides: Aldrin, Dieldrin, Endrin, Chlordane, Chlordecone, Heptachlor, Hexachlorobenzene (HCB), Alpha hexachlorocyclohexane (alpha HCH), Beta hexachlorocyclohexane (beta HCH), Lindane, Mirex (dodecachlor), Pentachlorobenzene (PeCB), Endosulfam, Toxaphene, Pentachlorophenol and its salts and esters.

Chemicals for industrial use: Polychlorinated Biphenyls (PCBs), Hexabromobiphenyl (HBB), Hexabromodiphenyl Ether and Heptabromodiphenyl Ether (C OctaBDE), Hexachlorobenzene (HCB), Tetrabromodiphenyl Ether and Pentabromodiphenyl Ether (C PentaBDE), Hexabromocyclododecane (HBCD), Hexachlorobutadiene (HCB), Polychlorinated Naphthalenes, Decabromodiphenyl Ether (C DecaBDE) and Short Chain Chlorinated Paraffins (SCCP).

#### **Annex B:**

Pesticide: DDT.

Chemicals for industrial use: Perfluorooctane Sulphonic Acid (PFOS), its salts and Perfluorooctane Sulphonyl Fluoride (PFOSF).

#### **Annex C:**

Polychlorinated Dibenzop-Dioxins and Dibenzofurans (PCDD/PCDF), Hexachlorobenzene (HCB), Polychlorinated Biphenyls (PCBs), Pentachlorobenzene (PeCB), Hexachlorobutadiene (HCB) and Polychlorinated Naphthalenes.

Article 7 of the Convention stipulates that countries must draw up National Implementation Plans for the Stockholm Convention (NIP), identifying priorities, deadlines, and strategies for complying with the treaty's obligations.

It is therefore a binding instrument, which includes substances that are highly toxic and harmful to humans and the environment and is of great interest to and monitored by industry and civil society.

## **Ramsar Convention**

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The Convention on Wetlands of International Importance Especially as Waterfowl Habitat, also known as the Ramsar Convention because it was signed in the Iranian city of Ramsar on February 2, 1971, is an international treaty that came into force in 1975.

It is considered the first intergovernmental treaty to provide a structural basis for international cooperation and national action for the conservation and sustainable use of natural resources, specifically wetlands and their resources.

By ratifying the convention, the governments of the countries, Contracting Parties to the Convention, designate a site to be included on the List of Wetlands of International Importance and commit to working towards the sustainable use of their wetlands through territorial planning, policy development and publication of legislation, management actions and education of their populations. They also undertake to designate additional sites for the List of Wetlands of International Importance and to ensure their proper and effective management, and to cooperate internationally on transboundary wetlands, shared wetland systems, common species and development projects that may affect wetlands.

When a Ramsar site has lost, or is under threat of losing, its ecological characteristics, the respective Contracting Party can register it in the Montreux Record, a list of priority sites to be conserved and which can be the target of the application of a support and technical advice mechanism provided for in the convention.

Established in February 1971 in the Iranian city of Ramsar, the Convention on Wetlands of International Importance, better known as the Ramsar Convention, has been in force since December 21, 1975. It was fully incorporated into Brazil's legal framework in 1996, by the enactment of Decree No. 1.905/96.

The Convention is an intergovernmental treaty initially created to protect aquatic habitats important for the conservation of migratory birds, which is why it was called the "Convention on Wetlands of International Importance, especially as Waterfowl Habitat". However, over time, it has expanded its concern to other wetlands in order to promote their conservation and sustainable use, as well as the well-being of the human populations that depend on them.

Ramsar establishes frameworks for national actions and cooperation between countries with the aim of promoting the conservation and rational use of wetlands around the world. These actions are based on the recognition by the signatory countries of the Convention of the ecological importance and the social, economic, cultural, scientific, and recreational value of such areas.

## **International Labor Organization**

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The ILO's principles and rights are governed by eight fundamental conventions covering: freedom of association, effective recognition of the right to collective bargaining, elimination of all forms of forced or compulsory labor, effective elimination of child labor and elimination of discrimination in respect of employment and occupation. Among the conventions, those ratified by Brazil are listed below, seven in total.

- ILO Convention 29 (Forced Labor);
- ILO Convention 98 (Right to Organize and Collective Bargaining);
- ILO Convention 100 (Equivalent pay for male and female workers for equivalent work);
- ILO Convention 105 (Abolition of Forced Labor);

- ILO Convention 111 (Discrimination - Employment and Occupation);
- ILO Convention 138 (Minimum Age for Admission to Employment);
- ILO Convention 169 (Indigenous and Tribal Peoples);
- ILO Convention 182 (Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labor).

### **Montreal Protocol and Kigali Agreement**

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The Montreal Protocol is an international treaty that aims to protect the ozone layer by eliminating the production and consumption of the substances responsible for its destruction (ODS). The agreement is a consequence of the Vienna Convention for the Protection of the Ozone Layer; Brazil is one of the signatory countries.

The Vienna Convention and the Montreal Protocol were promulgated by Decree No. 99.280/90.

The adoption of the measures determined by the Protocol as public policy has made it possible to achieve positive results for the agenda in the country and in the world, with the combined efforts of the treaty's signatory nations.

#### **Control actions**

As there is no production of SDO in Brazil, the control actions take place in the import process, in trade and in the use of the substance. IBAMA is the federal institution responsible for this control; for ensuring that the country complies with its part of the treaty.

#### **Reduction of hydrochlorofluorocarbons (HCFCs)**

Decision XIX/6 of the Montreal Protocol<sup>2</sup> established a timetable for reducing HCFC consumption in Brazil in 2007. This plan has three stages and, by the year 2021, has already succeeded in reducing HCFC consumption by 51.6% compared to the base year (2013). It is estimated that the reduction will reach 100% by 2040.

#### **Control of hydrofluorocarbons (HFCs)**

Signed in 2016 during a meeting in the capital of Rwanda (hence its name), the Kigali Amendment includes hydrofluorocarbons (HFCs) in the Montreal Protocol. HFCs are powerful greenhouse gases that heat the planet up to 12,000 times more than CO<sub>2</sub>. The main aim of the Kigali Amendment is to reduce the production and consumption of HFCs, which are used in equipment such as air conditioners and refrigerators. In addition to the climate benefits, ratification of the Amendment will allow Brazilian industry to access 100 million dollars in non-refundable UN funding to upgrade production lines and increase efficiency and competitiveness.

Brazil took part in the 34th Meeting of the Parties as one of the 140 countries to ratify the Kigali Amendment. This amendment is an agreement that provides for a staggered reduction in the consumption of hydrofluorocarbons (HFCs) by 2045. By complying with this agreement, the expectation is that there will be a decrease of up to 0.4°C in global temperature.

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<sup>2</sup> Available at: <https://www.gov.br/ibama/pt-br/assuntos/emissoes-e-residuos/emissoes/protocolo-de-montreal#reducao-HCFCs> Published: 29/11/2022 10h31

Although HCFs do not have the potential to destroy the ozone layer, they do have a high global warming potential.

With the ratification of the Kigali Amendment, the country undertakes to freeze the baseline consumption of HFCs in 2024 and reduce consumption by 10% by 2029.

In addition to the climate benefits, the ratification of this amendment will give Brazilian industry access to international resources to update production lines and increase efficiency and national competitiveness.

Brazil's ratification of the Kigali Amendment took place on October 19, 2022, after approval by the Federal Senate and respective delivery of the documents to the United Nations.

### 3.2. Federal legislation

**The Constitution of the Federative Republic of Brazil**, promulgated in 1988, broke new ground in dealing with environmental issues by dedicating Chapter VI - The Environment (Title VIII - Social Order) to the subject, which in Art. 225 states: "Everyone has the right to an ecologically balanced environment, a good for the common use of the people and essential to a healthy quality of life, imposing on the public authorities and the community the duty to defend and preserve it for present and future generations".

The main federal laws affecting the Project are presented below. In Annex 11.2, other complementary laws are presented.

#### **Environment**

- Law No. 6.938, of August 31, 1981, which establishes the National Environmental Policy, its purposes and mechanisms for formulation and application, constituting the National Environmental System (SISNAMA). It states that this policy: aims to preserve, improve, and restore environmental quality that is conducive to life, with a view to ensuring conditions for socio-economic development in the country, the interests of national security and the protection of the dignity of human life.
- Law No. 7.347, of July 24, 1985 (amended by Laws No. 8.078, of 09/11/1990 and No. 8.884, of 06/11/1994, No. 9.494, of 09/10/1997 and No. 10.257, of 07/10/2001 and by Provisional Measure No. 2.180-35, of 08/27/2001), which regulates public civil action for liability for damage caused to the environment, to consumers, to goods and rights of artistic, aesthetic, historical, tourist and landscape value.
- Federal Law No. 7.735, of February 22, 1989, which provides for the extinction of agencies and autarchic entities, creates the Brazilian Institute of the Environment and Renewable Natural Resources, and makes other provisions.
- Federal Law No. 7.797, of July 10, 1989, which creates the National Environmental Fund and makes other provisions.
- Federal Law No. 9.605, of February 12, 1998 (amended by Law No. 9.985, of July 18, 2000, and by Provisional Measure No. 2.163-41, of August 23, 2001), which provides for criminal and administrative sanctions arising from conduct and activities harmful to the environment (Environmental Crimes Law).
- Federal Decree No. 2.519, of March 16, 1998, promulgating the Convention on Biological Diversity, signed in Rio de Janeiro on June 5, 1992.
- Federal Law No. 9.795, of April 27, 1999, which provides for environmental education and establishes the National Environmental Education Policy.



- Federal Decree No. 3.179, of September 21, 1999, which specifies the sanctions applicable to conduct and activities harmful to the environment (environmental administrative infractions).
- Federal Decree No. 4.339, of August 22, 2002, which establishes principles and guidelines for the implementation of the National Biodiversity Policy.
- Federal Law No. 10.650, of April 16, 2003, which provides for public access to data and information held by the agencies and entities that make up SISNAMA.
- Federal Decree No. 855, of January 30, 2004, which amends Decrees No. 5.741 and 5.742, dated December 19, 2002, which regulate, respectively, the Technical Register of Potentially Polluting Activities or Users of Environmental Resources and the Technical Register of Environmental Defense Activities.
- Federal Decree No. 5.877, of August 17, 2006, which gives new wording to Article 4 of Decree No. 3.524, of June 26, 2000, which regulates Law No. 7.797, of July 10, 1989, which creates the National Environment Fund.
- IBAMA Normative Instruction No. 154, of March 1, 2007, which establishes the Biodiversity Authorization and Information System (SISBIO) and provides for licenses, collection, and capture of species of fauna and flora and access to genetic heritage.
- Federal Law No. 11.516, of August 28, 2007, which provides for the creation of the Chico Mendes Institute for Biodiversity Conservation - Instituto Chico Mendes.
- Federal Decree No. 6.514, of July 22, 2008, which provides for environmental infractions and administrative sanctions, and establishes the federal administrative process for investigating these infractions.
- Complementary Law No. 140, of December 8, 2011, which establishes rules, under the terms of items III, VI and VII of the caput and sole paragraph of art. 23 of the Federal Constitution, for cooperation between the Union, the States, the Federal District and the Municipalities in administrative actions arising from the exercise of common competence related to the protection of notable natural landscapes, the protection of the environment, the fight against pollution in any of its forms and the preservation of forests, fauna and flora; and amends Law No. 6.938, of August 31, 1981.
- ICMBio Normative Instruction 06, of July 25, 2019 - provides for the prevention of introductions and the control or eradication of exotic or invasive species in federal Conservation Units and their buffer zones.

### **Basic Sanitation**

- Federal Law No. 11.445, of January 5, 2007, which establishes national guidelines for basic sanitation; amends Laws No. 6.766, of December 19, 1979, No. 8.036, of May 11, 1990, No. 8.666, of June 21, 1993, No. 8.987, of February 13, 1995; and repeals Law No. 6.528, of May 11, 1978.

### **Water Quality**

- Federal Decree No. 79.367, of March 9, 1977, which lays down rules and standards for the potability of water.
- Federal Law No. 9.966, of April 28, 2000, which provides for the prevention, control and monitoring of pollution caused by the discharge of oil and other harmful or dangerous substances into waters under national jurisdiction.

- CONAMA Resolution No. 274, of November 29, 2000, which revises the criteria for bathing in Brazilian waters.
- Federal Decree No. 4.136, of February 20, 2002, which specifies the sanctions applicable to violations of the rules for the prevention, control and monitoring of pollution caused by the discharge of oil and other harmful or dangerous substances into waters under national jurisdiction.
- Federal Decree No. 4.871, of November 6, 2003, which provides for the establishment of Area Plans to combat oil pollution in waters under national jurisdiction.
- CONAMA Resolution No. 357, of March 17, 2005, which provides for the classification of bodies of water and environmental guidelines for their classification, as well as establishing the conditions and standards for discharging effluents.
- CONAMA Resolution No. 397, of April 3, 2008, which amends item II of § 4 and Table X of § 5, both of art. 34 of National Environmental Council Resolution - CONAMA No. 357, of 2005, which provides for the classification of bodies of water and environmental guidelines for their classification, as well as establishing the conditions and standards for discharging effluents.
- CONAMA Resolution No. 430, of May 13, 2011, which supplements and amends Resolution No. 357/2005. Provides for the conditions and standards for effluent discharge, complements and amends Resolution No. 357, of March 17, 2005, of the National Environmental Council (CONAMA).
- Ordinance MS No. 2.914 of December 12, 2011, of the Ministry of Health, which provides for the control and surveillance procedures of the quality of water for human consumption and its potability standard.
- CONAMA Resolution No. 454 of November 1, 2012, establishes the general guidelines and reference procedures for the management of material to be dredged in waters under national jurisdiction.

### **Historical and Cultural Heritage**

- Federal Law No. 3.924, of July 26, 1961, which provides for archaeological and prehistoric monuments of any nature existing in national territory and all the elements found therein, in accordance with the provisions of Article 175 of the Federal Constitution.
- IPHAN Ordinance No. 07, of December 1, 1988, which regulates requests for permission and authorization and prior communication when carrying out field research and archaeological excavations in the country, in order to protect objects of scientific and cultural value present at the sites of such research, as provided for in Law No. 3,924, of July 26, 1961. It lists the information that must accompany requests for permission and authorization, as well as prior communication, to be sent to the Secretary of the National Historical and Artistic Heritage Institute - IPHAN. It also lists the information that must accompany the reports to be sent to IPHAN.
- Federal Decree No. 3.551, of August 4, 2000, which establishes the Register of Intangible Cultural Goods that constitute Brazilian cultural heritage and creates the National Intangible Heritage Program.
- IPHAN Ordinance No. 230, of December 17, 2002, which makes preventive archaeological studies compatible with the environmental licensing phases of projects potentially capable of affecting archaeological heritage, as well as defining

the procedures to be adopted in each of the environmental licensing phases. In the phase of obtaining the Preliminary License (EIA/RIMA): Exhaustive survey of secondary archaeological data and archaeological field survey. The assessment of impacts will be based on the diagnosis made, the analysis of thematic environmental maps (geology, geomorphology, hydrography, slope and vegetation) and the technical particularities of the work. The Prospecting and Rescue programs will be drawn up based on the diagnosis and assessment of impacts. At the stage of obtaining the Installation License (LI): Prospecting Program: intensive prospecting in the environmental compartments with the greatest archaeological potential, in the area of direct influence of the project and in the places that will suffer indirect impacts potentially damaging to the archaeological heritage. In the phase of obtaining the Operating License (LO): Execution of the Archaeological Rescue Program proposed in the EIA and detailed in the Prospecting Program (LI). A report should be prepared detailing the activities carried out in the field and in the laboratory, as well as the results obtained from the efforts made in terms of producing knowledge about the archaeology of the study area, so that the physical loss of archaeological sites can be effectively offset by the incorporation of the knowledge produced into the National Memory.

- IPHAN Ordinance No. 28 of January 31, 2003, which stipulates that the reservoirs of hydroelectric projects of any size or dimension within the national territory must henceforth, when applying for the renewal of the environmental operating license, provide for the execution of archaeological survey, prospection, rescue, and salvage projects in the depletion strip.

### **Occupational Safety and Medicine**

- Law No. 6.514, of December 21, 1977, which amends Chapter V of Title II of the Consolidation of Labor Laws, relating to occupational safety and medicine, and makes other provisions.
- MTB Ordinance No. 3.214, June 8, 1978, which approves the Regulatory Norms - NR - of Chapter V, Title II, of the Consolidation of Labor Laws, relating to Occupational Safety and Medicine.
- Federal Law No. 8.080, of September 19, 1990, which provides for the conditions for the promotion, protection and recovery of health, the organization and operation of the corresponding services and makes other provisions.

### **Rural Environmental Regularization**

The Forest Code (Federal Law No. 12.651/2012) creates the Rural Environmental Registry - CAR and its system (SICAR). The CAR is a compulsory electronic register for all rural properties, which assists in the control, monitoring and environmental planning of these properties, under the terms of Article 29 of the aforementioned Code. The CAR was regulated by Decree No. 7,830/2012, which created the Rural Environmental Registration System (SICAR), and by the Normative Instruction of the Ministry of the Environment - MMA No. 02/2014.

Registration is the responsibility of the owner or the state land authority or INCRA in the case of land regularization of public land owned by the state or the federal government, respectively. Once they have registered with the CAR, owners and/or possessors of rural properties with environmental liabilities related to the irregular suppression of remnants of native vegetation, which occurred up until July 22, 2008, in Permanent Preservation Areas (APP), Legal Reserves (RL) and Restricted Use Areas (AUR), may apply to join

the Environmental Regularization Programs (PRA) of the states and the Federal District, in order to proceed with the environmental regularization of their rural properties.

APPs are protected areas, whether or not they are covered by native vegetation, with the environmental function of preserving water resources, the landscape, geological stability, and biodiversity, facilitating the gene flow of fauna and flora, protecting the soil, and ensuring the well-being of human populations.

For rural properties with an area greater than four Fiscal Modules - MF, which have an area with environmental liabilities in APP along natural watercourses, it is mandatory to restore the marginal strips: i) 20 meters, counted from the edge of the channel of the regular bed, for properties with an area between 4 and 10 MF, in watercourses up to 10 meters wide; and ii) in other cases, an extension corresponding to half the width of the watercourse, observing a minimum of 30 and a maximum of 100 meters, counted from the edge of the channel of the regular bed, regardless of the width of the river.

### **Natural Disasters and Climate Change**

Law No. 12.187 of December 29, 2009, institutes the National Policy on Climate Change - PNMC and establishes its principles, objectives, guidelines, and instruments. The PNMC aims, among other things: to make economic and social development compatible with the protection of the climate system; the reduction of anthropogenic GHG emissions, the implementation of measures to promote adaptation to climate change and the conservation and recovery of environmental resources, including the expansion of protected areas and incentives for reforestation and the restoration of vegetation in degraded areas.

The law establishes guidelines in line with Brazil's commitments to the United Nations Convention on Climate Change and other agreements and documents on the subject to which the country is a signatory, and establishes as instruments the National Plan on Climate Change, the National Fund on Climate Change and the Action Plans for the prevention and control of deforestation in the biomes (regulated by Decree No. 10.142/2019).

Presidential Decree No. 7.513/2011 created CEMADEN - the National Center for Monitoring and Alerts of Natural Disasters - a research unit of the Ministry of Science, Technology, and Innovation - to consolidate the National Plan for Risk Management and Response to Natural Disasters (PNGRRD) and implement a system of early warnings of the probability of occurrence of natural disasters associated with natural phenomena.

Within the scope of the National Plan for Risk Management and Disaster Response, CEMADEN monitors 959 municipalities in all Brazilian regions. The Center issues periodic reports analyzing the various risks, at least monthly for drought risks and impacts on agriculture.

### **Pesticides**

Law No. 7.802, of July 11, 1989, governs research, experimentation, production, packaging and labeling, transport, storage, marketing, commercial advertising, use, import, export, the final destination of waste and packaging, registration, classification, control, inspection and inspection of pesticides, their components, and the like, and makes other provisions.

### **New Brazilian Forest Code**

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It is worth highlighting Law No. 12.651 of May 2012, referring to the new Forest Code, which provides for the protection of native vegetation; amends Laws Nos. 6.938, of

August 31, 1981, 9.393, of December 19, 1996, and 11.428, of December 22, 2006; repeals Laws Nos. 4.771, of September 15, 1965, and 7.754, of April 14, 1989, and Provisional Measure No. 2.166-67, of August 24, 2001; and makes other provisions.

The new Forest Code was approved on May 25, 2012, and brought changes in relation to the 1965 code on important points such as Permanent Preservation Areas (APP) and legal reserves.

### **Ecological and Economic Zoning**

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Federal Decree No. 4.297, of July 10, 2002, defines the EEZ as an environmental instrument whose main objective is to guide planning and decision-making on programs, projects and activities that use natural resources and promote sustainable development (harmonizing production, preservation and conservation), including the prevention of impacts and the implementation of actions to mitigate or correct any damage to the environment.

#### **3.3. State Legislation**

Legislation in the state of Paraíba offers a series of guidelines that can set restrictions, permissions or guidelines for human activities and environmental preservation. Among the laws, 4.335/1981 stands out, which provides for the preservation and control of pollution and establishes disciplinary standards. In turn, State Law 6.002/1994 establishes the state's Forest Code, which was regulated by State Decree 23.835/2002.

On more specific issues of the state's legal requirements, there are instruments aimed at measures to preserve and restore biomes, with special attention to the Caatinga. These pieces of legislation - established, for example, in State Law No. 8.387/2007; State Law No. 9.569/2011; State Law No. 9.645/2011; State Law No. 9.857/2012; State Decree No. 24.419/2006 - offer requirements for restricting the cutting of certain species, licensing characteristics and even the creation of state committees, but also qualify and exempt types of activities such as SAFs or traditional practices from the requirements, or simplify them.

You must also observe the guidelines set out in State Law 11.140/2018, which deals with the rights and welfare of animals, including guidelines on comfort, food, and zoonosis.

SUDEMA also establishes its Administrative Norms to offer more specific parameters on environmental licensing, particularly NAs 101, 115 and 118.

Below is a list of the most relevant state laws.

- State Law No. 4.335, of December 16, 1981 - Provides for the preservation and control of environmental pollution and establishes disciplinary norms;
- State Law No. 6.002, of December 29, 1994 - Establishes the Forest Code of the state of Paraíba;
- State Law No. 6.960, of February 6, 2001 - Provides for mandatory forest replacement and other measures;
- State Law No. 8.387, of November 14, 2007 - Provides for the Conservation and Management Policy of the Caatinga biome;
- State Law No. 9.569, of December 6, 2011 - Considers the Caatinga Biome to be a Heritage of the State of Paraíba;
- State Law No. 9.645, of December 29, 2011 - Creates the State Committee of the Caatinga Biosphere Reserve in the State of Paraíba - CERBCAAT-PB;

- State Law No. 9.857, of July 6, 2012 - Provides for the use and protection of vegetation in the Caatinga Biome and makes other provisions;
- State Law No. 10.146, of November 14, 2013 - Establishment of the Paraíba week to raise awareness of the Caatinga biome (week of April 28);
- State Law No. 11.140, of June 8, 2018 - Institution of the animal law and welfare code of the State of Paraíba;
- State Law No. 11.153, of July 2, 2018 - Amends the wording of the Sole Paragraph of Article 7 of Law No. 9.857/2012, which provides for the use and protection of vegetation in the Caatinga Biome, allowing the cutting of algaroba without the need for authorization;
- State Law No. 11.764, of August 26, 2020 - Provides for the establishment of Agrovilas in the State of Paraíba;
- State Decree No. 21.120, of June 20, 2000 - Regulates Law No. 4.335, of December 16, 1981, amended by Law No. 6.757, of July 8, 1999, which provides for the prevention and control of environmental pollution, establishes rules governing the species and makes other provisions;
- State Decree No. 23.835, of December 27, 2002 - Regulates the Forest Code in the State of Paraíba and makes other provisions;
- State Decree No. 24.414, of September 27, 2003 - Provides for forest exploitation in the state of Paraíba and makes other provisions;
- State Decree No. 24.415, of September 27, 2003 - Provides for the compulsory registration of individuals and legal entities that consume forest products and by-products with the Superintendence of Environmental Administration - SUDEMA and makes other provisions;
- State Decree No. 24.416, of September 27, 2003 - Provides for mandatory forest replacement in the state of Paraíba and other measures;
- State Decree No. 24.417/2003, of September 27, 2003 - Provides for Alternative Land Use and other measures;
- State Decree No. 24.419, of August 23, 2006 - Gives new wording to articles 1 and 5 of Decree 24.419, of September 27, 2003, on the use of controlled fire in the state of Paraíba;
- SUDEMA Administrative Standard NA 101 - Procedures and Specifics for Environmental Licensing based on the Legal System and Specific Regulations analogous to the matter;
- SUDEMA Administrative Standard NA 115 - Adopts guidelines for environmental licensing of agrarian reform settlement projects;
- SUDEMA Administrative Standard NA 118 - Procedures for licensing dryland activities;

### **3.4. IDB Environmental and Social Policy Framework**

The following are the Environmental and Social Performance Standards (ESPP) that make up the IDB's Environmental and Social Policy Framework.

## **PDAS 1: Assessment and Management of Environmental and Social Risks and Impacts**

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The Environmental and Social Performance Standard (ESPS) 1 highlights the importance of managing environmental and social performance throughout the life of a project. An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by the Borrower, and involves commitment between the Borrower, its workers, and project-affected people and, where appropriate, other stakeholders. Based on the elements of the established management process of "plan, do, check and act", the ESMS involves a methodological approach to managing environmental and social risks and impacts in a systematic and structured manner on an ongoing basis. A good ESMS appropriate to the nature and scale of the project promotes sound and sustainable environmental and social performance and can lead to better financial, social, and environmental results.

Objectives:

- Identify and assess the project's environmental and social risks and impacts.
- Adopt a mitigation hierarchy and a precautionary approach to anticipate
- and avoid adverse impacts on workers, communities, and the environment, or where avoidance is not possible, minimize and, where residual impacts remain, compensate for risks, and impacts as appropriate.
- Promote better environmental and social performance of Borrowers through the effective use of management systems.
- Ensure that complaints from people affected by the project and external communications from other interested parties are answered and managed appropriately.
- Promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and ensure that relevant environmental and social information is disclosed and disseminated.

## **PDAS 2: Labor and Working Conditions**

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The Environmental and Social Performance Standard (ESPRS) 2 recognizes that the pursuit of economic growth through job creation and income generation must go hand in hand with the protection of workers' fundamental rights. The workforce is a valuable asset, and a good worker-employer relationship is a key ingredient in the sustainability of any enterprise. Failure to establish and foster a solid employee-management relationship can undermine employee engagement and retention and can put a project at risk. On the other hand, through a constructive worker-management relationship and by treating workers fairly and providing safe and healthy working conditions, Borrowers can create tangible benefits, such as improving the efficiency and productivity of their operations.

The requirements set out in this PDAS were partly guided by various international conventions and instruments, including those of the International Labor Organization (ILO) and the United Nations (UN)

Objectives:

- Respect and protect workers' fundamental rights and principles.
- Promoting fair treatment, non-discrimination, and equal opportunities for workers.

- Establishing, maintaining and improving the employee-employer relationship.
- Ensuring compliance with national employment and labor laws.
- Protecting workers, including vulnerable categories such as women, people of different gender identity or sexual orientation, people with disabilities, children (of working age, according to this PDAS) and migrant workers, third-party contract workers and primary supply workers.
- Promoting safe and healthy working conditions and workers' health.
- Preventing the use of child labor and forced labor (as defined by the ILO).
- Support the principles of freedom of association and collective bargaining for project workers.
- Ensure that workers have accessible and effective means of raising and addressing work-related concerns.

### **PDAS 3: Resource Efficiency and Pollution Prevention**

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This PDAS describes a project-level approach to resource management and pollution prevention and control, and GHG emission prevention and minimization. It will build on the mitigation hierarchy and the "polluter pays" principle. It recognizes the disproportionate impact of pollution on women, children, the elderly, the poor and the vulnerable. This PDAS also recognizes the emerging concept and practice of the circular economy and/or resource recovery, where usable and valuable products can be created or derived from what was previously seen as waste. The project has reported risks and impacts associated with the use of resources, and the generation and emission of waste must be assessed from the local context and environmental conditions of the project. Appropriate mitigation measures, technologies and practices should be adopted for the efficient and effective use of resources, the prevention and control of pollution, and the prevention and minimization of GHG emissions, in accordance with internationally disseminated technologies and practices.

Objectives:

- Avoid or minimize adverse impacts on human health and the environment by avoiding or reducing pollution resulting from project activities.
- Promoting a more sustainable use of resources, including energy and water.
- Reduce or avoid GHG emissions related to the project.
- Avoid or minimize the generation of waste.
- Minimize and manage the risks and impacts associated with pesticide use.

### **PDAS 4: Community Health and Safety**

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Environmental and Social Performance Standard 4 recognizes that project activities, equipment and infrastructure may increase community exposure to risks and impacts including those caused by disasters and climate change. In addition, communities that are already subject to adverse impacts from natural hazards and climate change may also experience an acceleration and/or intensification of these adverse impacts due to project activities. Natural hazards and climate change impacts can affect the project itself, which can cause additional adverse impacts on the health and safety of people affected by the project. This PDAS addresses the Borrower's responsibility to avoid or minimize risks and impacts to community health, safety and security that may arise from project-related activities, with special attention to vulnerable groups. It also addresses



the Borrower's responsibility to avoid or minimize the risks and impacts of the project itself that may result from disasters or climate change.

Objectives:

- Anticipate and avoid adverse impacts on the health and safety of people affected by the project during the project life cycle, in routine and non-routine circumstances.
- Ensure that the safeguarding of personnel and property is done in accordance with the relevant human rights principles and to avoid or minimize the risks to those affected by the project.
- Anticipate and avoid adverse impacts on the project itself due to disasters and climate change during the project life cycle.

### **PDAS 5: Land Acquisition and Involuntary Resettlement**

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Environmental and Social Performance Standard 5 addresses the impacts of project-related land acquisition, including restrictions on the use of land and access to its assets and resources, which can cause physical displacement (relocation, loss of residential land or loss of shelter) and/or economic displacement (loss of land, assets or access to assets, including those leading to loss of sources of income or other means of livelihood). The term "involuntary resettlement" refers to these two impacts and the processes of mitigating and compensating for these impacts. Resettlement is considered involuntary when project-affected people do not have the right to refuse land acquisition or land use restrictions that result in physical or economic displacement. This occurs in cases of (i) legal expropriation or temporary or permanent restrictions on land use and (ii) negotiated agreements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller fail.

Unless properly managed, involuntary resettlement can result in long-term hardship and impoverishment for the people affected by the project, as well as environmental damage and adverse socio-economic impacts in the areas to which they have been displaced. For these reasons, involuntary resettlement should be avoided. However, where involuntary resettlement is unavoidable, it should be minimized and appropriate measures to mitigate adverse impacts on displaced people and host communities should be carefully planned and implemented. The government plays a central role in the land acquisition and resettlement process, including the determination of compensation. Close collaboration and coordination between government agencies and project-affected people can result in more cost-effective, efficient, and timely implementation of these activities, as well as the introduction of innovative approaches to improving the livelihoods of those affected by resettlement.

Objectives:

- Avoid, and when it cannot be avoided, minimize displacement by exploring alternative projects.
- Avoid forced evictions.
- Anticipate and avoid, or where not possible, minimize the adverse social and economic impacts of land acquisition or land use restrictions by (i) compensating for the loss of assets at replacement cost and transition difficulties, (ii) minimizing the disruption of their social networks and other intangible assets, and (iii) ensuring that resettlement activities are implemented with adequate disclosure of information, consultation and informed participation of affected people.
- Improving or restoring the livelihoods and living standards of those relocated.

- Improve the living conditions of physically displaced people by providing adequate housing with security of tenure, and security at resettlement sites.

## **PDAS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources**

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Environmental and Social Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this PDAS have been guided by the Convention on Biological Diversity, which defines biodiversity as "the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems." Ecosystem services are the benefits that people, including companies, obtain from ecosystems.

Ecosystem services are organized into four types: (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulating services, which are the benefits that people obtain from regulating ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems; and (iv) support services, which are the natural processes that maintain the other services.

The ecosystem services valued by humans are generally sustained by biodiversity. Impacts on biodiversity can therefore adversely affect the provision of ecosystem services. This ESDP addresses how Borrowers can sustainably manage and mitigate impacts on biodiversity and ecosystem services throughout the project life cycle.

Objectives:

- Protect and conserve terrestrial, aquatic, coastal and marine biodiversity.
- Maintaining the functioning of the ecosystem to guarantee the benefits of ecosystem services.
- Promote the management and sustainable use of natural resources by adopting practices that integrate conservation needs and development priorities.

## **PDAS 7: Indigenous Populations**

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The Environmental and Social Performance Standard (ESPS) 7 recognizes that Indigenous Peoples<sup>3</sup>, as distinct social and cultural peoples, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their ability to defend their rights and interests in lands and natural and cultural resources and can restrict their ability to participate in and benefit from development that is in line with their worldview. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, invaded, or significantly

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<sup>3</sup> There is no universally accepted definition of "Indigenous Peoples". Indigenous peoples may be referred to in different countries by terms such as "original peoples" (*pueblos originarios*), "autochthonous peoples" (*pueblos autóctonos*), residents of indigenous municipalities (comarcas) or reservations (resguardos) or any other formally recognized indigenous peoples in Latin America and the Caribbean. In PDAS 7, the term "Indigenous Peoples" is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees: (i) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others. (ii) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources of those habitats and territories. (iii) Customary cultural, economic, social or political institutions separate from those of the dominant society or culture. (iv) A distinct language or dialect, usually different from the official language or languages of the country or region in which they reside. For the purposes of this PDAS, traditional peoples, as recognized by national laws, should be treated as indigenous peoples.

degraded. Their languages, cultures, religions, spiritual beliefs, and institutions may also be threatened. As a consequence, indigenous peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous peoples. This vulnerability may include loss of identity, culture and natural resource-based livelihoods, and exposure to impoverishment and disease.

Projects can create opportunities for Indigenous Peoples to participate in and benefit from project-related activities that can help them fulfill their aspirations for the economic and social development of their identity. In addition, Indigenous Peoples can play a role in sustainable development by promoting, owning, and managing activities and companies as partners in development. The government often plays a central role in managing Indigenous Peoples' issues. It is therefore important that there is collaboration and coordination between responsible and relevant authorities in managing the project's risks and impacts.

The requirements presented in this PDAS have been guided in part by international conventions and instruments, including those of the International Labor Organization (ILO) and the United Nations (UN).

Objectives:

- Ensure that the development process promotes full respect for the human rights, collective rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.
- Anticipate and avoid adverse impacts of projects on Indigenous Peoples' communities, or when it is not possible to avoid, minimize and/or compensate for such impacts.
- Promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.

### **PDAS 8: Cultural Heritage**

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Environmental and Social Performance Standard (ESPS) 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this PDAS aims to ensure that Borrowers protect cultural heritage in the course of their project activities. In addition, the requirements of this PDAS on the use of a project's cultural heritage are based in part on the standards set by the Convention on Biological Diversity.

Objectives:

- Protect cultural heritage from the adverse impacts of project activities and support its preservation.
- Promote the equitable sharing of the benefits arising from the use of cultural heritage.

### **PDAS 9: Gender Equality**

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This ESDP aims to identify possible gender-based risks and impacts and introduce effective measures to avoid, prevent or mitigate these risks and impacts, thereby eliminating the possibility of reinforcing pre-existing inequalities or creating inequalities that did not exist. For the purposes of this PDAS, affirmative action specifically aimed at reducing existing gender gaps, addressing specific gender-based needs or ensuring the participation of people of all genders in consultations shall not constitute discrimination or exclusion.

This PDAS pays special attention to how gender inequalities interact with other inequalities, such as socioeconomic, ethnic, racial, disability and other factors, and how this intersectionality can exacerbate barriers to accessing project benefits, limit the ability to cope with negative project impacts and create other vulnerabilities.

This PDAS recognizes that diverse sexual orientations and gender identities can make people excluded and/or make segments of the population more vulnerable to negative impacts from the project, often preventing them from taking advantage of the opportunities available to other members of the community.

This PDAS also recognizes that sexual and gender-based violence (SGBV) is a prevalent global problem. Manifestations of SGBV likely exist in all settings. Gender-related impacts, including all forms of SGBV, including sexual exploitation and abuse, disproportionately affect women and people of diverse sexual orientations and gender identities. Projects that involve a large influx of workers in a community can exacerbate existing risks of SGBV or create risks, ranging from sexual harassment to sexual abuse and exploitation of women and children.

Likewise, this PDAS recognizes that globally and in LAC countries, most unpaid care work falls to women. Unpaid care work is one of the main barriers preventing women from entering, continuing, or progressing in the workforce. This presents a major barrier to gender equality and women's economic empowerment, including women's meaningful participation in opportunities available to other members of the community.

Objectives:

- Anticipate and prevent risks and adverse impacts based on gender, sexual orientation, and gender identity and, where this cannot be avoided, mitigate, and compensate for these impacts.
- Establish preventive actions to prevent or mitigate risks and impacts arising from gender in projects, throughout the project cycle.
- Achieving the inclusion of benefits derived from projects by people of all genders, sexual orientations, and gender identities.
- Avoid exacerbating SGBV, including sexual harassment, exploitation, and abuse, and when incidents of SGBV occur, respond immediately.
- Promote safe and equitable participation in stakeholder consultation and engagement processes, regardless of gender, sexual orientation, and/or gender identity.
- Meet the requirements of applicable national legislation and international commitments related to gender equality, including actions to mitigate and prevent gender-related impacts.

#### **PDAS 10: Stakeholder engagement and information disclosure**

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This Environmental and Social Performance Standard (ESPS) recognizes the importance of open and transparent engagement between the Borrower and stakeholders, in particular project-affected people, as a key element that can improve the environmental and social sustainability of projects, enhance project acceptance, and contribute significantly to the successful development of a project and its implementation. This PDAS is consistent with the objectives of implementing the right to access to information, public participation in the decision-making process and access to justice in environmental matters.

Stakeholder engagement is an inclusive process, conducted throughout the life cycle of a project. When properly designed and implemented, it supports the development of strong, constructive, and responsive relationships, which are important for the successful management of a project's environmental and social risks and impacts. Stakeholder engagement is most effective when initiated at an early stage in the project development process. It is an integral part of the project's initial decisions on assessing, managing, and monitoring the project's environmental and social risks and impacts

Objectives:

- Establish a systematic approach to stakeholder engagement that will help the Borrower to identify stakeholders, especially people affected by the project, and to build and maintain a constructive relationship with them.
- Assess the level of stakeholder interest and support in the project and allow stakeholder views to be considered in the design and environmental and social performance of the project.
- Promote and provide means for effective and inclusive engagement with project-affected people throughout the project lifecycle on issues that could potentially affect or benefit them.
- Ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.
- Provide stakeholders with accessible and inclusive means to raise issues, proposals, concerns and complaints and enable Borrowers to respond and manage appropriately.

### **Exclusion List**

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The IDB's exclusion list contains a series of activities that are not allowed in the Bank's financing, mainly because they are incompatible with its commitments to address the challenges of climate change and promote environmental and social sustainability. The list of activities not permitted under the IDB's criteria is presented below.

- Activities that are illegal according to laws, regulations or ratified international conventions and agreements, or subject to international interruptions or prohibitions, such as:
  - polychlorinated biphenyls (PCBs);
  - pharmaceutical products, pesticides/herbicides, and other dangerous substances subject to international interruptions or bans;
  - Persistent Organic Pollutants (POPs);
  - ozone-depleting substances subject to international elimination;
  - wildlife or wildlife products regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora;
  - cross-border trade in waste or waste products, except for non-hazardous waste destined for recycling;
  - lead-based paint or coatings in the construction of structures and roads.
- Activities that are illegal under laws, regulations or ratified international conventions and agreements relating to the protection of biodiversity resources or cultural heritage.

- Activities which, although consistent with the legal and/or regulatory framework of a country, may generate particularly significant adverse impacts on people and/or the environment, such as:
  - weapons, ammunition, and other military goods/technology;
  - tobacco;
  - gambling, casinos, and similar enterprises;
  - radioactive materials;
  - unbound asbestos fibers or products containing asbestos;
  - fishing nets drifting in the marine environment, using nets over 2.5 km long.
- Activities incompatible with the IDB's commitments to address the challenges of climate change and promote environmental and social sustainability, such as:
  - thermal coal mining and coal-fired power plants and associated facilities;
  - upstream oil exploration and development projects;
  - upstream gas exploration and development projects. In exceptional circumstances and on a case-by-case basis, financing of upstream gas structures will be considered where there is a clear benefit in terms of access to energy for the poor and reduction of greenhouse gas (GHG) emissions, projects consistent with national climate change objectives, and where the risks of retained assets are adequately analyzed.

### 3.5. IFAD's Environmental, Social and Climate Standards

IFAD has established Social, Environmental and Climate Assessment Procedures (SECAP) in which it requires the project to consider social, environmental and climate change issues.

The IFAD Standards establish fundamental requirements for the environmental and social sustainability of projects. Project teams (and co-financiers, if applicable) must apply them during design and implementation, but they are also aimed at borrowers/beneficiaries/associates, who are ultimately responsible for implementation.

These standards are based on the good practices of the United Nations, financial institutions, international organizations, and multilateral development banks.

All projects must undergo an ex-ante environmental, social and climate assessment. The assessment determines how the risks and effects (both those affecting the project and those caused by it). The level of risk is determined on a case-by-case basis, with appropriate mitigation measures depending on the nature and scale of the project, and its level of environmental, social and climate risk. The assessment also considers the capacity and degree of commitment of the borrower/beneficiary/partner to implement the project in accordance with environmental and social standards. If environmental and social risks or effects arise during implementation, the project team, in collaboration with the national authorities, must adjust the project plan or introduce appropriate mitigation measures.

#### **Standard 1: Biodiversity Conservation**

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According to the Convention on Biological Diversity (CBD), this standard recognizes that biological diversity includes more than plants, animals and microorganisms and their ecosystems; it also refers to people and their needs for food security, medicines, clean air and drinking water, housing, and a clean and healthy environment in which to live.

Biological diversity is essential for maintaining ecosystem services (such as water and food supply) and other resources that are important both for the ecosystems themselves and for human life. The diversity of agroecological systems promotes the resilience of rural families and their production systems. The aim of conserving biological diversity is to maintain the resources and related services to meet humanity's current needs, while guaranteeing their availability for future generations, a fundamental criterion of sustainable development.

Objectives:

- maintaining and conserving biodiversity;
- ensure that the benefits of using genetic resources are distributed fairly and equitably;
- respect, preserve, maintain and strengthen the knowledge, innovations and practices of indigenous peoples and local communities relevant to the conservation and sustainable use of biodiversity and their customary use of biological resources, and
- apply the precautionary principle in the conservation and management of natural resources to ensure that there are opportunities for environmentally sustainable development.

## **Standard 2: Resource Efficiency and Pollution Prevention**

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This standard recognizes that economic activity and development often pollute the air, water, and land, and can lead to the consumption of finite resources, which in turn can pose a threat to humans, ecosystem services and society.

IFAD calls for the application of the precautionary principle to address significant environmental and social risks and effects through the mitigation hierarchy, the "polluter pays" principle (which proposes that the cost of mitigation be borne by the polluter, where applicable) and adaptive management techniques (where lessons are drawn from previous management actions and then used proactively to improve management in the future).

This standard establishes a project-level approach to mitigating, minimizing, and managing potential risks and adverse effects that may be related to resource use and pollution.

Objectives:

- Avoid, minimize, and manage the risks and effects associated with hazardous substances and materials, including pesticides;
- avoid or minimize short- and long-term climate-related pollutant emissions caused by the project<sup>36</sup>;
- promote a more sustainable use of resources, including energy, land, and water, and identify opportunities to contribute to the efficient use of resources.

## **Standard 3: Cultural Heritage**

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This standard recognizes that cultural heritage is a fundamental element of identity and memory, both individual and collective, and facilitates continuity between the past, the present and the future.

Likewise, it reflects and expresses people's values, beliefs, knowledge, traditions, and practices, all of which are constantly evolving. In addition, it plays an essential role in the process of sustainable development, as it improves social cohesion, diversity, well-being, and quality of life; strengthens cultural rights, protecting the heritage of minorities and indigenous peoples; encourages socio-economic regeneration; improves the attractiveness and creativity of cities and regions; boosts the long-term benefits of tourism and encourages sustainable practices. Cultural heritage resources are often unique and irreplaceable, and can be especially fragile due to neglect, exploitation or even destruction.

This standard aims to preserve, protect, and promote cultural heritage in IFAD-supported projects in a manner consistent with the United Nations Educational, Scientific and Cultural Organization (UNESCO) conventions on the subject, as well as other applicable national and international legal instruments.

For the purposes of this standard, cultural heritage is considered to include both tangible heritage (sometimes referred to as "physical cultural resources") and intangible heritage.

Objectives:

- preserving and safeguarding cultural heritage;
- ensure that active efforts are made to prevent IFAD-supported projects from altering, damaging, or eliminating any tangible or intangible cultural heritage;



- promote the equitable distribution of the benefits derived from the use of cultural heritage, and
- promote meaningful consultations on issues related to this heritage.

#### **Standard 4: Indigenous Peoples**

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IFAD's comparative advantage in working with indigenous peoples lies in its core mission of empowering the rural poor, its method of targeting and its people-centered approach, which considers the diverse contexts in which the rural poor live.

The Fund's actions in relation to indigenous peoples are based on the nine fundamental principles set out in its Policy for Action in relation to Indigenous Peoples:

- (i) recognize that cultural heritage and identity are assets;
- (ii) request free, prior, and informed consent;
- (iii) contribute to community-driven development;
- (iv) promote equitable access to lands, territories, and resources;
- (v) valuing the knowledge of indigenous peoples;
- (vi) strengthening the resilience of indigenous peoples' ecosystems (environmental and climate change issues);
- (vii) promote access to markets;
- (viii) promote empowerment, and
- (ix) promote gender equality.

Objectives:

- Support indigenous peoples in determining priorities and strategies for exercising their right to development;
- ensure that each project is designed in partnership with indigenous peoples and in full, effective, and meaningful consultation with them, to obtain their free, prior, and informed consent;
- ensure that indigenous peoples derive fair and equitable benefits and opportunities from project-supported activities in an inclusive and culturally appropriate manner, and
- recognize and respect the rights of indigenous peoples to their lands, territories, waters, and other resources that they traditionally own, use or depend on.

#### **Standard 5: Work and Working Conditions**

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IFAD seeks to promote inclusive, diversified, and productive rural economies that generate decent work opportunities and higher incomes. By investing in rural populations to improve their productive capacities and increase the benefits they derive from their participation in the market, IFAD promotes the development of value chains, inclusive financial services, and rural businesses.

The Fund's commitment to promoting inclusive and sustainable economic growth, full and productive employment, and decent work for all includes protecting the rights of project workers to ensure that they receive fair treatment and work in safe, secure, and healthy conditions. The following requirements reflect this commitment, which is guided

by a series of international agreements, conventions, and instruments, including those of the International Labor Organization (ILO) and the United Nations.

Objectives:

Promote direct actions to promote decent rural employment;

- promoting, respecting, and implementing fundamental principles and rights through:
  - preventing discrimination and promoting equal opportunities for workers;
  - promoting freedom of association and the right to collective bargaining, and preventing the use of forced labor and child labor;
- protect and promote the safety and health of workers;
- ensure that projects comply with national labor and employment laws and international commitments, and
- leaving no one behind, protecting and supporting workers in disadvantaged and vulnerable situations, with special attention to women (e.g. maternity protection), young people, migrants and health workers, the informal economy, and people with disabilities.

### **Standard 6: Community Health and Safety**

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Given IFAD's mandate and the sectors in which its interventions take place, the health and safety of communities are essential elements. In many countries, the agricultural sector has undergone enormous changes in the last 30 years thanks to a better understanding of the health and safety risks and effects associated with farming, as well as the use of better technologies and personal protective equipment. However, in many parts of the world (especially in low- and middle-income countries) there is still a lack of knowledge about how farmers are affected by their exposure to the numerous risks and health effects they face every day. Even in the most developed countries, improvements in workplace health and safety and the implementation of ILO policies have yet to reach the agricultural sector.

This standard emphasizes the prevention (and when this is not possible, the minimization and mitigation) of health and safety risks and impacts that may arise from IFAD-supported projects, with special attention to the marginalized and disadvantaged.

Objectives:

- Ensuring quality and safety in the design and construction of infrastructure linked to the programs, avoiding, and minimizing possible safety risks and accidents;
- avoid or minimize the exposure of the community to the risk of disasters, diseases and hazardous materials associated with project activities;
- ensure that personnel and property protection measures minimize risks to communities and comply with international human rights standards and principles, and
- have effective measures in place to respond to emergency situations, whether they are due to natural hazards or caused by human beings.

### **Standard 7: Physical and economic resettlement**

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Based on IFAD policies, international guidelines, and best practices regarding safeguards in cases of involuntary resettlement, this standard considers resettlement not

only as the physical relocation of people, but also as an economic, social, and cultural factor that restricts people's access to places important to their livelihoods and culture.

Physical resettlement involves relocation due to the loss of residential land or housing, and economic displacement involves the loss or destruction of land or assets, and includes restrictions on access to goods, sources of income and livelihoods, as well as assistance to vulnerable groups.

Objectives:

- Avoid involuntary resettlement or, when this is not possible, minimize it by studying alternatives for the design and location of developments;
- avoid forced evictions;
- ensure that resettlement activities are planned and carried out in a collaborative manner, with the meaningful participation of the people affected;
- improve and restore the livelihoods of all displaced persons, and
- provide explicit guidance to borrowers/beneficiaries/partners on the conditions that must be met in relation to involuntary resettlement.

### **Standard 8: Financial Intermediaries**

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This standard recognizes that investments in financial intermediaries (FIs) (indirect investments) and private sector companies (direct investments) are key to promoting the sustainability of financial markets and providing financial products and services to agricultural companies and rural micro, small and medium-sized enterprises.

Financial intermediation implies that responsibility for environmental and social assessment, risk management and monitoring, and overall portfolio management is delegated to intermediaries. The effectiveness of the financial intermediary's management of environmental and social risks should be assessed and monitored continuously throughout the project's life cycle, paying attention to its core business of generating returns for investors and ensuring sustainability.

Objectives:

- Promoting good environmental, social and climate practices, as well as good human resource management among financial intermediaries and beneficiaries of direct investments;
- ensure that the said intermediaries and beneficiaries assess and manage the environmental and social risks and effects of the subprojects, and
- promoting the use of good environmental and social practices by beneficiaries of direct investments and sub-projects financed by financial intermediaries.

### **Standard 9: Climate Change**

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The effects of climate change represent a fundamental threat to sustainable development and the fight against poverty. They can reverse human development by affecting essential development sectors such as agriculture and food production, ecosystems, water and other natural resources, disaster risk management and health. Climate change has become one of the main causes of hydro-meteorological disasters and has the potential to produce gradual environmental changes that can intensify extreme weather events, increasing the risk of high-impact disasters, whether sudden or

slow-onset. Climate variability also contributes to increasing the frequency and impact of localized small-scale disasters, which have long-term and far-reaching effects.

Investment decisions must consider the changing nature of climate risks and impacts. In project design, this can be achieved through climate risk analysis, planning to improve the resilience of vulnerable livelihoods (adaptation), and minimizing greenhouse gas emissions and enhancing carbon sinks (mitigation). All borrowers/beneficiaries/partners of IFAD-supported projects must consider the effects that climate change may have on the projects, as well as the effects of other projects.

Objectives:

- Ensure that IFAD-supported projects are aligned with the targets set in the countries' nationally determined contributions and with the targets of the Paris Agreement and other international frameworks;
- ensure that the proposed activities are monitored and evaluated in relation to the risks and effects of climate change and disasters, including the effects on and generated by the projects;
- apply the mitigation hierarchy in project design;
- strengthen the resilience of communities to face the risks of the effects of climate change and related disasters, and
- increase the capacity of communities to adapt to the negative effects of climate change and promote climate resilience and low greenhouse gas emission projects that do not pose a threat to food production.

### 3.6. Entities involved in environmental licensing

In principle, PROCASE II projects do not foresee the need for licensing and, where applicable, these should be simple, involving simplified authorizations.

In any case, information on the state entity responsible for environmental inspections and authorizations is described below.

#### **Superintendence of Environmental Administration (Sudema)**

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The **Superintendence of Environmental Administration (Sudema)** was created by the Paraíba state government on December 20, 1978, through Law No. 4.033, with the aim of developing an environmental protection policy. As well as João Pessoa, Sudema also has offices in the cities of Patos and Campina Grande.

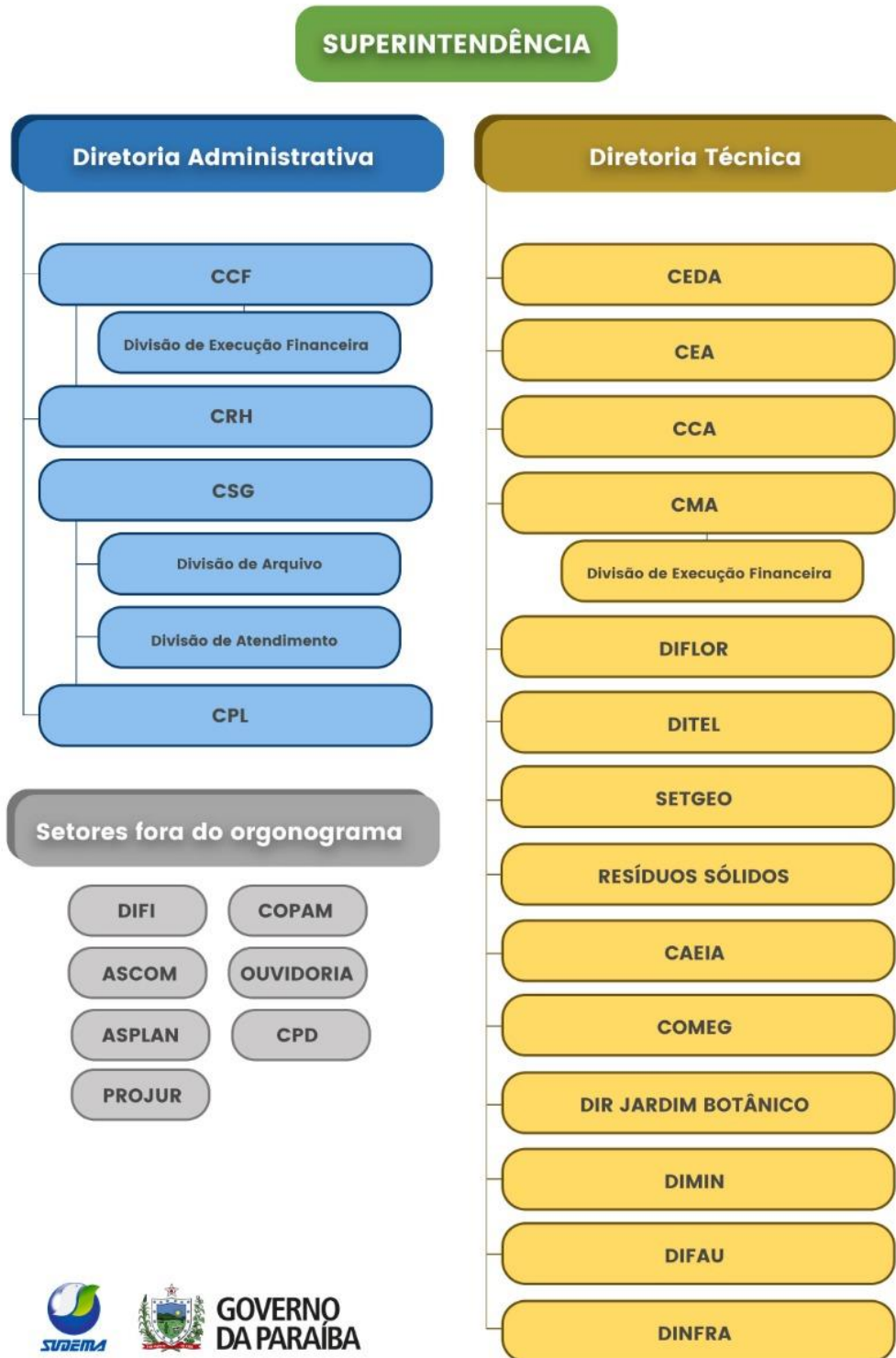
Sudema's mission is to develop policy actions for environmental protection, prevention, and education, as well as strategies aimed at guaranteeing current and future generations a quality of life compatible with the harmony of nature and free from predatory aggression, constantly practiced by man himself. Its structure includes the following departments:

- CEDA - Environmental Education Coordination
- DIFLOR - Forestry Division
- CCA - Environmental Control Coordination
- CMA - Coordination of Environmental Measurements
- Pollution Control Division
- CEA - Coordination of Environmental Studies

- CCF - Accounting Coordination
- Financial Execution Division
- CPD - Data Processing Coordination
- CRH - Human Resources Coordination
- CSG - General Services Coordination
- Archive Division
- Customer Service Division
- DIFI - Inspection Division
- CPL - Permanent Tender Committee
- DITEL - Telecommunications Division
- SETGEO - Geoprocessing Sector
- SRS - Solid Waste Sector
- CAEIA - Commission for the Analysis of Environmental Impact Studies
- COMEG - Coastal Management Commission
- Botanical Garden Director

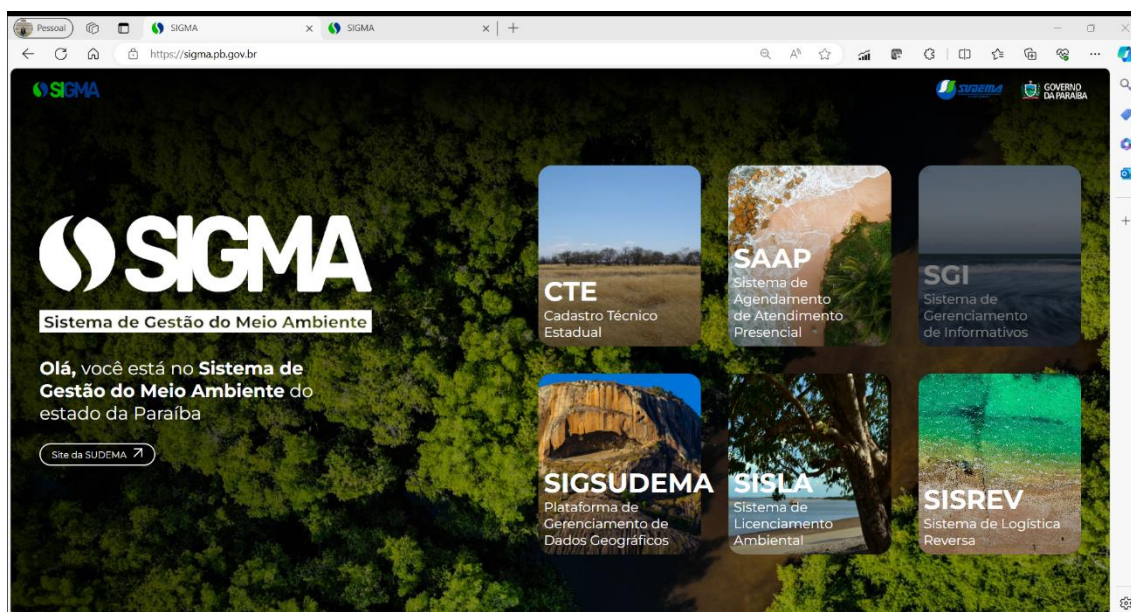
Sudema also has a computerized environmental management system (SIGMA), which includes modules for registration, scheduling, information, geographic data management, reverse logistics and environmental licensing.

Figure 1 - Sudema's organizational chart



Source: <https://sudema.pb.gov.br/institucional/orgnograma>

**Figure 2 - SIGMA website - Sudema's Environmental Management System**



Source: <https://sigma.pb.gov.br/>

## **Environmental Protection Council - COPAM**

The Environmental Protection Council - COPAM, created under the terms of Law 4.335 of December 16, 1981, a collegiate body formerly linked to the State Secretariat for Infrastructure, Water Resources and the Environment - SEIRHMA, is part of the State Environmental System.

Currently, through Law No. 12.615, of April 25, 2023, COPAM is directly linked to the State Secretariat for the Environment and Sustainability - SEMAS, acting to prevent and control pollution and environmental degradation, aiming to protect, conserve, recover and improve environmental resources, analyzing all licenses granted by the Superintendence of Environmental Administration - SUDEMA, suggesting the maintenance, revocation or alteration of such licenses, through compliance with applicable legislation.

Its attributions include issuing guidelines, norms, and instructions through deliberations regarding the protection of environmental resources, with a view to preventing pollution and the rational use of environmental resources in the state of Paraíba.

### **3.7. Gap analysis**

The following is a *Gap Analysis* of compliance with IDB/IDA standards.

**Table 1 - Summary table of the gap analysis for compliance with the IDB/IDA Standards**

Executive Agency procedures and gaps identified	Recommendations
<b>Assessment and Management of Social and Environmental Risks and Impacts</b>	
<ul style="list-style-type: none"> <li>• Although some stages of projects and works do not require environmental licensing or have simple licensing, the PMU must have a stage that includes instruments for environmental and social assessment and planning of projects. This instrument is the screening or preliminary analysis, which involves analyzing the legal requirements and environmental constraints present, generating an Official Letter with the results of this screening and the necessary recommendations for the application of socio-environmental measures and commitments in the context of each project.</li> <li>• This screening process must incorporate environmental and social requirements aimed at complying with Brazilian legislation, project feasibility and meeting some of the requirements set out in the IDB/IDA Standards.</li> <li>• During the implementation phase of the projects, there is no formalized supervision or inspection process, but this is a process that needs to be developed.</li> <li>• The PMU should incorporate a Social and Environmental Development sector into its structure to manage the social and environmental requirements set out in the IDB/IDA Standards.</li> <li>• No system for assessing socio-environmental impacts and risks was identified for PROCASE II</li> </ul>	<ul style="list-style-type: none"> <li>• Implement a preliminary socio-environmental assessment process with a view to screening and scoping the necessary socio-environmental studies and planning mitigation programs, as well as determining the eligibility of projects before the IDB's MPAS and IFAD's SECAP.</li> <li>• Implement a socio-environmental management and supervision sector with a dedicated team</li> <li>• Train workers in the environmental and social requirements of the IDB/IDA Standards</li> <li>• Incorporate an impact and risk assessment stage for projects and the development of an Environmental and Social Management Plan. The process of identifying the environmental and social risks and impacts of each project must be clear.</li> <li>• Increasing the Environmental and Social Management System (ESMS) with guidelines for classifying the socio-environmental impact of potential projects.</li> <li>• Incorporate into the ESMS definitions for the environmental and social studies that will need to be carried out based on the level of impact of the projects, complying with the requirements of the IDB/IDA Standards.</li> <li>• Draw up a Social, Environmental and Health and Safety Management Procedures Manual</li> <li>• Promote the interoperability of the systems under development to include georeferenced information and interoperability with databases from official sources, with a view to increasing the capacity for environmental and social assessment, identification of impacts and risks.</li> <li>• As part of the PMU's Environmental and Social Management System (ESMS), project ESMPs (Environmental, Social and Climate Management Plan) must include Emergency Preparedness and Response Plans in accordance with IDB/IDA Standards.</li> </ul>
<b>Labor and Working Conditions</b>	
<ul style="list-style-type: none"> <li>• Brazilian legislation includes several topics in line with the requirements of the IDB/IDA Standards, such as compliance with occupational health and safety requirements, working conditions and labor relations management, protection of the workforce, among others.</li> </ul>	<ul style="list-style-type: none"> <li>• Disseminate workers' complaints and grievances mechanism extended to workers of outsourced companies.</li> <li>• Carry out environmental and social responsibility training with workers and contractors.</li> </ul>



Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>In general, PROCASE's processes are largely compliant with the requirements of the Standard, but some gaps have been identified, such as the need to publicize the complaints mechanism to workers and contractors and the need for a dedicated and specialized team to monitor OHS compliance.</li> <li>The PROCASE II management team is considered to be in a position to carry out adequate management to ensure that the workers of the contracted companies have their rights guaranteed</li> </ul>	<ul style="list-style-type: none"> <li>Implement a code of conduct for project workers</li> <li>Consolidate the OHS supervision and compliance, training, and inspection process, preferably including a specialized and dedicated technician.</li> </ul>
Resource Efficiency and Pollution Prevention and Management	
<ul style="list-style-type: none"> <li>There is no specific requirement for the PMU to implement resource efficiency and contamination prevention principles and techniques consistent with International Good Industry Practice.</li> <li>federal law 12.187 of 2009 is quite objective in its responsibility and obligation to reduce gas emissions, but it does not include a regulation that explicitly defines the requirement to avoid or minimize GHG emissions related to projects during their design, implementation, or operation. On the other hand, CONAMA resolutions set limits for pollutant emissions in line with the GIIP.</li> <li>The National Waste Policy, established by Law No. 12.305 of 2010, sets out the principles, objectives and instruments, as well as the guidelines for integrated management and solid waste management. It also set important targets that will contribute to the elimination of landfill sites and instituted planning instruments at national, state, micro-regional, inter-municipal and metropolitan and municipal levels; as well as requiring private entrepreneurs to draw up their Solid Waste Management Plans.</li> <li>With regard to EHS<sup>4</sup>, the references to gas emissions, volatile organic compounds and particulate matter are not only listed in CONAMA resolutions, but the commitment to reduction and control is ratified in international agreements.</li> </ul>	<ul style="list-style-type: none"> <li>Some of the permissible emission limits laid down are generally more restrictive in the case of the GIIP guides<sup>5</sup> than what is recommended in national legislation, so it is important to adopt what is referenced in these regulations.</li> <li>some types of subprojects do not require an environmental licensing process and subsequent environmental studies, so issues involving the emission of pollutants and the generation of waste should be included in the PMU's internal assessments to be incorporated into the processes (impact assessment, management plans, etc.)</li> <li>The PMU could incorporate available tools for analyzing energy efficiency and reducing emissions into the project development phase, such as the Edge Building system provided by the IFC, but even if these tools are not used, it is recommended to incorporate efficient and lower impact systems in the case of civil works.</li> <li>A works supervision/inspection checklist should include important items to be checked on this subject, such as emission limits, noise, area recovery, preservation areas, etc.</li> </ul>
Climate Change and GHG Emissions	
<ul style="list-style-type: none"> <li>In general, the projects have a strong appeal to the issue of climate change and GHG reduction;</li> <li>However, it is necessary to look at issues related to the use of wood-burning stoves, which are the most viable option in remote rural communities that have no other better-performing alternative for producing heat in their production processes.</li> <li>It should be noted that the ovens are used in family kitchens and are not related to or industrial in size.</li> </ul>	<ul style="list-style-type: none"> <li>Apply fuel input management measures such as checking the plant species used in burning and its origin/procedure, as well as monitoring the proper execution of the acquisition and use of firewood.</li> <li>More efficient furnaces are also important to prioritize in order to reduce emissions.</li> <li>In the case of ovens in traditional kitchens, these can be aligned with the Standards as long as it is possible to estimate the increase in energy efficiency resulting from replacing the current models with closed equipment and the</li> </ul>

<sup>4</sup> Environmental, Health, and Safety Guidelines.

<sup>5</sup> The Health, Environment and Safety Guidelines adopted by the IDB are technical reference documents based on Good International Industry Standards (GIIP).

Executive Agency procedures and gaps identified	Recommendations
	<p>challenges of replacing them with systems based on other technologies, such as the additional cost for families to keep the system running.</p> <ul style="list-style-type: none"> <li>In particular, the construction of wood-based flour mills would not be permitted due to the lack of sufficient information to analyze the emissions to be avoided when new equipment is installed. However, studies could be proposed on the feasibility of adopting more efficient low-carbon energy sources or even pilot projects.</li> </ul>
Community Health and Safety	
<ul style="list-style-type: none"> <li>Brazilian legislation does not explicitly establish the management of risks and impacts on the health and safety of the community for projects, it only establishes a requirement to evaluate the impacts related to projects that have housing actions covered by financing with the Federal Government.</li> <li>There is no mechanism for identifying and managing disaster risks, which is important for establishing standards and emergency actions that must be followed in the event of an emergency or contingency. The measures adopted are those commonly provided for by law for OHS</li> <li>Despite not having a risk management mechanism in place, the project screening phase must observe requirements related to safety, especially flooded areas, drought and susceptibility to erosive processes, percolation levels and geotechnical safety.</li> </ul>	<ul style="list-style-type: none"> <li>It is recommended that a risk identification and management system be developed for projects;</li> <li>It is also recommended to develop appropriate measures to reduce vulnerability and foster adaptation to natural hazards and climate change, the scope of which should include structural and non-structural measures to be implemented in the design, construction, and operation stages of the projects. These measures should be part of the Disaster and Climate Change Management Plan, forming part of PROCASE II's PGASE and the PGAS of the sub-projects.</li> </ul>
Land Acquisition and Involuntary Resettlement	
<ul style="list-style-type: none"> <li>This Standard is not triggered by PROCASE II.</li> </ul>	<ul style="list-style-type: none"> <li>There is no provision for land acquisition in the project, but, if necessary, methods for calculating financial compensation (indemnities) should be applied to make them compatible with the requirements of PDAS 5 (IDB) and Standard 7 (IFAD), considering compensation for replacement cost, and based on NBR 14.653.</li> <li>In this same case, a post-indemnification or resettlement assessment should be carried out to identify the risk of impoverishment related to the project, when the action involves a vulnerable population.</li> <li>These requirements also apply in the case of economic activities to be expropriated.</li> </ul>
Biodiversity Conservation and Sustainable Management of Living Natural Resources	
<ul style="list-style-type: none"> <li>PROCASE II plans to implement actions related to the preservation of water sources, green areas, and rural technical assistance with a view to best sustainable rural practices, in order to avoid impacts and promote sustainability in its projects.</li> <li>In Brazil, the law explicitly establishes the requirement for modified habitat areas that include significant biodiversity value.</li> <li>In addition to legislation, several international agreements to which Brazil is a signatory contain criteria to meet the requirements of the IDB/IDA Standards.</li> </ul>	<ul style="list-style-type: none"> <li>Include in the assessments the existence and degree of risk of impact on natural habitats and critical habitats, and guide precautionary measures, detailed studies and plans for biodiversity or even the exclusion of areas and eligibility criteria for locating projects that do not yet have a locational definition.</li> <li>Mitigation or the development of Biodiversity Action Plans, Biodiversity Compensation Management Plans and Biodiversity Monitoring and Evaluation</li> </ul>

Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>• Among the habitat categories highlighted in the Brazilian standard, only established conservation units, both sustainable use and full protection, must have their Management Plan drawn up</li> <li>• Brazilian laws do not require an assessment of critical habitats and generally do not require studies to identify and assess ecosystem services</li> <li>• Federal Law No. 12.651, of May 25, 2012 (the New Brazilian Forest Code), as amended, establishes general rules on the protection of vegetation, especially Permanent Preservation Areas (APP) and Legal Reserve areas, with regard to forest exploitation, the supply of forest raw materials, control of the origin of forest products and the control and prevention of forest fires, and provides for economic and financial instruments to achieve its objectives. Article 8 establishes that intervention or suppression of native vegetation in a Permanent Preservation Area will only take place in cases of public utility, social interest, or low environmental impact.</li> <li>• It can be said that Brazilian legislation partially complies with the established requirement, given that only projects with high levels of negative impacts would be subject to more complex environmental studies</li> <li>• PROCASE II's proposal is to avoid actions that require the suppression of forest, and to focus on actions that increase vegetation cover through sustainable cultivation processes.</li> </ul>	<p>Plans are recommended for identified habitats, according to the impact levels of each project.</p> <ul style="list-style-type: none"> <li>• Include issues related to the protection of biodiversity and ecosystem services in the training and capacity building of environmental and social teams.</li> <li>• It is necessary to incorporate into the requirements for the preliminary assessment of projects that they do not affect areas with steep slopes, to guarantee safety and combat risk situations and disasters.</li> <li>• Habitat restoration and management measures, especially in permanent preservation areas, must include requirements for the proper management of exotic species in a strategic manner and with a view to their replacement, as well as requirements to combat the use of chemical pesticides and prohibited products (Stockholm Convention).</li> </ul>
Indigenous and Traditional Populations	
<ul style="list-style-type: none"> <li>• The presence of traditional populations is common in PROCASE II projects, where the rights and integrity of these communities are respected in the processes;</li> <li>• FUNAI, the body responsible for protecting indigenous peoples in Brazil, has defined guidelines for assessing the impact on these communities, including prerogatives that follow the same guidelines required by the IDB/IDA Standards and ILO Convention 169.</li> <li>• Despite this, the PMU does not have an institutionalized and formalized process for dealing specifically with traditional communities</li> </ul>	<ul style="list-style-type: none"> <li>• It is important to map and build a baseline of the traditional beneficiary communities (TBCs) of the projects, including a process of Informed Participatory Consultation and subsequent Free Prior and Informed Consent when necessary;</li> <li>• It is recommended that the same guidelines and regulations be followed for indigenous communities for impact assessment and informed consultation with any existing traditional communities (formally recognized or not), whether quilombolas, fishers, shellfish gatherers, Roma, among others;</li> <li>• It is important to include respect for the cultural integrity of the populations directly or indirectly affected by the projects in worker training.</li> <li>• Need for alignment/authorization from FUNAI as a preliminary step to working with Indigenous Communities</li> </ul>
Cultural Heritage	
<ul style="list-style-type: none"> <li>• This Standard is not expected to be triggered, given that the projects/sub-projects envisaged in PROCASE II do not pose significant risks or impacts on cultural heritage or on areas that may have a high potential for the presence of sites. Despite this, the following analysis is made of compliance with the safeguard.</li> </ul>	<ul style="list-style-type: none"> <li>• It must be confirmed that there are no potential risks in cultural heritage areas in the locations defined for the implementation of each sub-project, in accordance with the respective definition of actions and structures to be implemented. This must be confirmed through a specific environmental and social assessment.</li> <li>• Procedures for the chance discovery of cultural sites must be defined.</li> </ul>

Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>• The PMU does not have procedures for evaluating possible interference in cultural heritage at the project design stage, but it does meet the premises defined in the rites for evaluating the impact on archaeological heritage set out in IPHAN's IN 001/2015.</li> <li>• Some types of sub-projects do not require a heritage impact assessment for IPHAN's approval.</li> <li>• It should be noted that under Brazilian law there are no instruments that distinguish between replicable and non-replicable cultural heritage, nor specific provisions for assessing and managing risks and impacts on non-replicable cultural heritage.</li> <li>• Regarding the promotion of equitable participation in the benefits derived from the use of cultural heritage, the legislation complies with this requirement only for tangible cultural goods and there is no mention of equitable participation for intangible cultural goods in any provision</li> <li>• For situations of chance discovery, no specific actions are provided for in law or in the PMU's procedures, despite Brazilian legislation being very clear about responsibility for any impact on cultural heritage, even when these are unknown.</li> <li>• The legislation also stipulates that the authorities must be called in, the area must be cordoned off and an authorized archaeologist must carry out the appropriate assessments and measures to protect and rescue the heritage when possible.</li> <li>• Brazilian law also stipulates the need for heritage education and the dissemination of knowledge to the community.</li> <li>• Actions related to stakeholder consultation with regard to cultural heritage are also not explicitly required by law or by PMU procedures</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended that stakeholder consultations be adopted at the stage of research and assessment of impacts on cultural heritage when these are identified.</li> <li>• State and municipal cultural heritage protection bodies should always be consulted, and the full spectrum of heritage typologies (material, intangible, cultural, landscape, architectural, etc.) should also always be covered in assessments, as required by IPHAN's IN 001/2015.</li> </ul>
Gender equality	
<ul style="list-style-type: none"> <li>• The PROCASE II team has adopted an internal philosophy and policies for hiring workers without restrictions on gender, sexual orientation, and/or gender identity;</li> <li>• Brazilian legislation points to the criminalization of acts of prejudice, harassment, and violence against gender diversity;</li> <li>• The PROCASE II team usually carries out baseline diagnoses considering information on the gender and vulnerability profiles of beneficiary families in the areas where its projects operate;</li> <li>• Its portfolio of social actions also includes initiatives for the development of women;</li> <li>• In community meeting processes there is always room for stakeholder participation, regardless of gender;</li> <li>• Despite this, there is a prevalence of male activity in many of the communities in the project's area of operation.</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended to include the topic of gender and diversity in training for workers and contractors, with information on punitive laws, good practices and conduct, and reporting channels;</li> <li>• We recommend raising awareness about the importance and role of women, as well as gender equality and combating gender-based violence in the beneficiary communities.</li> </ul>
Stakeholder Engagement and Information Disclosure	
<ul style="list-style-type: none"> <li>• The PROCASE II team carries out a series of actions related to stakeholder engagement, including participatory planning processes.</li> </ul>	<ul style="list-style-type: none"> <li>• It is recommended to prepare a more effective and analytical organization of the question-and-answer (Q&amp;A) records for the relevant consultations held by the</li> </ul>

Executive Agency procedures and gaps identified	Recommendations
<ul style="list-style-type: none"> <li>The PROCASE II team carries out a very intense communication process before, during and after the project to disseminate information, engage and capture contributions from the beneficiary communities.</li> </ul>	PMU (consultation report containing an account of the request, questions / manifestations and answers made during the meeting). <ul style="list-style-type: none"> <li>Implement a Complaints and Redress System, to be monitored by the borrower</li> </ul>

#### 4. ORGANIZATIONAL COMPETENCE

This item covers the PMU's institutional capacity and organization for PROCASE II's environmental and social management actions.

##### 4.1. DECLARATION OF COMMITMENT

The borrower must establish a comprehensive policy that defines the environmental and social objectives and principles that will guide the PROJECT and its subprojects to achieve sound social and environmental performance. The policy must provide a framework for the social and environmental assessment and management process and specify that the PROJECT will comply with the applicable laws and regulations of the jurisdictions in which it is being implemented, including laws defining obligations under international law. The policy must be consistent with the principles of the IDB's PDAS and IFAD's SECAP. In certain circumstances, other internationally recognized standards, certification plans or codes of conduct may also be adhered to and included in the policy.

This requirement is an independent policy specific to the PROJECT and is not intended to affect existing SEAFDS policies (or require them to be changed).

The Environmental and Social Management Leadership and Commitment Policy provides the basis on which a structured and effective ESMS can be built. It sets the tone within the institution and provides the necessary support to ensure that commitment and engagement are maintained.

The borrower and Executing Agency do not have a Social and Environmental Policy in place. In this case, there is an opportunity to design a specific policy that meets the requirements of the IDB's MPAS and IFAD's SECAP, which in the future could serve as a model for drafting a policy that cuts across all of the institution's processes. We therefore suggest incorporating the following policy, which could be adopted specifically for PROCASE II.

##### **Objectives and Principles**

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The main objectives of this Environmental and Social Management System are described below:

- to consider socio-environmental aspects as an inseparable part of PROCASE II sub-projects, thus being included in all stages of the cycle: conception, design, execution, operation, and maintenance;
- develop technical instructions and operating procedures to avoid socio-environmental impacts and/or reduce their magnitude;
- developing technical and managerial instruments to guarantee the recording, storage, updating and retrieval of information related to socio-environmental issues, making it available to the technical staff and publicizing it accordingly;
- to disseminate good socio-environmental practices in all its activities, demanding ever-improving levels of excellence in its socio-environmental performance from its contractors;
- develop communication tools with PROCASE II beneficiaries, neighboring communities, and society in general to ensure the flow of information about the PMU's actions, safety procedures and emergency actions;

- create a set of regulations to guarantee respect, safety and health for workers involved in the construction and operation of PROCASE II subprojects, whether they are hired directly by the PMU or by service providers and material suppliers;
- building an environment of respect for the original and/or traditional peoples of Brazil: indigenous peoples, quilombolas, fishers, Roma, and others;
- adapting the PMU's actions to the various legally protected areas and/or environments considered critical due to the need for their conservation or the ecosystem services they provide;
- promote the dissemination of information about the direct and indirect benefits and implications of PROCASE II infrastructure interventions;
- Enable the involvement of office and field teams in complying with legal socio-environmental parameters;
- involve the participation of sectors from *input* (design) to *output* (execution and control and monitoring) in meeting social and environmental requirements;
- promote proactivity in the perception and practice of sustainability principles in projects and works.

### **Targets - Starter Set**

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- reviewing, approving, and implementing the Normative Set described in this ESMS;
- draw up a set of Technical Reference Procedures, based on the ESMS Technical Instructions;
- carry out at least one annual cycle of training and further training in Environmental and Social Management for the technical staff of the teams involved in PROCASE II;
- drawing up and implementing the socio-environmental budget for the fiscal year, in order to make this ESMS viable;
- promote an annual board meeting to discuss the objectives of the ESMS, update them and ensure that they are fully implemented.

### **Health and Safety Policy**

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At PROCASE II, we are committed to operating in a safe manner, continually improving our policies and practices for the future. We aim to create a work culture that incorporates safety into all daily activities. We strive to maintain our corporate goal of providing an accident-free work environment and continue to strive for excellence in the areas of operational health and safety through the following commitments:

#### **Health and Safety Management**

- We will conduct our operations in such a way as to ensure the protection of the health and safety of our employees and the general public;
- We will require all employees of the organization to participate in our Occupational Health and Safety program and to be responsible, both individually and collectively, for working safely;
- We will provide our employees with the necessary on-the-job training, as well as training in industrial and operational safety issues;

- We will seek to comply with all applicable legal requirements and regulations;
- We will investigate incidents and accidents to determine their root cause;
- We will ensure that contractors working for PROCASE II are committed to conducting all operations safely and in accordance with applicable laws and regulations.

### **Continuous Improvement**

- We will carry out regular audits to ensure the success of the accident prevention plans, as well as to identify, where possible, areas for improvement;
- We will implement the necessary measures to minimize or eliminate the hazards identified within the scope of PROCASE II;
- We will publish occupational safety statistics, both for employees and contractors, to be able to monitor items that require improvement;
- We will review the Workers' Health and Safety Plan annually to ensure that it is in force and effective.

### **Communications**

- We will ensure that all workers, whether contractors or employees, know that they have the right to refuse to do any work they consider unsafe;
- We will inform employees and contractors of possible safety hazards on an ongoing basis;
- We will encourage all workers to immediately report and, if applicable, remedy any unsafe working condition or activity;
- We will openly communicate hazard and emergency response plans to affected parties through the company;
- We will hold general safety meetings for construction sites and project implementation, as well as safety meetings for specific jobs when necessary.

### **Environmental Policy**

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At PROCASE II we are committed to protecting the environment in which we operate, and we pride ourselves on operating in a safe and responsible manner. We recognize and accept our responsibility to develop resources, considering the environmental, economic, and social needs and expectations of interest groups. Our commitment is contained in the following environmental policy statement:

### **Environmental Management**

- We will incorporate the principles of environmental integrity, social justice and economic viability into our processes and projects;
- We will provide the teams with all the resources they need to make environmentally responsible decisions;
- We will strive to comply fully with applicable environmental legislation and regulations;
- We will carefully manage natural resources and improve the energy efficiency of our activities;



- We will assess the environmental sensitivity of the territory, identify impacts, and propose mitigation measures, as appropriate;
- In carrying out our operations, we will avoid pollution, conserve resources, and responsibly manage environmental liabilities;
- We will reduce the impact on the territory to a minimum;
- We will ensure that we are prepared at corporate level with an effective emergency response program.

### **Continuous Improvement**

- We will promote innovation and the development and implementation of innovative ideas related to environmental integrity;
- We will measure our performance through comprehensive audits;
- We will set environmental goals and objectives to improve our performance.

### **Communications**

- We will respond to the concerns and expressions of interest groups in a timely and open manner;
- We will engage stakeholders to participate, if necessary, in discussions about our operations and the relationship they have with affected communities and the environment;
- We will provide clear and accurate environmental information about our operations, activities and services to users, employees, government entities and the general public, as required.

### **Community Relations Policy**

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PROCASE II has a responsibility to conduct its activities in a way that benefits the communities where it operates and society as a whole. This can be enhanced by involving responsible citizens in the communities where they live and work as project collaborators.

Success depends on the competence of staff, protection of the natural environment and the value PROCASE II brings to communities, with a commitment to generating value for communities, and considering the appropriate balance between the economic viability of its projects and the needs and interests of the communities in which it operates. PROCASE II builds a legacy of trust by implementing sub-projects in a sustainable manner. To ensure the long-term success of both PROCASE II and the benefiting community, the PMU believes in striking the right balance between the economic viability of its projects and the needs and interests of the communities in which it operates.

PROCASE II is committed to the following principles of community relations:

- Conduct operations according to the highest standards of personal integrity and ethical behavior;
- Respect the laws and regulations of the governments with which it works, as well as the beliefs and values of the communities;
- Offer an open exchange of information that is clear and relevant between communities, leaders, affected parties and PROCASE II;

- Communicate expectations about community relations to all employees and contractors;
- Always act with respect and in line with human rights;
- Always act with respect for the rights of traditional communities and indigenous peoples;
- Fighting gender-based violence, working for gender equality and diversity;
- Regularly review the effectiveness of community relations programs.

#### **4.2. RESPONSIBILITY FOR ESMS**

Responsibility for the ESMS lies with the PROCASE II management unit (PMU), represented by the designated SEAFDS team, with the support of the sub-executing agency team made up of EMPAER/SEDAP and any ATER companies contracted for technical assistance actions.

#### **4.3. COMMUNICATION AND DISSEMINATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK**

PROCASE II's Environmental and Social Management Framework, including its socio-environmental management and control instruments, will be disseminated through a formal implementation meeting held by the PMU for managers, advisors, and supervisors, who will then hold alignment meetings with their support teams, according to their responsibilities.

#### **4.4. ORGANIZATION AND COMPETENCIES**

The organization of environmental and social management is initially based on a framework involving legislation, the Environmental and Social Framework of the IDB and IFAD and the Institutional Aspects of the PMU, aligned with the specific typology of sub-projects, with specific socio-environmental impacts and goals.

A set of Technical Instructions has therefore been drawn up, which must be documented and followed by management in order to concisely implement the PROCASE II management framework. These instructions include:

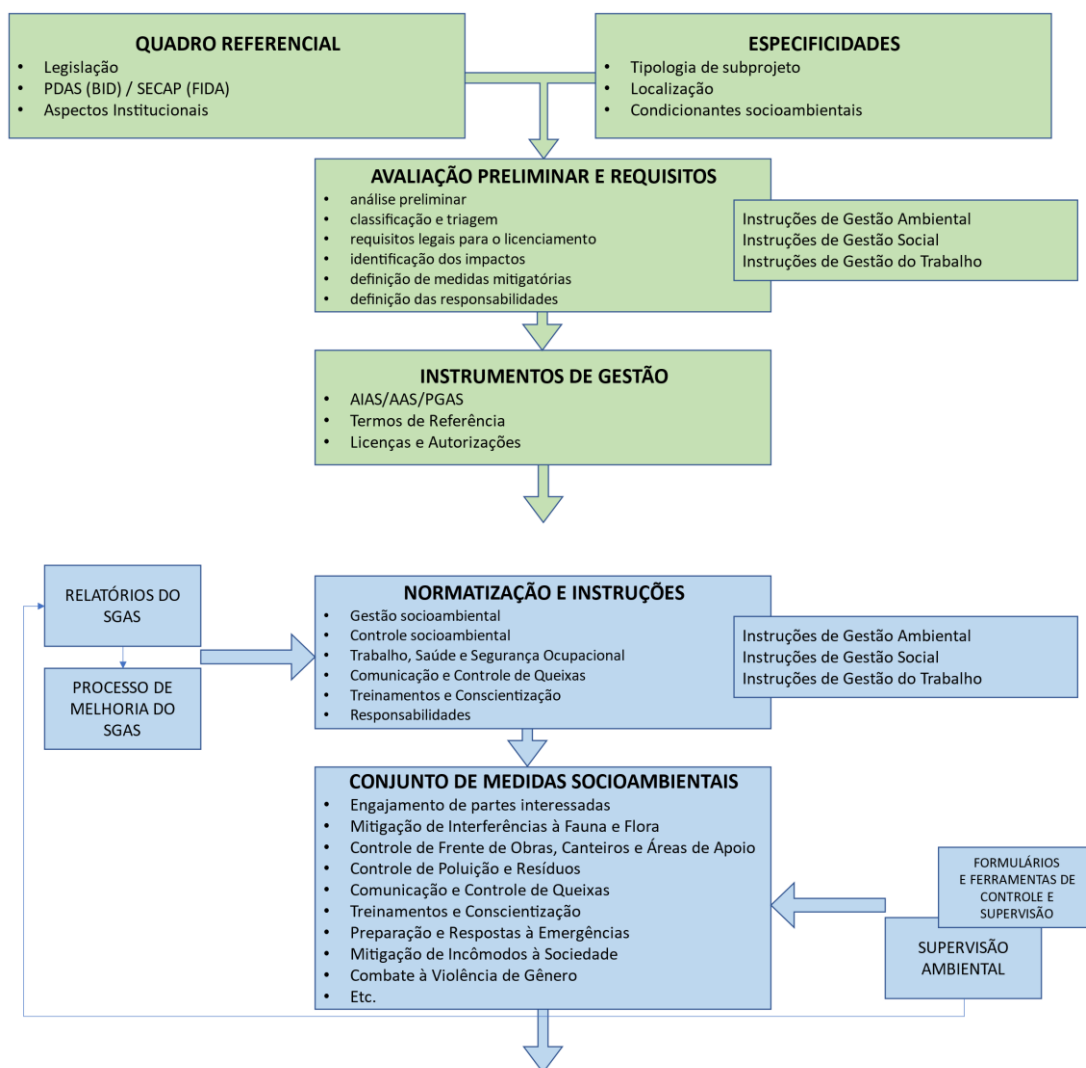
- in the design phase:
  - the preliminary environmental and social assessment of the subproject;
  - classification and sorting;
  - the legal requirements for licensing (where applicable);
  - the identification of environmental and social impacts;
  - the definition of mitigation measures;
  - the clear definition of responsibilities for mitigation and supervision activities;
  - the preparation of the Environmental and Social Management Plan specific to the sub-project;
  - preparing the terms of reference for contracting services and works for the sub-project.
- in the implementation phase:

- social and environmental management and control through the mitigation measures of the Environmental and Social Management Plan;
- the management of occupational health and safety requirements;
- the guarantee of communication and complaint control actions;
- training and awareness-raising for those involved;

The technical instructions for the implementation phase should provide for the definition of socio-environmental measures for each sub-project, with the planned procedures being effectively checked by socio-environmental supervision work in line with the mitigation measures. Socio-environmental supervision should be of a guiding and possibly punitive nature and should produce standardized documentation to compose the socio-environmental management reports and also feed its continuous improvement process.

The following figure shows the general logic of the Environmental and Social Management process.

**Figure 3 - General logic for project and works management**





Project phase



Construction phase

Source: Consulting, 2024

The execution of the socio-environmental measures set out in the ESMP must ensure that their implementation meets the established objectives and deadlines, including monitoring or preparation by the Supervision team responsible for the socio-environmental management of sub-projects. This team will be involved in the following assigned activities:

- Monitoring the timetables for implementing the Environmental and Social Mitigation Measures included in the sub-project execution contracts;
- Analysis and monitoring of Terms of Reference for contracting services for the supervision and/or execution of specific programs;
- Structuring a mechanism for producing and organizing information on the studies and assessments carried out, the progress and results of mitigation measures;
- Preparation of half-yearly management reports;
- Establishment of procedures for monitoring socio-environmental quality parameters in the intervention area, such as: noise, atmospheric emissions, effluents, waste, inconvenience to the population, impacts on the road system and traffic, erosion and silting up of rivers, destruction of habitats, disturbance to flora and fauna, etc., resulting from the implementation activities of the sub-projects, including actions to supervise activities related to good sustainable rural production practices for the production plans;
- Establishment of procedures for the relationship between the activities of socio-environmental supervision, management and inspection of actions related to the implementation of infrastructure and contracted companies, as well as in the case of the implementation of sub-projects of the Investment Plans with community beneficiaries, including the flow of documents for reporting socio-environmental occurrences, notification of non-compliance, periodic meetings to discuss the planning of works activities aimed at reducing environmental and social impacts.

#### 4.4.1. Teams Involved in Environmental and Social Management

The **State Secretariat for Family Farming and Semiarid Development (SEAFDS)** is the project's coordinating body, responsible for financial execution, procurement and contracting, as well as carrying out the necessary coordination, monitoring and supervising its execution.

To manage the project, SEAFDS will have a **Project Management Unit (PMU)**, which will be based in João Pessoa, and regional offices located at strategic points throughout Paraíba. The PMU and Regional Offices will be responsible for coordination, planning, institutional coordination, implementation, and monitoring of the actions promoted, working in close collaboration with the SEAFDS coordinators and technical advisors.

The arrangement will also include the participation of a **sub-executing agency** formed by the **Research, Rural Extension and Land Regularization Company (EMPAER/SEDAP)**. EMPAER's directorate dedicated to technical advice and rural extension (the former EMATER) will take on the task of providing part of the Technical Assistance (TA) services, both in Component 1 and Component 2. EMPAER's directorate dealing with land issues (the former INTERPA) will be the entity in charge of carrying out the land regularization provided for in the Project. EMPAER's scientific research directorate (formerly EMEPA) will be in charge of carrying out some of the technological exchanges provided for in the Project.

EMPAER has experience in carrying out technical assistance and rural extension, land management and scientific research aimed at technological development.

It is also planned to set up an **Executive Productive Investment Management Committee (CEGIP)**, a collegiate body made up of the executing agency, sub-executing agencies, government bodies and representatives of organized civil society, which will have to approve PROCASE II's annual operational planning.

CEGIP will be set up by means of Rules of Procedure. According to Article 2 of the CEGIP Rules of Procedure, the Committee is responsible for:

I. To assess and approve the Resilient Investment Projects (RIP) submitted by the PMU/PROCASE;

II. Requesting, at any time, information from the PROCASE State Coordinator on projects and investments carried out within the scope of the territorial collegiate bodies in the state of Paraíba;

III. Monitoring the efficiency of the socio-environmental safeguard policies and actions adopted by PROCASE in the Strategic Environmental and Social Management Plan - PGASE;

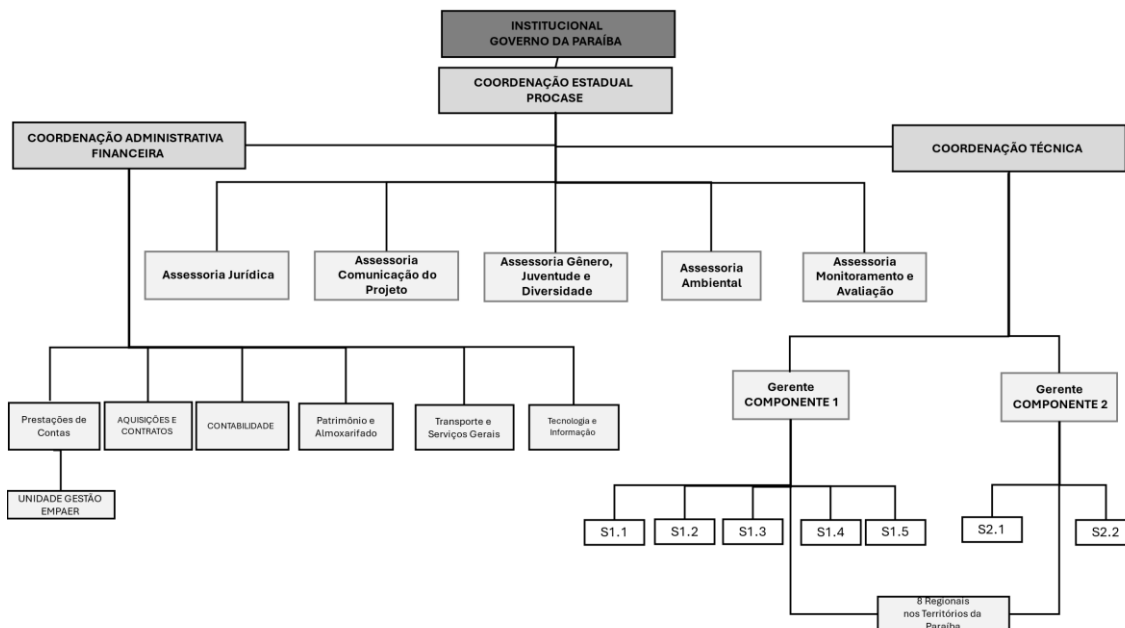
IV. To monitor, every six months, the progress measured by the results indicators and products delivered by the Sustainable Rural Development Project, in accordance with the guidelines of the Project Operational Report (ROP).

CEGIP will have the following composition:

- Head of the State Secretariat for Family Farming and Semiarid Development (SEAFDS) as President, with the Executive Secretary of this portfolio as Alternate;
- A representative or alternate from the Paraibana Research, Rural Extension and Land Regularization Company - EMPAER;
- A representative or alternate from the State Secretariat for the Environment and Sustainability (SEMAS);
- A representative or alternate from the Secretariat for Planning, Budget, and Management (SEPLAG);
- A representative or alternate from the Ministry of Agrarian Development (MDA);
- A full representative or an alternate from the State Coordination of Territorial Collegiates;
- A representative or alternate from the Federation of Agricultural Workers (FETAG);
- Full and alternate representative of the Federation of Agricultural Workers (FETRAF);
- A representative or alternate from the Articulação do Semiárido Brasileiro (ASA);
- A representative or alternate from the Landless Workers' Movement (MST);
- A representative or alternate from the Pastoral Land Commission (CPT);
- Full representative or an alternate from PROCASE;
- State Secretariat for Human Development (SEDH);
- State Secretariat for Women and Human Diversity (SEMDH);
- Executive Secretariat for Youth, Sport, and Leisure (SEJEL);

The general organization chart of the PROCASE II PMU is shown below, followed by the preliminary structure of socio-environmental management.

**Figure 4 - General organization chart of the PROCASE II institutional arrangement**



Source: PMU/PROCASE, 2024

**Figure 5 - PROCASE II Management Unit Proposal and Actors involved in the socio-environmental management of the Project**

Source: PMU/PROCASE, 2024

The sub-projects involved in PROCASE II will go through a process of analysis, evaluation, and definition of management instruments. This process is described in Chapter 5 below (Process for Identifying and Assessing the Program's Environmental and Social Risks and Impacts), and encompasses the screening / preliminary environmental analysis, and scoping / environmental and social assessment phases, containing impact assessment and definition of the environmental and social management plan.

Before the first phase, the subprojects are subjected to exclusion and eligibility criteria from the IDB and IFAD, which will ensure that the subproject is not eligible to be included in the PROCASE II portfolio. During the first phase, a Preliminary Analysis is carried out to screen and classify the subproject in order to establish which impact assessment and environmental and social management instruments should be drawn up. Once the first phase has been completed and the scope of the ESIA/SIA and ESMP has been defined, these documents should be drawn up in accordance with the level and particularities of the subproject typology. At this point, the Public Consultation and Stakeholder Engagement Process should be carried out, and these actions should be planned and foreseen in the preparation of the ESIA/SIA and ESMP. The documents resulting from this phase should be submitted to the IDB and IFAD for non-objection.

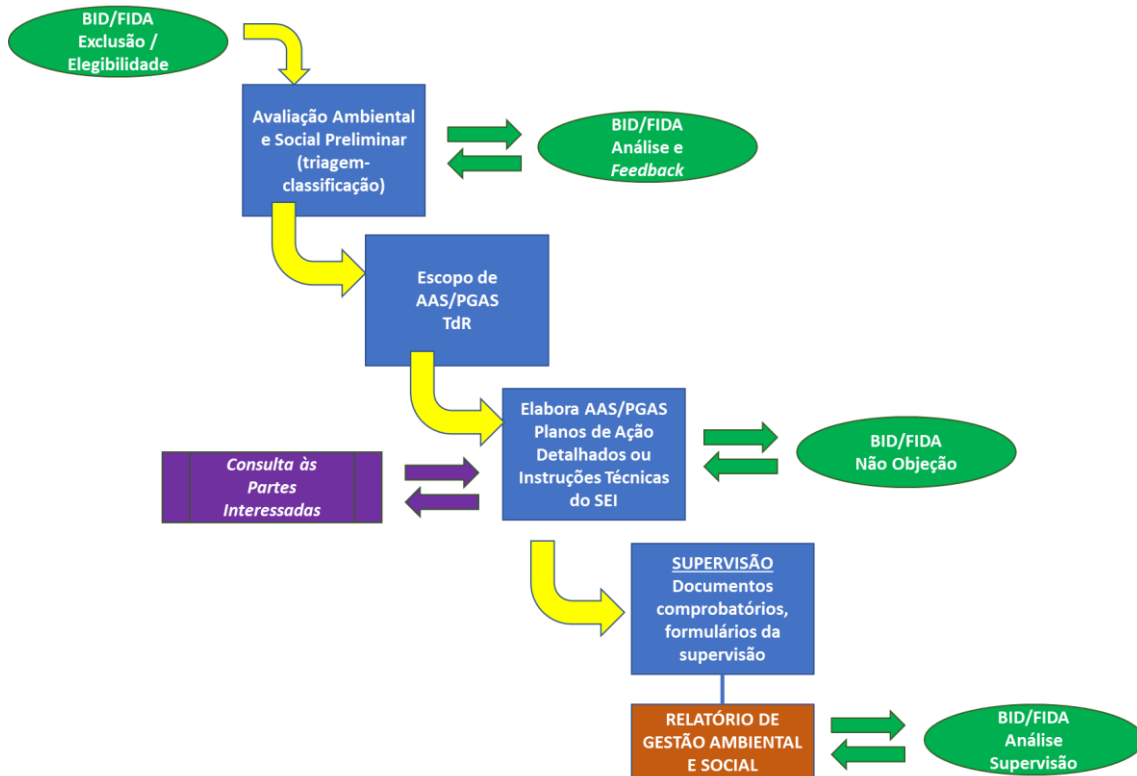
The result of this process will enable the implementation of action plans, procedures, and technical instructions internally within the PMU and contractors for the implementation of the ESMP and Environmental and Social Supervision which, in turn,

will generate supporting documents on the implementation of the planned measures which will result in the Environmental and Social Management Report. This report must also be submitted to the IDB/IFAD, through the appropriate channels to be agreed between the teams, for analysis and recommendations.

The IDB/IFAD will analyze and respond to the verdict of no objection and additional observations/requests. The IFIs may also carry out supervision of PROCASE II works and structures.

The figure below illustrates IDB/IFAD participation in the environmental and social analysis and *feedback* of documents and sub-projects.

**Figure 6 -IDB/IFAD Analysis and Feedback**



Source: Consulting, 2023

In summary, the main social and environmental management processes will be linked to those responsible as follows:

- It is intended to use EMPAER/TA to carry out some implementation and supervision roles for some socio-environmental and climate change mitigation programs, including the support of a specific community representative. In order to meet the demands of the IDB's PDAS and IFAD's SECAP, the PMU team supported by EMPAER/TA will have to include a specialist in social, environmental, gender, cultural diversity<sup>6</sup> and occupational health and safety<sup>7</sup>. The PMU will also be responsible for hiring specialists to meet specific demands in environmental and social studies.

<sup>6</sup> Cultural diversity experts can be hired through specialized consultancy services on demand.

<sup>7</sup> Occupational health and safety specialists can be hired by construction companies or by specialized consultancy services on demand.

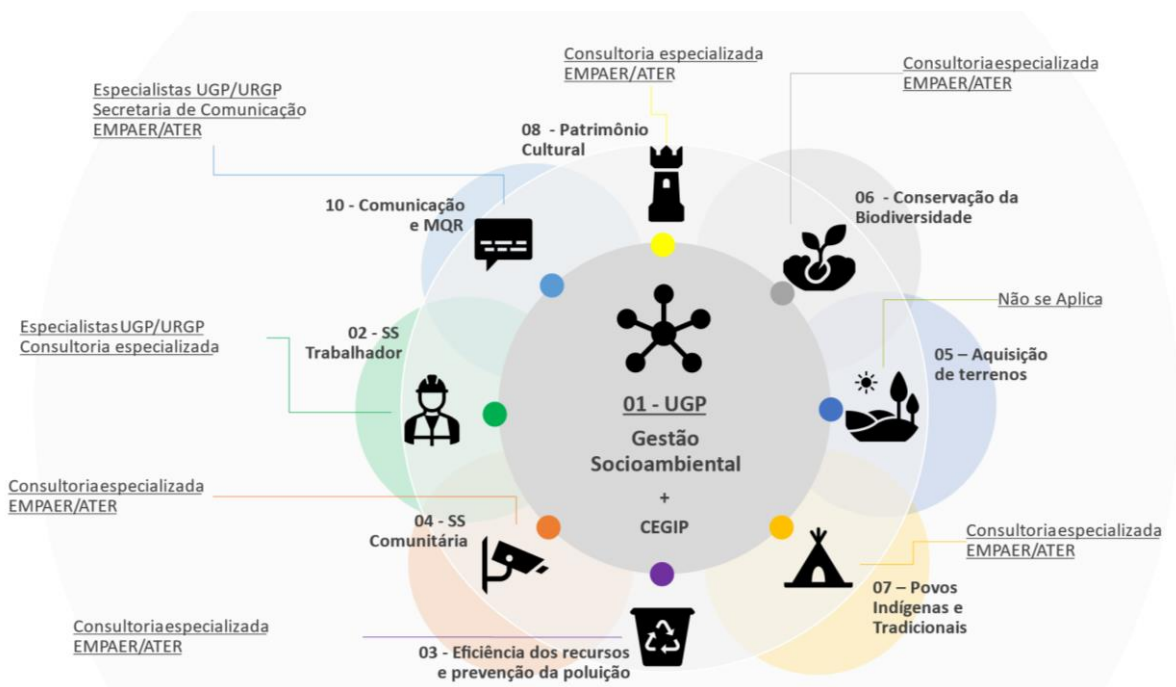
- The PMU's Socio-Environmental Management should consolidate the six-monthly report with the help of the Supervision team. The Environmental and Social Report will be reviewed by Management once it has been consolidated.
- All the sub-projects drawn up within the scope of the PROJECT will go through the Socio-Environmental Management screening and evaluation process for considerations and possible adjustments, before being submitted to the IDB/IFAD for non-objection.
- The preparation of ESIA's and ESMP's for each subproject will be carried out by a team provided by EMPAER/TA or contracted separately under the supervision of the PMU.
- Communication actions will be carried out by the PMU team, including EMPAER/TA and the 8 Regional Offices -Regional Project Management Unit (RPMU), as well as the citizen service system of the State Government Departments involved in PROCASE II. For the Environmental Education actions, the PMU's socio-environmental management team will be responsible for publicizing them, in collaboration with EMPAER/TA.

### Structure of Environmental and Social Management

In general, the institutional assessment carried out found that the proposal to coordinate Socio-Environmental Management, together with the contracted TA, will play an important role in the screening/classification process and the implementation of socio-environmental measures, with the support of the Regional Offices (RPMU) and any specialists hired for implementation and supervision.

Another interrelationship of the PMU/TA is observed in the evaluation of sub-projects with a view to improving their design and meeting relevant environmental and social requirements.

**Figure 7 - Mental model of the interrelationship process between the departments of the State Government, the PMU and TA**



Source: Consulting, 2024



The main activities related to the parties involved in PROCASE II's environmental and social management structure are described below.

### **Social and Environmental Management**

- Monitor the implementation of the programs set out in the Project's ESMP in conjunction with the other departments involved;
- To monitor actions relating to interventions involving socio-environmental issues and climate change, with the support of the Regional Offices and TA;
- Supporting consultations and public hearings, as appropriate;
- Periodically present an assessment of the efficiency of the socio-environmental projects related to the planned physical interventions, and any necessary adjustments;
- Liaising with the environmental authorities regarding the environmental licensing processes for the project components;
- Articulate permanently with the other members of the PMU and other participating entities, considering, in particular, socio-environmental planning and climate change issues;
- Ensure that the population directly affected by the temporary effects of the subprojects is informed of the project cycle, in accordance with local and IDB/IDA regulations;
- Advising the key TA and Regional teams in the field of socio-environmental interventions;
- Coordinate the monitoring of strategic impact and results indicators, both social and environmental, and climate change, as part of the project's monitoring and evaluation system;
- Coordinate actions regarding environmental and social questions raised by civil society and other stakeholders in the planned programs;
- Coordinate actions relating to the socio-environmental aspects of the project's implementation;
- Facilitating dialog and coordination between municipal departments and communities in socio-environmental actions;
- To plan and coordinate all socio-environmental activities in the services to be provided, observing the IDB/IFAD's socio-environmental and climate change policies and the guidelines established for the Project;
- Supervising and evaluating activities related to socio-environmental studies and projects, promoting compliance with the norms and standards established in the loan agreement and the Project Operational Manual, as well as technical supervision related to the implementation of recurring actions, with a view to achieving the defined goals;
- Supervising and assessing compliance with the environmental requirements set out in the environmental impact and control studies (AIAS, AAS, PGAS, ASC and others), in national, state, and municipal legislation and standards, and in the environmental licenses granted by the licensing authority;
- Carry out a preliminary assessment of the sub-projects.

### **Regional Project Management Units - RPMU**

PROCASE II will have eight Regional Project Management Units (RPMU), each made up of a team of three specialized consultants. These consultants will have backgrounds in the areas of Agricultural Sciences, Environmental Sciences and Human Sciences.

Consultants in agricultural sciences may have a background in agronomy, agroecology, agricultural engineering, zootecnics, veterinary medicine, among others.

In the area of Environmental Sciences, consultants may have a background in Biology, Ecology, Environmental Engineering, Environmental Management, among others.

The Human Sciences consultants include professionals from the fields of Anthropology, Sociology, Psychology, Social Work, among others.

The team is multidisciplinary, reflecting the complexity and necessity of the project. This diversity of specializations allows for a holistic and integrated approach to the various demands of PROCASE II.

Within this structure, one of the consultants will be responsible for territory coordination, with the aim of supervising and coordinating the teams of consultants in their assigned territory, ensuring that project activities are aligned with project needs and local realities.

Each of the 8 PROCASE II Regional Offices are strategically located in municipalities that have regional centralities in the Rural Territories, providing, in addition to face-to-face service, a telephone number, WhatsApp and e-mail. All these channels will be incorporated as part of PROCASE II's Complaints Management Mechanism.

The following table shows the addresses and contact telephone numbers of all the regional offices:

**Table 2 - Possible addresses of Regional Offices**

<b>MUNICIPALITY</b>	<b>Address</b>
João Pessoa	Avenida Rio Grande do Sul, nº 1.345, Bairro dos Estados, Edifício Evolution Business Center, 16º andar, CEP: 58.030-021
Campina Grande	Av. Jorn. Assis Chateaubriand, 2630, Estacao Velha, Edifício do CDRM, CEP: 58.105-421
Cuité	Av. Petrônio Figueiredo, 811-859, Jardim Planalto, Edifício da Casa da Cidadania, CEP: 58.175-000
Sumé	Rodovia BR-412, 425, Centro, Edifício do NEXT/UFCG, CEP: 58.540-000
Patos	Rua João da Mata, 90, Centro, CEP: 58.700-080
Sousa	Rua Emídio Pires, 84, Centro, CEP: 58.802-270
Catolé do Rocha	Av. Deputado Américo Maia, 37, Centro, CEP: 58.884-000
Itaporanga	Rua Elvidio de Figueiredo, S/N, Margens PB 386, Bairro Loteamento João Silvino, CEP: 58.780-000

Source: PROCASE, 2024.

The RPMUs, therefore, are the "field arms" of the PMU and usually carry out actions such as: (i) interaction with the Municipalities, with the benefited communities and with other institutions operating locally; (ii) interlocution in the implementation processes of the sub-projects; (iii) inspection and supervision of project works in the field in conjunction with EMPAER/TA.

The RPMU technical team, in conjunction with the TA teams, is responsible for implementing and executing socio-environmental actions. It is also responsible for direct relations with the residents, individual approaches, on-site assistance, monitoring the progress of the implementation of the sub-projects and their indicators, and constant monitoring of the families at all stages of the sub-project, with the support of TA.

These include:

- Monitor all stages of the subproject;
- Supporting the PMU in carrying out Public Consultations;
- Assembling documentary files;
- Supervising and guiding EMPAER/TA, municipalities and communities;
- Communicate situations and occurrences in the field to the PMU;
- Providing individual and collective assistance to clarify doubts and disseminate information about the sub-projects;
- Assisting in the reception of queries and complaints, providing clarification where appropriate and/or forwarding them to the official complaints channels for resolution by the competent teams;
- Record and maintain consolidated, up-to-date, and standardized information on the services provided.

### **Bodies/Entities and Entities that are partners in the implementation of actions**

The project will also seek to strengthen partnerships with other government bodies, whether federal, state, or municipal. These include:

- The **Secretary of State for Women and Human Diversity - SEMDH**, with the executive departments for gender equity and racial equity responsible for implementing public policies for women and traditional communities and actions to strengthen these groups.
- The **Executive Secretariat for Youth**, an important partner in carrying out activities for young people in PROCASE II, such as exchanges and training.
- The **INSA (National Semi-arid Institute)**,
- **UFCG (Federal University of Campina Grande)**,
- The **UFPB (Federal University of Paraíba)**.
- The **Federal Institutes and EMBRAPA Cotton** (which has its headquarters in Campina Grande), will also seek to strengthen collaboration with other EMBRAPA units.

It will also be of the utmost importance to establish partnerships with town halls, as several of the project's actions will require this collaboration. Another important dialogue will be with social movements aimed at strengthening family farming and developing the semi-arid region and the forest zone. Whenever possible, the project will seek to establish partnerships with the private sector, be it business or the third sector.

### **Structure of the Mechanism for Receiving Complaints and Manifestations**

In line with the requirements for compliance with the Safeguard Policies, PROCASE II will provide mechanisms for dealing with the population's doubts and complaints, making it possible to establish a flow of information between the executing agent and the affected/benefited local population, and enabling specific concerns about impacts and socio-environmental measures, production plans, implementation and operation of sanitation systems to be addressed and resolved in a timely manner. These resources will be structured and deployed in such a way as to target communication precisely, monitor the transmission of key messages and assess the reaction of stakeholders, anticipating obstacles or problems.

It is important to highlight the need for the following process of critical evaluation and continuous improvement in the complaints management process with the following actions:

- Evaluate the reporting structure and decision-making procedure considering the roles and responsibilities of contractors and the PMU in managing stakeholder complaints.
- Review and ensure that the registration and follow-up systems of the Complaints Mechanism accurately document complaints as they are received.
- Ensure that complaints are treated confidentially when necessary or when required by the complainant.
- Ensure the identification of repeated or similar concerns that indicate deficiencies in socio-environmental management and possible non-compliance with IDB and IFAD Policies.

In terms of complaints and information disclosure mechanisms, the PMU already has relationship channels, communication channels and service channels that will be incorporated into the Project's Complaints and Grievances Management Mechanism.

The **relationship and service channels** are part of the set of instruments for communicating with the population that are available both within the structure of the PMU and through the State Secretariat for Family Farming and Semiarid Development - SEAFDS, to which the PMU belongs:

- 8 Regional Offices and their WhatsApp;
- PROCASE II telephone number: (83) 32149248
- SEAFDS service channel:
  - Phone: (83) 3214-9247
  - E-mail: [agriculturafamiliar@seafds.pb.gov.br](mailto:agriculturafamiliar@seafds.pb.gov.br);
- General Ombudsman of the Paraíba State Government:
  - Telephone: 0800-021-2310
  - E-mail: [ouvidoriageral@casacivil.pb.gov.br](mailto:ouvidoriageral@casacivil.pb.gov.br)
  - Website: <https://ouvidoriapb.pb.gov.br/register>

The **communication channels** include:

- Internet and social media, such as Facebook - [www.PROCASE.pb.gov.br](http://www.PROCASE.pb.gov.br), and Instagram <https://www.instagram.com/PROCASEpb/>
- Communication Secretariat - SECOM, involving: Mass Media and Press Office (radio, press); Advertising; Digital Communication and Citizen Information System.

These channels will filter and channel complaints to the PMU's technical team, which will be responsible for managing the PROJECT's complaints.

### **Regional Offices**

Each of PROCASE II's 8 Regional Offices are strategically located in municipalities that have regional centralities in the Rural Territories, providing not only face-to-face assistance, but also a telephone number, WhatsApp, and e-mail. All these channels will be incorporated as part of PROCASE II's Complaints Management Mechanism.

The following table shows the addresses of the regional offices:

**Table 3 - Possible addresses of Regional Offices**

MUNICIPALITY	Address
João Pessoa	Avenida Rio Grande do Sul, nº 1.345, Bairro dos Estados, Edifício Evolution Business Center, 16º andar, CEP: 58.030-021
Campina Grande	Av. Jorn. Assis Chateaubriand, 2630, Estacao Velha, Edifício do CDRM, CEP: 58.105-421
Cuité	Av. Petrônio Figueiredo, 811-859, Jardim Planalto, Edifício da Casa da Cidadania, CEP: 58.175-000
Sumé	Rodovia BR-412, 425, Centro, Edifício do NEXT/UFCG, CEP: 58.540-000
Ducks	Rua João da Mata, 90, Centro, CEP: 58.700-080
Sousa	Rua Emídio Pires, 84, Centro, CEP: 58.802-270
Catolé do Rocha	Av. Deputado Américo Maia, 37, Centro, CEP: 58.884-000
Itaporanga	Rua Elvidio de Figueiredo, S/N, Margens PB 386, Bairro Loteamento João Silvino, CEP: 58.780-000

Source: PROCASE, 2024.

For face-to-face assistance at the Regional Offices, the response times are:

- Immediate: in the prompt clarification of doubts;
- Emergency: 48 hours, when the situation requires a rapid response and could cause a risk to the life or physical integrity of people or the infrastructure/project, or severe (irreversible) environmental damage;
- Up to 10 days for cases that cannot be answered promptly. In these situations, the questions will be forwarded to the PMU, which will contact the department responsible for responding and getting back to the complainant. If the responsible department still has no response, the PMU will assume responsibility and seek the necessary response or solution, clarifying the situation to the complainant and specifying how much more time will be needed to return with the definitive response.

### **PROCASE II website**

The PROCASE website (<https://www.PROCASE.pb.gov.br/>) contains various channels for contacting people, providing information, raising concerns and lodging complaints.

It also provides access to the Transparency Portal with detailed information on the company, its investments, contracts, income and expenses, management reports, account statements and financial operations.

The "Contact Us" section provides specific channels for citizens in general, as well as an electronic form for registering complaints.

Figure 8 - PROCASE website



Source: <https://www.PROCASE.pb.gov.br/>

Figure 9 - PROCASE website: Contact Us

**Mande sua mensagem**

Form fields for contact information:

- Nome \*
- Email \*
- Assunto
- Mensagem

Enviar

**PROCASE**  
Projeto de Desenvolvimento Sustentável do Cariri, Seridó e Curimataú  
Avenida Rio Grande do Sul, nº 1.345 no 16º Andar do Edifício Evolution Business Center, CEP 58.030-021, Bairro dos Estados, João Pessoa- Paraíba.  
Telefone para Contato: (83) 32149248



Source: <https://www.PROCASE.pb.gov.br/contato>

**Social Media - Facebook and Instagram**

Social media is mostly used as a channel for disseminating information about developments, launches and events. As it allows interaction with the target audience, information on access to services is also provided.



Within the framework of the Project, the operation of these platforms or any new profiles created specifically for PROCASE II or at local level by the municipalities should follow the same logic. When complaints or doubts about the project are identified, the managers of these networks must activate the complaints system through the official channels. In other words, no complaints or grievances can be dealt with or resolved on social media. These channels can receive and advise complainants on the correct channels for submitting their complaints.

**Figure 10 - Social Media**



Source: <https://www.instagram.com/PROCASEpb>

**Other communication and complaint channels:**

Complaints channels - IDB

The IDB's own channels are also part of the Complaints Mechanism:

- IDB Complaints Protocol: [quejas@iadb.org](mailto:quejas@iadb.org)
- Website: <https://www.iadb.org/pt-br/quem-somos/enviar-uma-alegacao/reclamacoes-ambientais-e-sociais>

Independent Consultation and Investigation Mechanism (ICIM):

The Independent Consultation and Investigation Mechanism (MICI) is a structure of the IDB Group, independent of the Bank's management and project teams, which deals with environmental and social complaints from communities potentially affected by the Group's operations. This independence allows it to act impartially and seek solutions with all the parties involved (the communities claiming affections; the IDB Group, as the financier of the operation; and the borrower (company or government) in charge of executing the project).

For more details, see: <https://www.iadb.org/pt/mici/o-que-e-o-mici>

Requests can be sent to the MICI Office in Washington, D.C. or to any IDB Representative Office (marked "For the attention of: MICI Office"), from where the request will be forwarded to the MICI Office.

MICI's address is:



- Independent Consultation and Investigation Mechanism, Inter-American Development Bank, 1300 New York Avenue, NW, Washington, D.C. 20577, United States.
- E-mail: mecanismo@iadb.org
- Phone: 202-623-3952; Fax: 202-312-4057

## **Institutional Strengthening of Social and Environmental Management**

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In order to complete this framework of professionals and functions in the environmental and social management of PROCASE II in an efficient manner, it is recommended that the PMU carry out:

- Definition of positions, responsibilities, and workflows for managing environmental, social and health and safety impacts;
- Hiring 5 professional specialists, one social specialist, one gender and social inclusion specialist, one environment and climate change specialist and two environmental and social safeguards specialists in the PMU structure.

According to the analysis of the institutional arrangement made between the IDB<sup>8</sup> and the PMU, there will also be a need for:

- Ensuring that the environmental and social impact management team is sufficient to respond to the high demand that will be generated by PROCASE II.
- Promote periodic training on the IDB's Social and Environmental Safeguards Policies;
- Develop, within the PMU, manuals for impact management, considering the best practices of the EO and IDB policies, for application in PROCASE II activities.

### **4.4.2. Management System Process**

As shown in the figure below, the Management Framework established and consolidated in the PROCASE II ESMP should be the beacon for the entire ESMS process flow, enabling the development of the system manual containing practical issues such as management tools, action plans, instructions for construction contractors, instructions for supervision, and all the documentation generated during the project phases (ESIAs, ESMPs, ToRs, etc.).

The Manual<sup>9</sup> to be generated must consider the document control system used by the PMU, as well as the Technical Instructions, Technical Notes, Plans established, and the entire framework structured for environmental and social management currently in force.

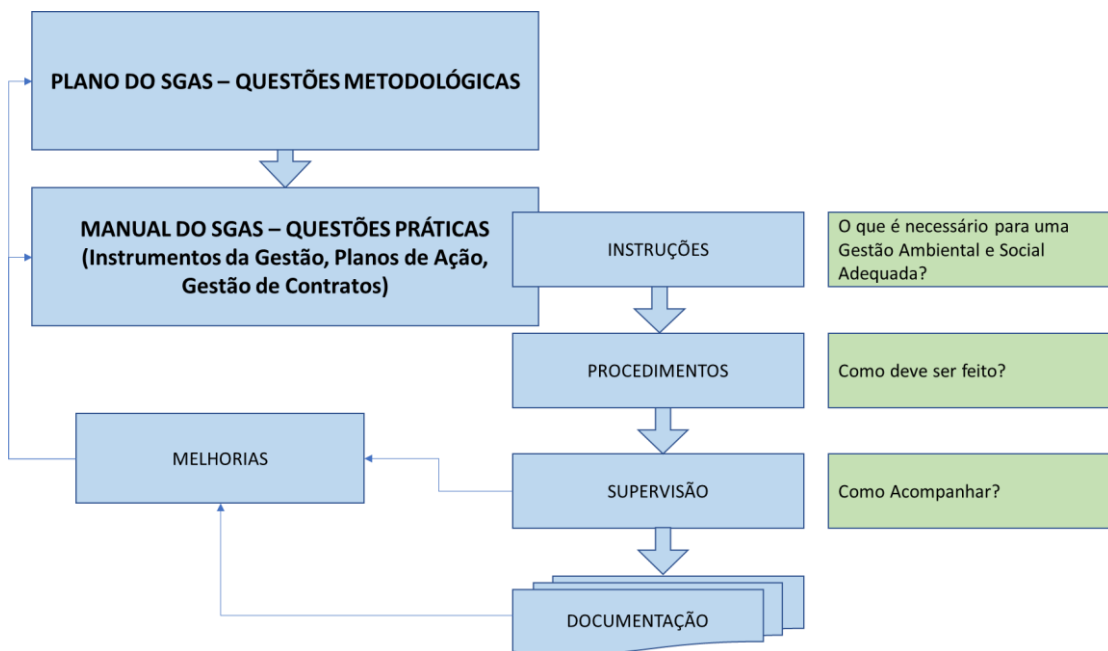
The instructions show what needs to be developed for proper environmental and social management, which in turn can be broken down into specific procedures (how the action should be carried out). The Environmental and Social Supervision team, in turn, will use these tools to monitor the implementation of sub-projects, generating the necessary documentation that will support part of the Environmental and Social Management Report.

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<sup>8</sup> Consolidated in the PACI Report document prepared by the IDB team in collaboration with car

<sup>9</sup> The ESMS Manual corresponds to the set of instructions and procedures established, described and formalized for environmental and social management.

**Figure 11 - Overview of ESMS**



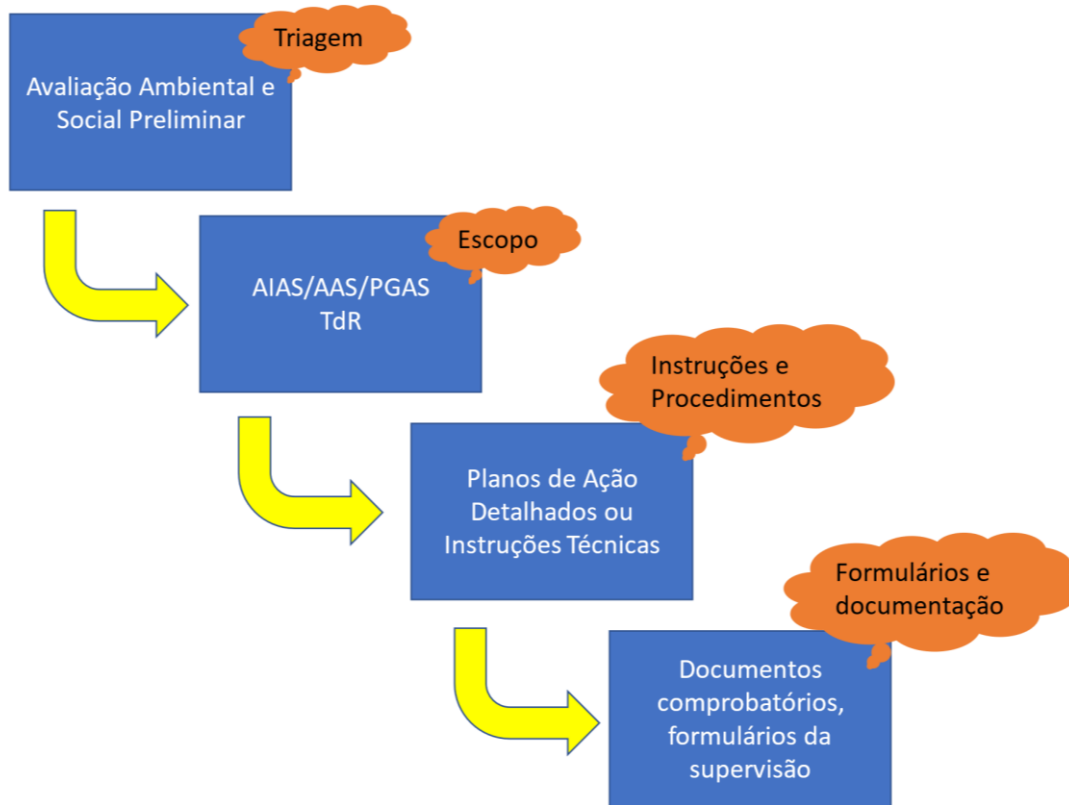
*Elaboration: Consultancy, 2021*

The preparation of action and mitigation plans should consider a mitigation hierarchy to: (i) anticipate and avoid risks and impacts; (ii) when avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; (iii) when risks and impacts have been minimized or reduced, mitigate them; (iv) when significant residual impacts and risks remain, compensate or neutralize them, when technically and financially feasible.

The process of developing and defining measures for the plans and programs follows the sequence presented below, first going through a screening phase, defining the scope (terms of reference) of the environmental and social assessments and environmental and social management plans, followed by carrying out the assessments<sup>10</sup> and consequent action plans and, finally, refining the monitoring and supervision instruments and forms, based on the models presented in this ESMS.

<sup>10</sup> These assessments incorporate the necessary mitigation hierarchy.

**Figure 12 - Process flow for developing and defining measures**



Source: Consulting, 2022

#### 4.4.3. Environmental and Social Management Report

Environmental and social management must be controlled by means of specific systematized documents through which the PMU will promote environmental and social management during the planning and implementation of works and compliance with legislation and the IDB's PDAS1: Assessment and Management of Environmental and Social Risks and Impacts.

Environmental and social monitoring reports will be drawn up for PROCAS II projects - the Environmental and Social Management Report - on the implementation of sub-projects and compliance with the measures defined in the ESMP, including those that go beyond the implementation period and into the operation stage, where appropriate.

The main document of the ESMS is the **Environmental and Social Management Report**, which will be developed based on compliance with the impact mitigation programs that make up the set of PROCASE II mitigation measures and which are presented in the PGAS.

The **Environmental and Social Management Report** presents the results of the environmental and social actions carried out and establishes the general guidelines, the main socio-environmental procedures, as well as some project instructions and technical specifications necessary for carrying out the activities in accordance with the socio-environmental studies and programs resulting from the environmental licensing of the works and the subproject's ESIA/AAS and ESMP.

The aim of the report is to indicate the main events related to environmental and social issues, including a summary of all the activities planned in the ESMP, the progress of these activities, occurrences, and issues, as well as their resolution and follow-up. The

evaluation of the community's concerns should also be included in this report, as well as an assessment of the sectors most concerned and the effectiveness of the solutions provided.

Information should be presented, which will be used as indicators for identifying problems and resolutions and improving the methodology for mitigating, compensating, and enhancing impacts, as well as improving the process of executing the ESMP for each sub-project.

The report should include all documentation, forms and formalizations and should be produced **every six months** consolidated, which should be sent to the IDB and IFAD as part of compliance with the measures established in this ESMS. Reports may also be produced at shorter intervals (quarterly, for example), giving an overview of the progress made in environmental and social management and the sensitive issues identified, and reports may be produced outside of these intervals when the matter reported on requires urgency.

The person **responsible** for drawing up this report will be the PMU's Socio-Environmental Management, with the support of the PMRUs and EMPAER/TA teams, consolidating the final version based on the input provided by each party involved in accordance with their responsibilities.

## 5. PROCESS FOR IDENTIFYING AND ASSESSING THE PROGRAM'S ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

The guidelines proposed below are established for all PROCASE II sub-projects.

### 5.1. Screening Measures, Classification and Scope for Subprojects

The environmental and social management of projects and works requires that instruments and processes be determined so that the actions defined to meet environmental and social requirements are guaranteed and are supervised and corrected when necessary.

For the environmental and social management of projects, we first considered the classification of projects and works according to their respective characteristics. Distinct characteristics are therefore highlighted, which will be considered when defining management instruments according to their size and the way they influence the environment and society. The criteria established are presented below.

**Responsible:** TA will be responsible for applying the screening tool to define the scope, and the PMU will be responsible for implementing this process with TA and managing and consolidating the results.

A preliminary analysis is carried out at the preliminary design stage, i.e. it should be started on the basis of a conceptual study or, at the latest, at the stage of drawing up a preliminary sub-project. This assessment should point out sensitive environmental and social issues, eliminating situations that make the project ineligible and a ranking using established criteria. According to the IDB's MPAS, all financed operations must be pre-assessed and classified according to their potential socio-environmental impacts, using 3 categories to classify operations according to their environmental and social risk:

- **Category A:** Operations that may cause significant negative environmental or social impacts or have profound implications affecting natural resources.
- **Category B:** Operations that have the potential to cause mainly local and short-term negative environmental or social impacts and whose effective mitigation measures are known and readily available.

- **Category C:** Operations likely to cause minimal or no environmental or social impacts.

The PROCASE II classification is **Category B**, so no work within the scope of the Project can be classified higher than **Category B** without the IDB and IFAD boards being consulted for further instructions and the possibility of eligibility. The classification of the works will be assessed through a Preliminary Environmental and Social Analysis to be carried out by the PMU and TA team contracted for each Subproject, followed by an impact assessment process and the establishment of a management and mitigation plan, which will then be submitted to the IDB and IFAD for a no-objection analysis.

The category of sub-projects will be indicated according to their level of risk, involving an assessment of environmental, social, land, etc. risks, obviously considering the environment, its aspects, and conditioning factors in which the project is inserted.

#### 5.1.1. Environmental and Social Analysis

The environmental and social analysis system includes a preliminary assessment phase for subprojects involving a practical tool to be carried out by the TA team with guidance from the PMU during the subproject design phase (preliminary project). It is important to note that no Subproject, or set of Subprojects, should be implemented without first undergoing the Environmental and Social Analysis recommended in this item.

Identifying the environmental and social risks and negative impacts of each Subproject (or set of Subprojects) covers the most important aspects for defining both the Impact Assessment and the Environmental and Social Management Plan. A Screening Worksheet should be completed by the technical team responsible for developing the Subproject as a preliminary stage of the assessment. This approach ensures that environmental and social safeguards are an integral part of each Subproject and are fully understood by the technical teams developing and supporting its implementation. By working on the development of the Subproject and the safeguards simultaneously, a "dialog" between the two processes is facilitated: the impacts and risks identified can be addressed with prior measures and design alternatives avoiding impacts or anticipating their mitigation.

**Conceptualization of Subprojects and Sets of Subprojects:** The tool can be applied either to a single Subproject, which may be configured in a single PIR, for example, or a single implementation action to be carried out in a community, or to a Set of Subprojects. The set of sub-projects must be defined by the PROCASE II team, considering the fact that they share the same geographical area and have the same socio-environmental aspects, or when the same community benefits from more than one sub-project. This joint organization aims to assess the same environment, converge impacts, and propose synergistic mitigation solutions for the Subprojects, optimizing the preparation of Impact Assessments and Management Plans.

The suggested tool will work as follows:

- **Stage 1- Screening:** The technicians fill in the screening form. The form is structured to cover the different sensitive issues that trigger environmental and social safeguards. For each safeguard, a set of questions identifies the possible risks and negative impacts. The questions are formulated so that a "yes" answer indicates a risk or negative impact.
- **Stage 2- Categorization of the Subproject or Set of Subprojects:** In this step, the level of each risk identified in STEP 1 is assessed and categorized as minimal, moderate, substantial, or high. This joint categorization of the issues assessed will confirm the Category of the Subproject or Set of Subprojects, in accordance with the

provisions of PDAS 1 of the IDB's MPAS (Assessment and Management of Environmental and Social Risks and Impacts)<sup>11</sup>.

- **Stage 3- Environmental and Social Impact Assessments - ESIA and ESIA:** In order to confirm the impacts and risks identified in STAGE 1 and verify the existence of other unforeseen impacts and risks, the borrower must carry out an impact assessment proportional to the outcome of the Screening and Classification phase and the size/engagement of the Subproject(s). The impact assessment study may be a Simplified Environmental and Social Assessment (SEA) or an Environmental and Social Impact Assessment (ESIA), considering only the issues/conditions relevant to the Subproject to be assessed.
- **Stage 4 - Proposing Environmental and Social Management Measures and Plans for the Subproject or Set of Subprojects - ESMP:** For each risk or negative impact identified, a mitigation measure must be listed, and for this a specific Environmental and Social Management Plan - ESMP for the Subproject or Set of Subprojects must be drawn up. The ESMP may be supported by the guidelines set out in the PROCASE II ESMP.

**Chapter 5.1.1 of the PGASE** provides details of the proposed Environmental and Social Analysis mechanism. It is important to note that this tool may still undergo a process of adaptation in line with the experiences and best practices observed during PROCASE II.

#### 5.1.2. Eligibility Criteria

The socio-environmental eligibility criteria defined for PROCASE II can be found in **Chapter 5.1.2 of the PGASE**.

### 5.2. Suggested Methodology for Identifying and Assessing Environmental and Social Risks and Impacts

This chapter presents the methodology for the integrated analysis of the environmental and social impacts resulting from the implementation and operation phases of PROCASE II. The analysis is carried out in three stages, beginning with the identification of the environmental and social impacts, moving on to the prediction of their magnitude, and ending with the assessment of the importance of these impacts.

In accordance with the guidelines of the IDB's Environmental and Social Policy Framework, the Environmental and Social Performance Standard PDAS1 applies to all projects for which IDB financing is requested and defines the importance of the borrower establishing and maintaining an ESMS appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts, incorporating the identification of risks and impacts.

As a guide to the methodology for identifying and assessing risks and impacts, IFC Guidance Note 6 (June 27, 2019) states:

*The process of identifying risks and impacts will vary depending on the nature, size and location of the project. As a minimum, the client should examine and assess the risks and possible impacts on biodiversity and ecosystem services in the project's area of influence, taking into account the following items: (i) the location and scale of project activities, including those of associated facilities; (ii) their supply chains (as*

<sup>11</sup> Environmental and Social Screening and Categorization: 3.16 Impact Classification.

*required in paragraph 30 of Performance Standard 6); (iii) the proximity of the project to areas of known biodiversity value or areas known to provide ecosystem services; and (iv) the types of technology to be used (e.g. underground versus open pit mining, directional drilling and dispersed multi-well drilling areas versus high well density drilling areas, air cooled versus water cooled towers, etc.) and the efficiencies of the proposed equipment; and the potential for the project to induce impacts caused by third parties (for example, through new means of access to remote areas), such as informal settlers or hunters. Performance Standard 6 will not apply when no known risks to biodiversity or ecosystem services, including risks to possible knowledge gaps, are identified through a robust assessment.*

Thus, the process of identifying risks and impacts establishes that direct and indirect impacts related to the project on biodiversity, ecosystem services and society should be considered, and significant residual impacts identified. This process will consider the relevant threats to biodiversity and ecosystem services, focusing especially on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological alterations, nutrient loading, and pollution. It also establishes that consideration should be given to the different values attributed to biodiversity and ecosystem services by the affected communities and, where relevant, by other stakeholders.

In this regard, it is important to highlight IFC Guidance Note (NO) 6 (June 27, 2019), which states in its paragraph 15 that the environmental study should make clear the direct, indirect, and residual impacts related to the project on the species, ecosystems and ecosystem services identified in the baseline studies.

At the national level, it should be noted that federal legislation stipulates that Article 6(II) of CONAMA Resolution 01/86.

*Art. 6 - The environmental impact study will carry out at least the following technical activities:*

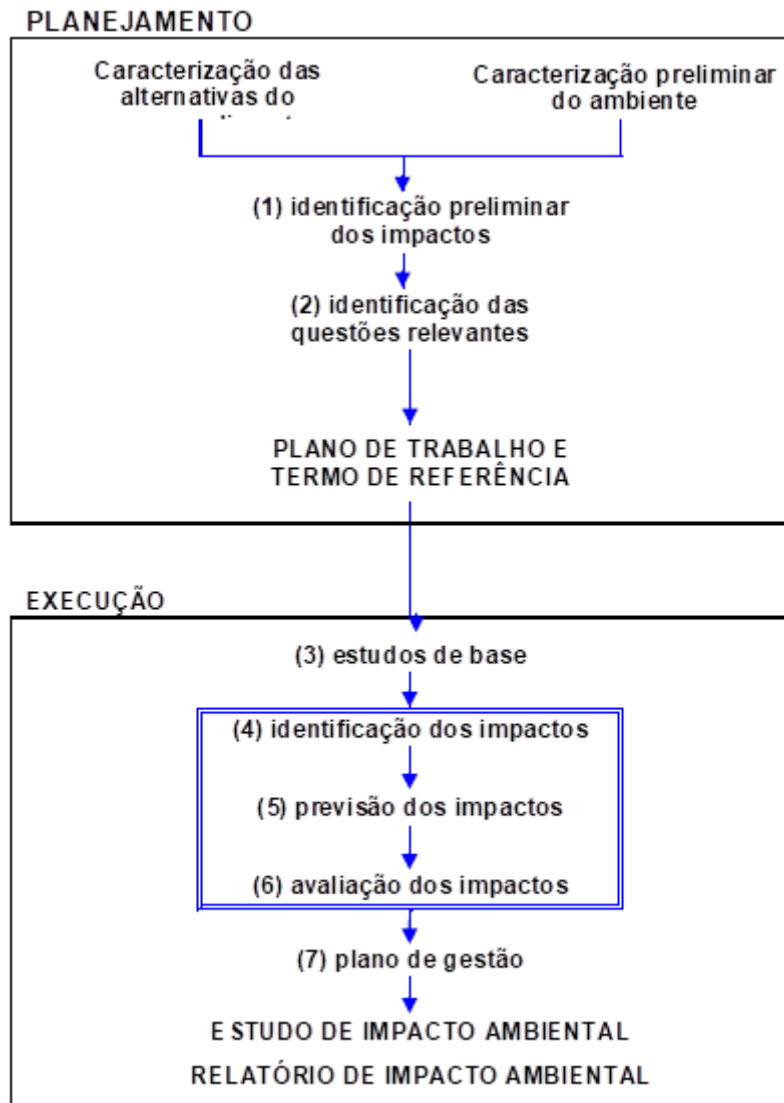
*II - Analysis of the environmental impacts of the project and its alternatives, by identifying, predicting the magnitude and interpreting the importance of the likely relevant impacts, breaking down: the positive and negative impacts (beneficial and adverse), direct and indirect, immediate and medium and long-term, temporary and permanent; their degree of reversibility; their cumulative and synergistic properties; the distribution of social burdens and benefits*

This chapter is divided into three sections:

- **Identification of Impacts:** construction of a list of impacts, correlating them to the activities of each of the phases of the project;
- **Prediction of Impacts:** presents estimates of the magnitude or intensity of the predicted impacts, using, where appropriate, quantitative, or qualitative indicators;
- **Impact assessment:** with the interpretation of the importance or significance of the expected impacts.

This process is based on Sánchez (2020), as shown in the following figure

**Figure 13 - Impact analysis process**



Source: Adapted from Sánchez (2020)

### Concepts

The main concepts used in this chapter are briefly described below.

**Cumulative impacts assessment:** is a tool for assessing the cumulative impacts of the project in combination with impacts from other relevant past, present and reasonably foreseeable developments, as well as unplanned but foreseeable activities that have been enabled by the project and that may occur later or in a different place.

**Cumulative impact:** the additional impact of the project when added to relevant past, present and reasonably foreseeable development impacts, as well as unplanned or foreseen activities allowed by the project that may happen later or in a different location. Cumulative impacts can arise from small individual but significantly collective activities that take place over a period of time. Cumulative impacts are limited to impacts generally recognized as important in science-based concerns and/or concerns of people affected by the project. Examples of cumulative impacts are: additional contribution in the emission of gases in the atmospheric basin; reduction of water flow in watersheds due



to multiple withdrawals; increase in sediment volume in watersheds; interference in migratory routes or wildlife displacement; or more congestion and accidents due to increased vehicle traffic on common roads.

**Indirect impact:** is the impact that is not directly caused by the project activity, but contributed to by that activity, often at a distance, or resulting in a complex impact trail. Other factors and third parties outside the direct control of the project are also associated factors.

**Impact:** Social and environmental impacts refer to any change, potential or actual, (i) to the physical, natural, or cultural environment; and (ii) impacts on the adjacent community and workers resulting from the business activity being supported.

**Social and Environmental Risk:** is the combination of the expected severity of (i) a project that may cause or contribute to a potential adverse environmental and social impact, or (ii) problems that may negatively affect the provision of environmental and social mitigation measures and results; and the probability of either or both of these occurring.

**Environmental Aspect:** According to Sánchez (2020): An element of an organization's activities, products or services that can interact with the environment.

**Activities:** Set of actions necessary for the implementation of a given project. The environmental impacts will be identified by correlating the environmental aspects with the actions.

**Mitigation Hierarchy:** Order of preference in the application of mitigating measures, namely, prevention of adverse environmental impacts first; when they are unavoidable, application of measures to minimize them; when they cannot be totally avoided or minimized, rehabilitation of the affected areas; and finally, compensation or offsetting of residual impacts, after prevention, minimization, or rehabilitation. The term "mitigation hierarchy" is a tool commonly applied in Environmental Impact Assessments to help manage risks. It includes measures taken to avoid impacts from the outset of development activities and, when this is not possible, to implement measures that minimize, then restore and, as a last resort, offset possible residual adverse impacts.

**Residual Impacts:** these are those related to the project, and which may remain after the mitigation hierarchy has been applied, including measures to avoid or minimize them. If compensation is required, a review of all residual impacts discovered through an assessment process must be carried out (IDB, Nov./2015).

**Ecosystem services:** these are the benefits that people, including companies, obtain from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulating services, which are the benefits that people obtain from regulating ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services. Examples are as follows: (i) provisioning services can include food, fresh water, timber, fibers and medicinal plants; (ii) regulating services can include surface water purification, carbon storage and sequestration, climate regulation and protection against natural hazards; (iii) cultural services can include natural areas that are sacred sites and important areas for recreation and aesthetic pleasure; and (iv) supporting services can include soil formation, nutrient cycling and primary production.

**Vulnerable Individuals or Groups:** are people or groups of people who may be more adversely affected by project impacts than others because of characteristics such as disability, health status, indigenous status, gender identity, sexual orientation, religion, race, color, ethnicity, age, language, personal or political opinions, national or social origin, property, birth, economic disadvantage, or social status. Other vulnerable

individuals and/or groups may include persons or groups in vulnerable situations, including the poor, the landless, the elderly, single-parent families, refugees, internally displaced persons, communities dependent on natural resources or other displaced persons who cannot be protected through national legislation and/or international law.

### 5.2.1. Suggested Impact Assessment Methodology

During the analysis of impacts, the mitigation hierarchy approach should be adopted:

- anticipate and avoid risks and impacts;
- when it is not possible to avoid, minimize or reduce risks and impacts to acceptable levels;
- once the risks and impacts have been minimized or reduced, mitigate them;
- where residual significant impacts remain, compensate, or neutralize them, where technically<sup>12</sup> and financially feasible<sup>13</sup>

It is important to consider that the social and environmental management tools to be employed during PROCASE II should be assessed in accordance with the risks and impacts of the sub-project, as well as the definition of the measures and actions identified to manage these risks and impacts. These instruments will consider the experience and capacity of the parties involved in the project, including control bodies, legislation, the communities affected by the project and other stakeholders, and aim to support better social and environmental performance.

The identification of the probable impacts resulting from PROCASE II can be used as a tool for identifying socio-environmental aspects and impacts drawn up by Sánchez and Hacking (2002). In this matrix, lists of project activities, socio-environmental aspects and impacts are entered, with a view to identifying possible interactions between the elements. The following steps are followed to fill in the matrix:

1. Drawing up a list of activities<sup>14</sup> for implementation and operation, as provided for in the project and in accordance with the types of work presented.
2. Identification of socio-environmental aspects;
3. Completion of the first part of the matrix (correlation between activities and socio-environmental aspects), with: (i) Review of the selected activities and environmental aspects, in order to exclude or include new elements; and (ii) Classification of the environmental aspects as significant or insignificant;
4. Identification of the probable environmental impacts associated with each aspect, by filling in the second part of the matrix for identifying environmental aspects and impacts;

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<sup>12</sup> Technical feasibility is based on whether the proposed measures and actions can be implemented with commercially available expertise, equipment and materials, considering local factors such as climate, geography, demographics, infrastructure, security, governance, capacity and operational reliability

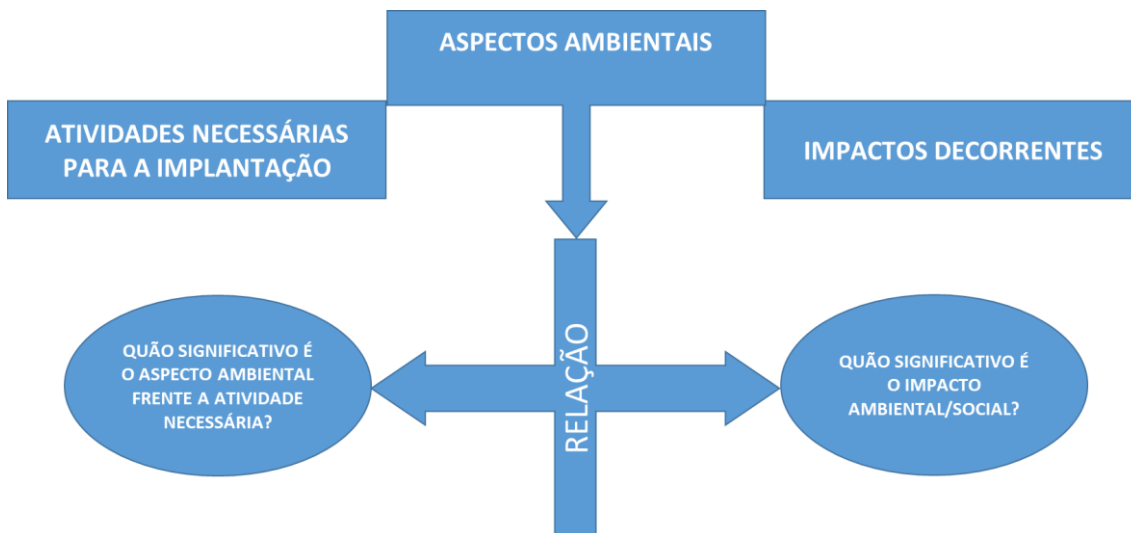
<sup>13</sup> Financial viability is based on relevant financial considerations, including the relative magnitude of the additional cost of adopting such measures and actions compared to the investment, operation and maintenance costs of the project, and whether this additional cost could make the project unviable for the Borrower

<sup>14</sup> Activities are the sets of actions required to implement a project, for example, if cutting down vegetation is required to construct a building, then this is considered an activity inherent to the project.

5. Evaluation of the importance of impacts as low, medium, or high.
6. Analysis of impacts and determination of mitigating measures, according to the mitigation hierarchy.

The following figure shows the logic used to identify the impacts, considering which activities are necessary for the implementation or operation of the systems and their relationship of relevance to the socio-environmental aspects. Based on this analysis, the socio-environmental impacts and their significance are established, as well as the best way to mitigate them.

**Figure 14 - Definition of Environmental Impacts.**



*Elaboration: AmbGis 2022, adapted from Sánchez and Hacking (2002)*

As an example of this analysis strategy, a supposed impact identified as "Deterioration of surface water quality" can occur as a result of various project actions and be related to various socio-environmental aspects depending on: the environment, the works, the project phases, among others. Thus, the matrix designed aims to identify which activities and aspects effectively contribute to the socio-environmental impact, so as to enable the definition and direction of which Environmental/Social Programs and which mitigating actions should be carried out in a hierarchical manner to avoid or reduce the effects of a given impact.<sup>15</sup>

### **Matrix for identifying environmental and social activities, aspects, and impacts**

When filling in the Matrix, the environmental and social aspects are classified according to their significance, which can be significant or insignificant. Aspects are classified as significant if they meet at least one of the following criteria:

- (a) environmental risks and impacts, including:
  - (i) those identified by the environmental, health and safety guidelines;

<sup>15</sup> The mitigation hierarchy is defined by the order of preference in the application of mitigating measures, namely: first, the prevention of adverse socio-environmental impacts; when they are unavoidable, the application of measures to minimize them; when they cannot be totally avoided or minimized, the rehabilitation of the affected areas; and finally the compensation or offsetting of residual impacts, after prevention, minimization or rehabilitation. (IADB, 2015: Guide to assessing and managing impacts and risks to biodiversity in projects supported by the Inter-American Development Bank. Graham Watkins: Washington D.C., 2015. 94p.)

- (ii) those related to community safety;
- (iii) those related to climate change;
- (iv) any significant threat to the protection, conservation, maintenance and recovery of natural habitats and biodiversity; and
- (v) those related to ecosystem services and the use of living natural resources, such as fishing and forestry resources;
- (b) social risks and impacts, including:
  - (i) threats to human security due to the intensification of personal, community or interstate conflict, crime, or violence;
  - (ii) risks that project impacts may disproportionately affect disadvantaged or vulnerable individuals and groups;
  - (iii) any prejudice or discrimination against individuals or groups in access to development resources and project benefits, especially in the case of those who may be disadvantaged or vulnerable;
  - (iv) negative economic and social impacts related to the expropriation or restriction of land use;
  - (v) risks or impacts associated with the property

After defining the significance of the aspects, the probable environmental impacts are classified according to their importance, which can be low, medium, or high, according to the item **Assessing the importance of impacts**, below.

### **Assessing the importance of impacts**

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According to Sánchez (2020), the functions of assessing the significance of impacts are to interpret the meaning of the impacts identified, facilitate the comparison of alternatives, determine the need for mitigation measures and determine the need for project modifications. According to the author, "an impact will be more significant the more important or vulnerable the environmental or cultural resource affected and the greater the pressure on that resource".

In order to reduce the subjectivity of assessing the importance of impacts, the following criteria may be adopted:

- (I) Selection of attributes;
- (II) Classification of impacts according to attributes;
- (III) Combining the attributes, following logical rules, in order to assess the importance of the impacts;
- (IV) Applying logical rules to environmental impacts.

Attributes are characteristics of impacts that help to describe and qualify them. The following attributes were selected:

- **Expression:** beneficial or adverse impact, positive or negative character.
- **Origin:** direct or indirect impact, in terms of source. A direct impact results from the activities of the entrepreneur or contractor. An indirect impact is the consequence of a direct impact or the actions of third parties.

- **Duration:** temporary or permanent impact. Temporary impacts occur during one or more stages of the project and cease at the end of the project (at decommissioning). On the other hand, permanent impacts have a permanent or indefinite duration.
- **Time scale:** immediate, medium, or long-term impact. Immediate impacts occur simultaneously with the activities that cause them, while medium- to long-term impacts occur with a delay in relation to the source action. Medium-term impacts have a time lag of months, while long-term impacts have a time lag of years.
- **Reversibility:** reversible or irreversible impact, in terms of the ability of the affected environment/element to return to its previous state if the associated activities are terminated or corrective measures are applied.
- **Magnitude:** impact of high, medium, or low magnitude. Refers to the expected intensity of the impacts, with the effective implementation of mitigating measures.
- **Probability of occurrence:** impact with a certain, high, medium, or low probability of occurrence. Impacts of certain occurrences have no uncertainty as to their occurrence. On the other hand, high probability impacts are very likely to occur. Medium probability impacts are unlikely to occur but cannot be ruled out. Low probability impacts are very unlikely.
- **Spatial scale:** local, linear, municipal, regional, or global impact. Local impacts are limited to the project area. Linear impacts occur along transportation routes for inputs or products. Municipal impacts are limited to the boundaries of the municipality, while regional impacts have an area of influence that goes beyond the previous ones. Global impacts can affect the entire planet.
- **Existence of legal requirement:** legal requirement exists (yes) or does not exist (no). This refers to the existence of municipal, state, or federal legislation regulating the impact.

Some of these attributes should not influence the assessment of the importance of impacts, such as their expression and origin. Regardless of whether it is beneficial or adverse, direct, or indirect, an impact can be significant or insignificant. Analysis of the Impact Classification Matrix will show which attributes best represent the importance of an impact, so if - for example - there is little variability in the **time scale** attribute (all immediate impacts) this attribute is not relevant in determining the importance of the impact.

In this proposal, the importance of impacts can be determined by combining three attributes: magnitude, reversibility, and the existence of a legal requirement:

- **Magnitude** identifies "how much" the project may modify a resource. It is therefore fundamental for quantifying the extent of an impact, since the greater the magnitude of an impact, the greater the modification of the resource analyzed. However, the importance of environmental and social impacts must be analyzed in conjunction with other attributes.
- **Reversibility** represents the ability of the affected environment to return to its characteristics prior to the implementation of the project, through the termination of activities or the implementation of corrective measures. It therefore characterizes the impact as reversible or irreversible, which must consider not only technical characteristics, but also economic viability. Therefore, reversibility is fundamental in assessing importance, as irreversible impacts can compromise future generations.
- The **existence of legal requirements** highlights the regulated impacts - on the physical-biotic and anthropic environment - these are issues that are valued by

society, given that the laws incorporated have been voted on by parliamentarians or inserted into regulations arising from these laws (SÁNCHEZ, 2020).

In this way, the impacts can be considered as:

- high degree of importance:
  - when high or medium magnitude and, at the same time, the existence of legal requirements, regardless of their reversibility; or
  - high magnitude and irreversible, regardless of the existence of legal requirements.
- Small degree of importance:
  - when they are small and reversible, regardless of the existence of legal requirements.

It is important to note that impacts that do not fit the above criteria can be classified as of medium importance.

The following table summarizes the possibilities for classifying impacts, using the Magnitude, Reversibility and Existence of legal requirements attributes.

**Table 4 - Criteria for combining attributes to classify degree of importance**

Attributes			Degree of importance
Magnitude	Reversibility	Existence of legal requirements	
★★★ or ★★☆☆	independent		●
★★★		independent	
★☆☆		independent	◆
Other situations			▲

Table legend:

<b>Magnitude</b>	★★★ high	★★☆☆ average	★☆☆ low
<b>Reversibility</b>	reversible	irreversible	
<b>Existence of legal requirements</b>	yes	no	
<b>Degree of importance</b>	● high	▲ medium	◆ low

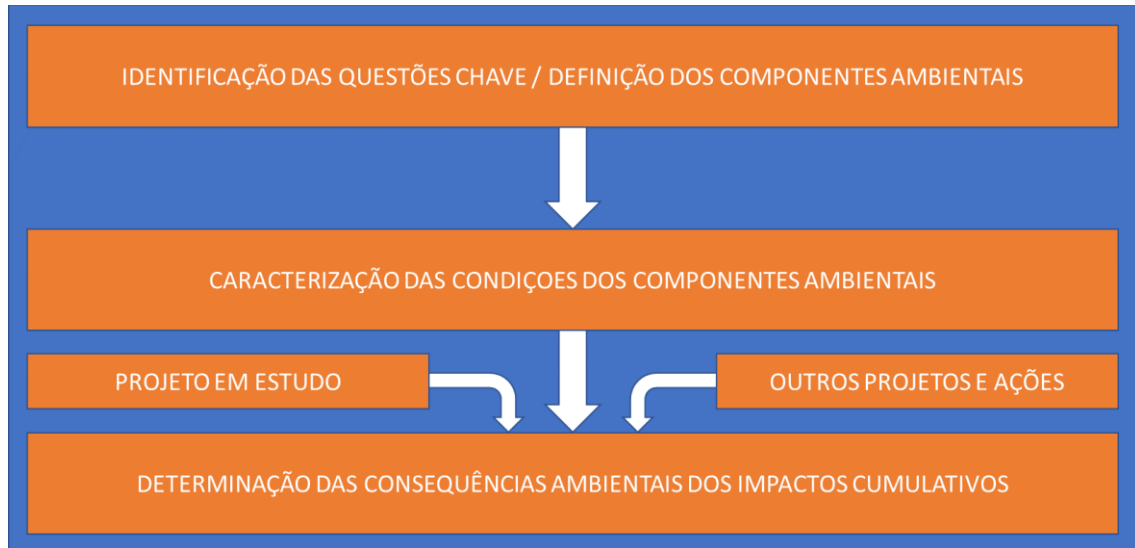
### 5.2.2. Suggested Methodology for Assessing Cumulative Impacts

To determine cumulative impacts, it is important to define a logical sequence that establishes clear limits on issues such as temporality, spatiality, significance of the impacts to be analyzed, as well as the identification of the Selected Environmental Components - CAS.

CAS are related to environmental and/or social attributes that can be individualized in a system and that are considered regionally relevant or that can be affected by combined/accumulated activities.

The simplified process is shown in the figure below:

**Figure 15 - Simplified Cumulative Impact Assessment Process**



*Elaboration: Consultancy, 2021*

### **Identification of key issues of interest and environmental components**

Initially, some questions must be answered that are key to the Selected Environmental Components, defined as follows (DIBO, 2018):

- identifying regional issues of interest associated with the project and defining the objectives of the assessment: this involves identifying the direct and indirect impacts of the proposed action, and which effects on the components are important from the perspective of cumulative impacts;
- select the environmental components: the environmental components that may be affected by the proposed action must be selected. Each component selected must be the subject of each step described below;
- establish spatial boundaries for the analysis: to define spatial boundaries for each selected environmental component (CAS), you can, for example, determine the area that will be affected by the action (project impact zone);
- establishing time limits: the aim is to determine the periods in the past and future that should be considered for the analysis. The time limit for the past starts before the proposed action and for the future it is the time in which a CAS recovers from the effects of the actions;
- identify other actions that affect the CAS: other past, present, and reasonably near future actions that can cause effects and that can interact with the effects caused by the action under analysis should be identified for each environmental component.

It is important to note that the CAS makes it possible to better understand and monitor environmental consequences, particularly considering the growing significance of risk factors, such as those related to biodiversity (IFC, 2013).

## Characterization of the conditions of the selected environmental components

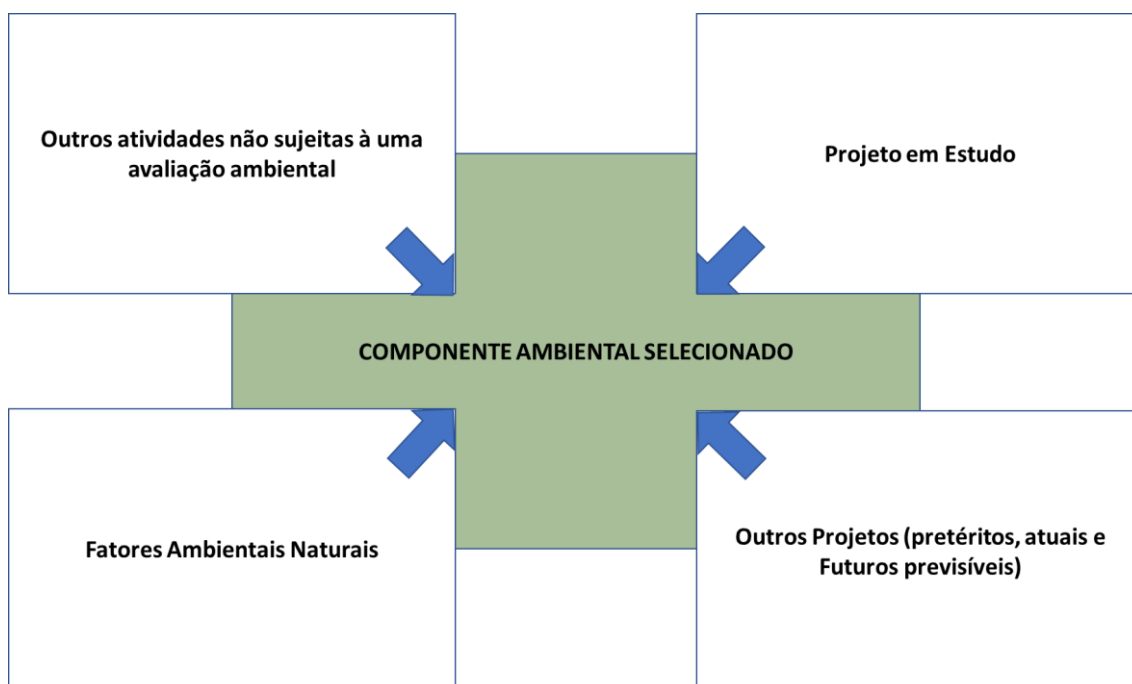
Once the Environmental Components have been defined, it is important to carry out an analysis to determine the current condition of the components. This baseline analysis shows any imbalances and tensions that are already occurring in these components, and which may be accentuated. In general, the characterization includes:

- historical issues (formation, presence of liabilities, among others);
- current diagnosis;
- tensions and pressures already existing on the components, when identified;
- future projects that could put pressure on the components, when identified.

## Determining the environmental consequences of cumulative impacts

Once the key issues have been defined and the situation of the selected environmental components has been characterized, the cause-and-effect relationships between the actions can be identified, i.e., how the CAS will react to the stimuli caused by the cumulative changes imposed by the project under analysis together with the other actions within a given timeframe.

**Figure 16 - Selected Environmental Component and its possible interactions**



*Elaboration: Consultancy, 2021*

It is important to establish a standard for determining the magnitude and significance of cumulative impacts in order to establish a ranking of consequences on the CAS, making it easier to propose forms of mitigation.

A valuable tool can be the overlay of maps on geographic information systems (GIS), which incorporate various spatial analysis tools that make it easier to understand the effects of environmental impacts on the land and their possible interrelationship with the CAS. This overlay can also be used to accumulate disturbances in zones, providing a more realistic picture for analysis.



There are various methods for assessing cumulative impacts, including participatory methods with local populations, methods in the form of checklists and matrices, as well as diagrams and decision networks.

Below are some methods that should/could be used (adapted from Dibo, 2018).

### **Analysis of carrying capacity and ecosystem**

The analysis of carrying capacity seeks to establish a threshold for environmental resources, providing mechanisms for monitoring them. It is a valuable tool in situations where projects are acting directly on biota, especially extractive projects, but it is also good for establishing monitoring tools for other activities.

In the case of ecosystem analysis, the approach explicitly targets the sustainability of biodiversity and ecosystems. The ecosystem approach uses natural boundaries (such as watersheds and ecoregions), where new ecological indicators (such as biotic integrity indices and landscape metrics analysis) are applied. Furthermore, ecosystem analysis implies a broad regional perspective and holistic thinking, which are necessary for a successful CTA in this method.

### **Economic impact analysis**

Economic impact analysis is an important component during CTAs because the economic well-being of a local community depends on several different actions that can act synergistically. The first steps in conducting an economic impact analysis are: (1) establishing the region of influence, (2) modeling the economic effects, and (3) determining the significance of the effects. Economic models play an important role in impact assessments and vary from simple to sophisticated models.

### **Social impact analysis**

Social impact analysis considers cumulative impacts related to the sustainability of human communities, focusing on (1) key social variables such as population characteristics, community and institutional structures, political and social resources, individual and family changes, and community resources, (2) projecting future effects using social analysis techniques such as linear trend projections, population multiplier methods, scenarios, expert testimony and simulation modeling.

### **Mitigation and Monitoring**

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Once the environmental consequences of cumulative impacts have been determined, it is important to have procedures and tools to avoid, minimize or mitigate these impacts within the environmental components.

It is important to note that these procedures must always target the environmental components, since cumulative impacts of great importance in one component may be zero in another. This approach is necessary in order to avoid the development of extremely complex and expensive tools.

Finally, it is important to establish monitoring programs, where necessary and possible, for cumulative impacts, including a management vision for the Environmental Components and cumulative impacts.

### 5.2.3. Suggested Methodology and Concepts for Determining Disaster Risks

Risk and natural disaster management aims to provide the PROJECT with instruments to ensure better control and reduction of such risks. These instruments should prepare local authorities to prevent, mitigate and respond in the event of extreme events, reducing human losses and social and environmental damage.

To this end, we suggest adopting the measures set out in **Chapter 5.3 of the PGASE**.

The actions to be adopted in risk management for these areas should consider more detailed studies and monitoring that will be used as input for formulating the action plan. The procedures should follow the steps recommended in the IDB's Methodology for Assessing Environmental and Social Risks and Climate Change.

The procedure for a Disaster Risk and Climate Change Study follows these steps:

- Phase 1: Screening and classification
  - Step 1 - Exposure to threats: preliminary classification based on location and threat
    - Based on regional secondary data and georeferenced information from official research organizations.
    - It should also question the risks associated with the location of the development at a regional level, in a *top-down* assessment and respective risk classification of the associated hazard.
  - Step 2 - Criticality and vulnerability: classification based on the criticality of the hazard and the vulnerability of the environment
    - It involves the project's characteristics and vulnerability to natural hazards and the criticality of interrupting or canceling the project and its benefits, or even losses (material or human). Both in the construction phase and in the operation phase in three dimensions of analysis:
      - a) *Interruption of essential services*
      - b) *Impact on the population*
      - c) *Physical losses of the enterprise*
- Phase 2: Qualitative assessment
  - Step 3 - narrative: diagnosis and simplified qualitative risk assessment with preparation of draft risk management plan
    - This assessment must be based, at the very least, on the basic engineering project.
    - It must also consider an assessment of cumulative impacts
    - The draft risk management plan should include an outline of the communication mechanisms for emergency response
  - Step 4 - qualitative analysis: complete qualitative assessment and finalization of the risk management plan
    - In this step, a risk matrix should be developed based on surveys, discussions and forums with experts, technical visits, interpolated data maps with scenario forecasts, etc.
- Phase 3: Quantitative evaluation

- Step 5 - Quantitative risk assessment based on a scientific and technical study with primary surveys where necessary and detailing of the executive risk management plan
  - This step should be carried out with pre-implementation activities, which include activities such as topography, soil analysis, bathymetry, geotechnics, among other information that forms the basis of the quantitative risk assessment.
  - Developing the Executive Emergency Action Plan
  - Develop the maintenance program for structures associated with risk containment
  - Provide for the implementation of alternative structures to combat the disaster

Further details for the construction of the assessment study and management plan can be found in the Disaster and Climate Change Assessment Methodology for IDB Projects.

### Other concepts used

Below are some important concepts on the subject, as presented in Carvalho et al. (2007).

- **Risk:** The relationship between the possibility of a given process or phenomenon occurring and the magnitude of damage or social and/or economic consequences for a given element, group, or community. The greater the vulnerability, the greater the risk. It can also be expressed as the probability (P) of an accident occurring associated with a given danger or threat (A) that could result in consequences (C) harmful to people or property, due to the vulnerability (V) of the environment exposed to the danger and which can have its effects reduced by the degree of management (g) administered by public agents or the community, i.e.:

$$R = P (f A). C (f V). g^{-1}$$

- **Vulnerability:** Degree of loss for a given element, group, or community within a given area likely to be affected by a phenomenon or process.
- **Susceptibility:** Indicates the potential for natural and induced processes to occur in a given area, expressed according to classes of probability of occurrence.

As an example of risk classification, the CPRM methodology used in Brazil is described. The CPRM (2019) considered that "geological risk areas are inhabited areas likely to be affected by natural and/or induced processes that cause adverse effects, and the people who live there are subject to damage to physical integrity, material and property losses. Normally, these areas correspond to low-income housing estates (precarious settlements)".

The risk sectors in each area mapped by CPRM (2019) were delimited according to the classification criteria proposed by the IPT Technological Research Institute and the Ministry of Cities (IPT, 2004), which observes the evidence present in the mapped locations, with a hierarchy of risk degrees represented by four levels: low (R1), medium (R2), high (R3) and very high (R4).

**Table 5 - Classification of degrees of risk to mass movements (Modified from IPT, 2004)**

Degree of risk	Description of the evidence
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R1 Low	There is no evidence of destructive processes developing on slopes and drainage banks. Given the existing conditions, no destructive events are expected.
R2 Medium	There is some evidence of instability (slopes and drainage banks), but it is incipient. If the existing conditions are maintained, the possibility of destructive events occurring during episodes of intense and prolonged rainfall is reduced.
R3 High	The presence of significant evidence of instability (cracks in the soil, slumps in the slopes, etc.) can be observed. Given the existing conditions, it is perfectly possible for destructive events to occur during episodes of intense and prolonged rainfall.
R4 Very high	Evidence of instability (cracks in the soil, slumps on slopes, cracks in houses or retaining walls, leaning trees or poles, slip scars, erosive features, proximity of the house to the stream, etc.) is significant and present in large numbers and/or magnitude. Given the existing conditions, destructive events are very likely to occur during episodes of prolonged rainfall.

**Table 6 - Classification of the degrees of risk to hydrological processes (flooding) (Modified from IPT, 2004).**

Degree of risk	Description of the evidence
R1 Low	Drainage or drainage compartments subject to processes with low potential to cause damage. Low frequency of occurrence (no records of occurrences in the last five years).
R2 Medium	Drainage or drainage compartments subject to processes with medium potential to cause damage. Medium frequency of occurrence (record of one significant occurrence in the last five years).
R3 High	Drainage or drainage compartments subject to processes with a high potential to cause damage. Medium frequency of occurrence (record of a significant occurrence in the last five years) and involving highly vulnerable housing.
R4 Very high	Drainage or drainage compartments subject to processes with a high potential to cause damage. High frequency of occurrence (at least three significant events in five years) and involving dwellings with high vulnerability.

### **Suggested Methodology for Qualitative Risk Assessment**

The methodology presented below is a guide to developing qualitative risk assessments and thus being able to identify information gaps that should be investigated in greater depth.

## **Risk matrices**

A risk matrix consists of a matrix with classes of risk frequency and severity (or consequences), each on an axis. Risk matrices can be constructed using qualitative or semi-quantitative categories or thresholds.

The steps to follow this approach include (FEMA, 1997):

### **(1) Identify and characterize relevant threats, including their severity, and interrelationships with other threats.**

The first step involves defining categories for the matrix, for example: Frequency or Probability vs. Severity.

To define the frequency categories, it is first necessary to define the number of categories required (for example, four categories that define a very low, low, moderate and high frequency), and optionally define the thresholds that will define each category (for example, very low: less than once every 1,000 years, low: between once in 100 years and once in 1,000 years, moderate: between once in 10 years and once in 100 years, and high: more than once in 10 years). The following table shows an example of defining criteria for assessing the probability of a threat occurring. The case occurrence limits must be adjusted to each type of threat.

**Table 7 - Criteria for assessing the likelihood of the threat occurring**

PROBABILITY	OCCURRENCE OF CASES
Frequent	1 occurrence in up to 5 years
Moderate	1 occurrence between 5 and 20 years
Bass	1 occurrence in more than 20 years

To define the severity categories, it is necessary to consider which types of impacts are most appropriate for the project under study, such as material damage, economic interruptions, environmental impacts, fatalities, and/or injuries, and again optionally define specific limits for each category (FEMA, 1997). The following table shows an example of defining criteria for assessing severity in terms of consequences or impacts. The criteria categories can be adjusted (included or excluded) based on the specific project context.

**Table 8 - Consequence assessment scale**

CRITERIA/ CONSEQUENCE	INSIGNIFICANT OR LOW	CRITICS	CATASTROPHIC
	1	2	3
Economic	Marginal	Review	Catastrophic
Damage to people	Marginal	Review	Catastrophic
Environmental impact	Marginal	Review	Catastrophic
Image of the institution	Marginal	Review	Catastrophic

The definition of each scale defined for each criterion or consequence in the example is shown in the following table.

**Table 9 - Definition of rating scales for consequences**

APPEAL IN QUESTION	GRAVITY	DEFINITION
Economic	Insignificant or Low	Economic losses up to US\$100,000.00

	Review	Economic losses up to US\$5,000,000.00
	Catastrophic	Economic losses exceeding US\$5,000,000.00
Damage to people	Insignificant or Low	Minor injury, may occur Temporary disability > 1 day
	Review	Permanent disability
	Catastrophic	1 or more deaths
Environmental impact	Insignificant or Low	Localized effects
	Review	Great effects
	Catastrophic	Irreparable damage
Image of the institution	Insignificant or Low	Location
	Review	National
	Catastrophic	International

**(2) Estimate the risk of each identified threat based on the relative degree of risk obtained from the matrix and order these risks.**

Risk is obtained from the product of threat and vulnerability. For this purpose, the following expression should be used:

$$R=A \times V$$

When R is the risk, A is the threat in terms of frequency or probability, and V is the vulnerability measured by the severity criterion.

**Table 10 - Probability and consequence risk matrix product**

PROBABILITY (A)		CONSEQUENCE (V)		
		Insignificant	Critical	Catastrophic
		1	2	3
Frequent	3	3	6	9
Moderate	2	2	4	6
Bass	1	1	2	3

**(3) Assess the acceptability of these risk levels to determine whether they are tolerable or not.**

The results obtained from the risk matrix are then categorized to define the levels of risk acceptability, as well as the actions that should be formulated to prevent and mitigate them.

**Table 11 - Levels of risk, acceptability, and actions to be implemented**

RISK ACCORDING TO MATRIX	RISK LEVEL	RISK ACCEPTABILITY	ACTIONS TO BE IMPLEMENTED
1 a 2	LOW	Acceptable	No plan necessary
3	MODERATE	Tolerable	Designing a general response
Above 3	HIGH	Unacceptable	It always requires the preparation of a detailed response to contingencies and requires the investment of resources

**(4) Carry out simulations and tests on the risk matrix with the implementation of risk mitigation measures that can bring the risk down to tolerable levels.**

The actions formulated to prevent or mitigate risks can also be assessed using the risk matrix, in order to determine the reduction in the levels of exposure or vulnerability of the infrastructure and socio-environmental systems in the area of influence.

**(5) Monitor and review risks periodically using the matrix.**

This matrix is not a static document; both threat and vulnerability conditions can vary during the life cycle of projects. Therefore, the matrix is a useful tool for tracking and monitoring the risks identified in the preliminary phases, identifying new risks during the construction and operation phases, or reclassifying risks based on the availability of new information.

As the CHARIM (*Caribbean Handbook on Risk Information Management*) project (Haimes, 2008; van Westen, n.d.) makes clear, this method allows for more flexibility and the incorporation of expert opinion. It also offers a way of visualizing the effects and consequences of risk reduction measures. It also becomes a good communication tool because it helps the non-expert public to understand a risk assessment more easily. It is important to note that the results will largely depend on the experts involved in the process of creating the matrix. It is therefore very important to select the group that will inform the process, including the identification of threat scenarios, the classification characterized by frequency (probability) and impact classes and their corresponding limits.

## **6. EMERGENCY RESPONSE PREPAREDNESS**

Emergency response preparedness should involve instruments that help predict emergency situations, prevent emergency situations, mitigate, and respond to emergency situations and monitor them continuously.

To this end, the provisions of **Chapter 5.3 of the PGASE** drawn up as part of the preparation of PROCASE II must be applied.

## **7. STAKEHOLDER ENGAGEMENT AND COMPLAINTS MANAGEMENT**

In the process of drawing up the Engagement Plan for each Project in the Program, a meeting should be held with the communities on the scope of the Project before the works begin, in accordance with the recommendations of the PDAS10, part of the IDB's Environmental and Social Policy Framework.

It is important to note that the procedures presented, as well as the entire Stakeholder Engagement process to be carried out within the scope of PROCASE II, must follow the guidelines and recommendations contained in item Significant Consultations of the PDAS10.

The guidelines relating to the stakeholder engagement process and grievance management are detailed in **Chapter 5.7 of the PROCASE II ESMP**.

## **8. MONITORING AND EVALUATION**

Monitoring refers to the continuous and systematic collection of data and aims to provide timely information on the progress of an initiative, mainly supporting management. It is also understood as a regular activity to monitor key processes in the intervention logic and is capable of producing information that allows or enables a rapid assessment of the

program or project's situation, as well as the identification of necessary and relevant corrective actions (Nogueira, 2002<sup>16</sup>, Jannuzzi, 2016<sup>17</sup>).

Evaluation, on the other hand, also refers to systematic and methodologically rigorous processes for collecting and analyzing data, but it is aimed at making judgments about the value or merit of an intervention that aims to change a social reality. This is the fundamental difference with audits. Audits have the role of verifying compliance with norms and standards.

Therefore, although they are close and there is a possible feedback relationship, they are three different processes.

The PMU should monitor the environmental and social performance of projects. The degree and manner of monitoring will be proportionate to the nature of the project, its social and environmental risks and impacts, and compliance requirements.

Where appropriate, the PMU may promote the involvement of stakeholders and third parties, such as independent experts, local communities, or NGOs, to complement or verify its own monitoring activities.

In general, monitoring will include recording information to track performance and establishing relevant operational controls to verify compliance and progress in meeting the requirements established in this ESMS for the project.

Based on the results of the monitoring, the PMU will identify any necessary corrective and preventive actions, which should be incorporated into the ESMP. The PMU will implement the agreed corrective and preventive actions, in accordance with the modified ESMP or the relevant management instrument and will monitor and disclose these actions.

The PMU will facilitate access and visits to the project site for IDB staff or consultants representing the IDB. The PMU will notify the IDB immediately of any incident or accident related to the project that has, or may have, a significant adverse effect on the environment, affected communities, the public or workers. The notification shall provide sufficient details of the incident or accident, including deaths and serious injuries. The PMU shall immediately take measures to resolve the incident or accident and prevent any recurrence, in accordance with national legislation and the PDAS.

Monitoring will be aimed at the timely follow-up of PGAS measures, since it is essential that their progress and bottlenecks are clearly identified and controlled in order for them to run smoothly. To this end, quantitative indicators will be established, covering the process of implementing the actions, verifying the effectiveness, efficiency, and efficacy of the actions, as well as qualitative ones that include, for example, satisfaction with the processes and assistance received, clarity of the information provided, among others.

Responsibility for the monitoring process will be shared between the PMU Coordination teams, including:

- Preparation of data collection instruments;
- Data collection with the Environmental and Social Supervision;
- Data systematization and analysis;
- Periodic reporting to the Coordination and jointly defining corrective actions.

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<sup>16</sup> NOGUEIRA, Vera Maria Ribeiro. Evaluation and monitoring of social policies and programs-revisiting basic concepts. Revista Katálysis, v. 5, n. 2, p. 141152, 2002. Available at: <http://org.redalyc.org/articulo.oa?id=179618335007>> ISSN . Accessed on: Aug 22, 2019.

<sup>17</sup> JANNUZZI, Paulo de Martino. Monitoring and Evaluation of Social Programs: an introduction to concepts and techniques. Campinas, SP: Editora Alínea, 2016.



## Monitoring and Evaluation Indicators

In this section we present the initial proposal of indicators that will be observed through the monitoring and evaluation of the ESMP mitigation programs. These indicators may be revised and/or supplemented as the activities progress.

According to Jannuzzi (2016), each program or public policy requires its own monitoring system, specific to its design and management model. In general, the author indicates the following basic elements that should make up a monitoring information system: (i) the program narrative<sup>18</sup>, (ii) key process indicators; (iii) monitoring indicators; and (iv) data sources.

Indicators are the fundamental information for defining monitoring strategies. Adequate monitoring indicators are those that make it possible to "film" the process of implementing programs and their efficiency, the development of activities, the delivery of products or the general effects triggered by the Program. According to Jannuzzi (2016) "*ideally, monitoring indicators should not only be relevant to the program's critical processes, but should also be timely in terms of the decision needed, modest in terms of cost and operational effort, potentially sensitive to the program and specific to the actions and activities inherent to it*" (JANNUZZI, 2016, p.117).

Below are the main indicators that will be addressed in monitoring. Basically, quantitative indicators are proposed which should be monitored on a monthly basis by recording and controlling activities and their results. Specific instruments will be developed and implemented to carry out the monitoring, as well as creating a database (a simple, easy-to-use system) to consolidate and extract the data.

**Table 12 - Monitoring and Evaluation Indicators**

Environmental and Social Program	Indicators	Target	Source of information
Stakeholder engagement	- Number of participants in community consultations and meetings - Number of institutions that provided input to consultations	- Increase the percentage of participants in the Stakeholder Matrix - Increase the percentage of female participants	Social and Environmental Management of the PMU  EMPAER/TA  Regional Offices - RPMU
Complaints management mechanism	- Number of complaints by type - Service deadline Number of complaints with pending resolution	- reduce the number of unresolved complaints - Reduction in the average monthly number of complaints over time	Social and Environmental Management of the PMU  EMPAER/TA  Regional Offices - RPMU
Environmental and health education	- Number of participants in environmental and health education actions; - Number of community actions	- 4 project-oriented actions per year	Social and Environmental Management of the PMU  EMPAER/TA  Regional Offices - RPMU
Waste management	- Volume of waste generated - Volume of waste going to landfill	- Reduction in the percentage of waste going to landfill.	Social and Environmental Management of the PMU  EMPAER/TA  Regional Offices - RPMU

<sup>18</sup> The author uses the concept of a Map of Processes and Results (MaPR) defined as "a *synthetic narrative of how the program works, its operating context, how its various components-inputs, processes and products-are aligned to produce the desired results and social impact, and the conditions for this to be achieved*" (Jannuzzi, 2016, p.20).

Environmental and Social Program	Indicators	Target	Source of information
Mitigation of temporary social and economic impacts	- Number of parties affected by temporary impacts of the work or project	- Reduction in the number of parts affected by temporary impacts	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Preservation of cultural heritage (where applicable in accordance with the project's ESIA and ESMP)	- Number of cultural sites affected/rescued - Number of cultural sites destroyed by activities	- 100% of identified sites rescued	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Contingency and risk reduction	- Number of emergencies - Response time	- reducing the number of emergency situations - reduction in the average response time	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Environmental and Social Control of Works (when civil works are involved in the project)	- Number of non-conformities (by type)	- Reduction in the number of non-conformities	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Hiring labor	- Number of local workers hired - Number of women hired	- increase in the number of local workers hired - increase in the number of women hired	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
training and awareness	- Number of workers trained	- 100% of workers trained	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Code of conduct	- Number of complaints of embarrassment, harassment or racial / cultural or gender-based slurs with workers who were successful - Number of DDSs addressing the topic of conduct with employees	- reduction in the number of successful complaints of embarrassment, harassment or racial/cultural or gender-based insults against workers - 1 DDS per month on the subject of the code of conduct	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Occupational health and safety	- Number of days without an accident at work - Number of accidents with fatalities - Average number of days off work due to health and occupational problems	- Increase in the number of days without an accident at work - Zero fatal accidents - Reduction in the average number of days off work	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Control and inspection of suppliers	- Primary chain supplier evaluation form	- increase the score of the performance evaluation of suppliers in the primary chain	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU

Environmental and Social Program	Indicators	Target	Source of information
Implementation, operation and closure of construction sites and support areas (when civil works are involved in the project)	- According to the Environmental and Social Control of Works indicators	- According to the Environmental and Social Control targets for the works	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Erosion control	- According to the Environmental and Social Control of Works indicators	- According to the Environmental and Social Control targets for the works	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Protection of legally protected areas	- Legally protected areas affected by the works - Compensation area - Recovered area	- Biodiversity net profit (compensated or recovered area/affected area > 1)	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU
Reducing and mitigating community discontent	- According to the Environmental and Social Control of Works indicators - According to the indicators of the Complaints Management Mechanism	- According to the Environmental and Social Control targets for the works - According to the goals of the Complaints Management Mechanism	Social and Environmental Management of the PMU EMPAER/TA Regional Offices - RPMU

### Critical Evaluation by the PMU

The instructions and procedures defined in this ESMS applied to the main characteristics of the works and operation of the projects must be monitored and followed up by means of internal reports fed by: environmental supervision reports for the works and environmental monitoring reports for the operation, which include procedures for verifying compliance with environmental legislation.

Every twelve months, the PMU will carry out a critical assessment of the Environmental and Social Management System to verify the system's suitability, its effectiveness in controlling environmental impacts and achieving the performance indicators for the activities set out in the Environmental and Social Management Plan and Framework, and its effectiveness in achieving the Objectives and Targets established herein.

It is recommended that these meetings be held before the start of the fiscal year or when new projects are planned. It is important that the Monitoring considers the results of the Supervision work.

### Auditing

The aim of the audit is to identify significant environmental and social issues of the project or existing activities, and to assess their current status, specifically with regard to compliance with the requirements of the PDAS.

The indicative description of the audit involves:

- (a) Executive Summary: Concisely address important conclusions and set out recommended measures, actions, and deadlines.
- (b) Legal and Institutional Framework: Analyze the legal and institutional framework for the existing project or activities, including the issues listed in PDAS1;

- (c) Project Description
  - Concisely describe the existing project or activities, as well as its environmental, social, geographical and temporal context, and any associated facilities.
  - Identify the existence of any plans already developed to address specific environmental and social impacts and risks (e.g. land acquisition or resettlement plan, cultural heritage plan, biodiversity plan).
  - Include a detailed map showing the site of the existing project or activities and the proposed site of the project in question.
- (d) Environmental and social issues associated with the project: The analysis will consider the main risks and impacts of the project determined in the ESIA. In addition, the audit will analyze issues not covered by the PDAS, insofar as they represent important risks and impacts in the context of the project.
- (e) Environmental and Social Analysis: The audit will also evaluate
  - (i) the possible impacts of the proposed project (considering the audit findings concerning the project or existing activities); and
  - (ii) the ability of the proposed project to meet the requirements of the PDAS.
- (f) Proposed Environmental and Social Measures: Based on the audit findings, this section will define proposed measures for aligning conduct. These measures will be included in the ESMP for the proposed project.

The measures usually covered in the audit include:

- specific actions necessary to comply with the requirements of the PDAS;
- measures and corrective actions to mitigate the potentially significant environmental and/or social risks and impacts of the project or existing activities;
- measures to avoid or mitigate the possible risks and negative socio-environmental impacts of the proposed project.

The minimum periodicity of the audit will be annual, with the possibility of it being carried out by an internal team, from an independent department of the PMU or of the Paraíba State Government that adds this function. External audits may be contracted to evaluate a sample to be determined for larger projects.

## 9. ENVIRONMENTAL AND SOCIAL PROGRAMS

The Mitigation Measures for the impacts identified as relevant or subject to Mitigation/Compensation for the sub-projects are detailed in the respective PROCASE II ESMP. This describes the measures and procedures to be adopted to avoid, minimize, and compensate for environmental damage to the physical, biotic, and socio-economic environments.

The following table summarizes all the measures defined in the PGASE.

**Table 13 -Environmental and Social Programs**

	Plan / Program	Sub-projects	Target audience and responsible parties
1.	Screening, classification, and project scope	All Subprojects	Responsible: PMU and TA
2.	Monitoring and evaluation	All Subprojects	Responsible: PMU and TA, some indicators could be catalogued by construction companies.

	Plan / Program	Sub-projects	Target audience and responsible parties
3.	Disaster and Climate Change Risk Management Plan	All Subprojects (can be drawn up by set of actions for PROCASE II)	Responsible: PMU, TA and related government bodies/institutions. Target audience: all actors and stakeholders
4.	Waste Management Program for the implementation of structures and production processes	Sub-projects involving: - Food processing/production that generates packaging and waste - Civil works	Responsible: (i) PMU, TA, construction companies; (ii) rural producer for end activity waste.
5.	WTA and Effluent Quality Monitoring and Control Program	Sub-projects involving: - Sanitary sewage and water reuse structures - Civil works	Responsible: PMU, TA and construction companies
6.	Biodiversity management, protection, and restoration plan	Sub-projects that are within or in the immediate vicinity (up to 2km) of a Fully Protected Conservation Unit, APP or Critical Habitat	Responsible: (i) PMU, TA; (ii) rural producers to prevent the spread of unwanted species and support monitoring
7.	Stakeholder Communication, Consultation and Engagement Program and MQR	All Subprojects	Responsible: PMU and TA Target audience: all actors and stakeholders
8.	Environmental and Health Education Program	All Subprojects	Responsible: PMU and TA Target audience: rural producers
9.	Plan for energy efficiency and sustainable sources for energy generation in projects and facilities	Sub-projects involving building structures or machinery/equipment for production	Responsible: PMU and TA Target audience: farmers and construction companies
10.	Contaminating Products Management and Control Plan	Sub-projects involving: - Sanitation structures that require the handling of chemical products in treatment; - Production processes that could generate contaminating waste or encourage the use of non-permitted products	Responsible: PMU and TA Target audience: rural producers
11.	Traffic Program	All sub-projects with actions specifically aimed at the implementation team (PMU, TA, construction company)	Responsible: PMU, TA and construction company Target audience: workers from the PMU, TA and the construction company
12.	Labor Management Plan	All sub-projects with differentiated actions for the implementation team (PMU, TA, construction company) and rural producers	Responsible: (i) PMU, TA and construction company; (ii) rural producer, with specific measures Target audience: all workers involved in the project
13.	Program to Control and Mitigate Temporary Social and Economic Impacts	Sub-projects involving civil works	Responsible: PMU, TA and construction company Target audience: benefited and/or affected communities
14.	Gender Violence Prevention and Care Program	All Subprojects	Responsible: PMU, TA and construction company Target audience: all actors and stakeholders
15.	Program to Mitigate Impacts on Traditional Communities	Sub-projects implemented in traditional communities	Responsible: PMU and TA Target audience: Protection agencies, benefited and/or affected traditional communities

	Plan / Program	Sub-projects	Target audience and responsible parties
16.	Vector, Disease and Pest Control Program	All sub-projects involving: - Civil works; - Sanitation structures - Agriculture and livestock systems that may suffer or influence the dispersal of vectors	Responsible: PMU, TA and construction company Target audience: benefited and/or affected communities
17.	Cultural Heritage and Fortuitous Finds Protection Program	Sub-projects involving social technologies associated with stone tanks or activities requiring excavation in the region of high paleontological potential For all sub-projects, fortuitous finding actions should be applied	Responsible: PMU and TA Target audience: Heritage protection bodies, the community and project workers.

## 10. ENVIRONMENTAL AND SOCIAL SUPERVISION OF SUB-PROJECTS

The Environmental and Social Supervision of the Subprojects<sup>19</sup> includes activities to monitor and supervise the construction work fronts, in order to check that the measures and procedures aimed at preventing, controlling, and correcting environmental and social impacts have been effectively adopted:

- Accompanying the studies and environmental licensing of the planned interventions and support facilities (construction sites, work fronts, surplus material deposits, borrow areas, etc.), where applicable;
- Systematic monitoring of the implementation of sub-projects, checking compliance with socio-environmental specifications, the occurrence of impacts and the adoption of measures to prevent/control/mitigate impacts;
- Monitoring activities that generate solid and liquid waste, especially polluting, oily, chemical, and flammable products.
- Monitoring the proper handling of waste found, including soil during excavation work;
- Drawing up monthly reports recording environmental and social incidents and evaluating the performance of the construction company or contractors in meeting social and environmental requirements;
- Monitoring the decommissioning of support facilities and the recovery of used areas;
- Preparation of the Socio-Environmental Closure Report, recording compliance with all the requirements of the environmental licenses and IDB and IFAD policies and safeguards;

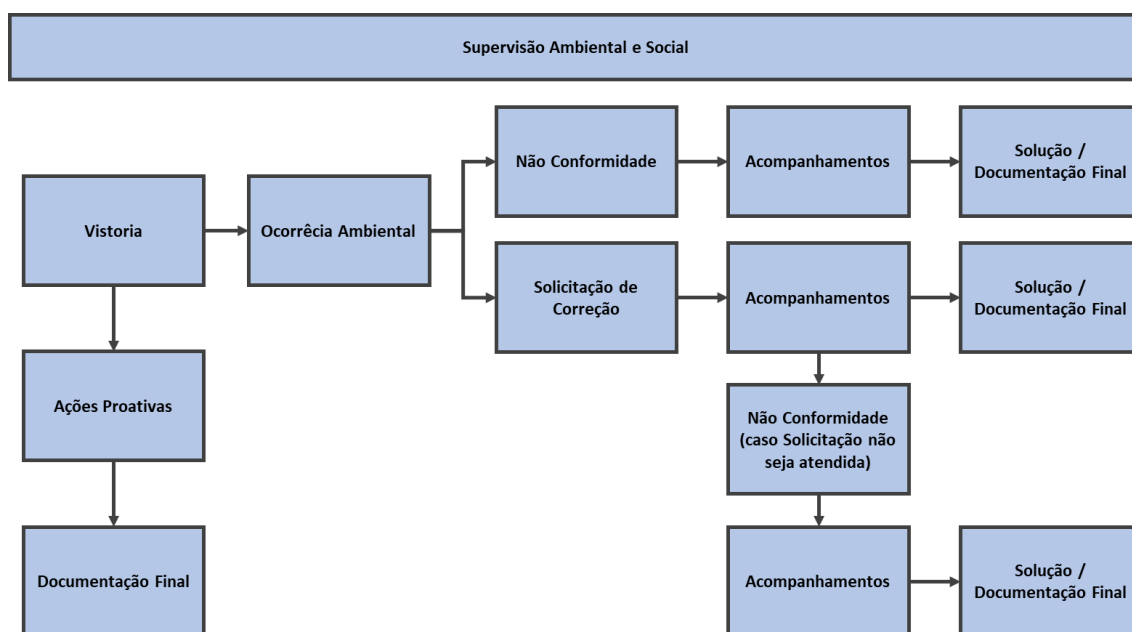
Environmental and Social Supervision will follow the guidelines and procedures set out in the ESMS, based on the management procedures presented in this chapter and the definitions of specific forms and tools, as well as the details of the actions to be carried out.

Environmental and Social Supervision will be responsible for consolidating the materials, information, records, documents, and surveys to be incorporated into the Environmental and Social Management Report<sup>20</sup>. The flowchart of the Supervision's actions is presented below:

<sup>19</sup> Each sub-project will present its respective environmental and social aspects that will be subject to environmental and social supervision, in accordance with the respective ESIA/SIA and ESMP.

<sup>20</sup> Internal monthly reports, and half-yearly and annual summaries to be provided to the IDB/IFAD.

**Figure 17 - General flowchart of Environmental and Social Supervision**



Elaboration: Consultancy, 2021

Environmental and Social Supervision must be carried out continuously and systematically on the construction sites and during the implementation of the Investment Plans, starting simultaneously with the process of setting up the construction site and being maintained throughout the implementation phase and afterwards, in order to check for residual impacts and environmental and social measures that are still being implemented.

In order to carry out this process, the minimum frequency of environmental and social inspections to be carried out must be defined, with no less than one inspection every thirty days.

It is recommended that the Environmental and Social Supervision has at least the following documents:

- Inspection report (*checklist*);
- Correction Request Document;
- Social and Environmental Non-Compliance Document;
- Environmental and Social Supervision Report that presents the inspections, the correction requests and their follow-up/solution and the non-conformities issued and their follow-up/solution.

### **Procedures for Environmental and Social Supervision of Subprojects**

The procedures for Environmental and Social Supervision should provide clear and concise documentation of how the Supervision should act, what and how it should be observed, indications of problems and documentation to be drawn up. Among the issues that should have specific procedures are the following:

- Planning and Execution of Works and Production Systems;
- Procedures for the Implementation, Operation and Demobilization of Construction Sites and Support Areas;

- Implementation of Support Structures - Service Roads, Batching, Borrowing Areas, etc.
- Inspection of construction sites, construction sites and other support areas;
- Inspection of the Productive Systems areas;
- Workers' Health and Safety Inspection
- Inspection of sanitary and comfort conditions;
- Checking Fire Fighting Systems;
- Socio-environmental Control of Works and Production Systems
- Material Control of Works and Production Systems
- Vegetation Protection and Tree Suppression;
- Fauna protection;
- Site signage;
- Archaeological monitoring and preservation of cultural heritage;
- Control of Erosive Processes and Siltation;
- Waste Management Procedures;

The Socio-environmental Supervision procedures should be based on the standardization set out in this ESMS, but it is important that they are updated by the Supervision team so that they adhere to the specific issues of the sub-projects and the environmental conditions set out in environmental licenses and other requirements that may fall upon the sub-projects.

These are suggestions for incorporation into supervisory procedures:

- The process also includes checking compliance with the aspects mentioned in the IFC's Occupational Health and Safety (OHS) Guidance,
- Procedures for the control and inspection of suppliers in the primary supply chain;
- Transmission of the established minimum guidelines to suppliers and contractors;
- Continuous review and improvement of procedures as new approaches prove necessary.

## **Inspection reports**

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The Inspection Report - the result of the Environmental and Social Supervision team's inspection - should be based on a *checklist* that will facilitate the inspection process, optimizing actions and reducing time in the field. The *checklist* may be expanded by the Environmental and Social Supervision team to include issues not originally foreseen, and it is up to the environmental and social management of the ESMS to identify and incorporate recurring suggestions that are pertinent and justified.

The flow of the supervision procedure will be carried out under the guidance of Socio-environmental Management for Environmental and Social Supervision, using a checklist (VL) as a recording tool that will guide the checking of conformities and non-conformities. The result of the application of the VL may result in: (i) "Environmental and Social Compliance" which approves the inspection; (ii) "Exceptional Clearance" with the identification of low-risk failures; and (iii) "Environmental and Social Non-Compliance" with the identification of inadequate actions and medium and high-risk impacts.



The figure in Annex 11.3 a model for the Checklist (VL) suggested for carrying out the inspection and subsequently drawing up the report. It is important that each item identified as inadequate has a specific request, which can be a Correction Request (Low Risk<sup>21</sup>) or an Environmental Non-Compliance (Medium Risk<sup>22</sup> or High Risk<sup>23</sup>).

### **Correction Requests**

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During Environmental and Social Supervision, the faults identified (Low and Moderate Risk) must be dealt with by issuing a Request for Correction document. The purpose of this document is to provide guidance, including not only the identification of the problem, but also an explanation - albeit brief - of the actions that must be taken by the companies and teams involved in the works. These actions will always be based on the environmental and social management documents and/or those drawn up by the Environmental and Social Supervision itself, as well as environmental licensing conditions or other socio-environmental requirements.

This is an important procedure so that companies have the opportunity to correct any deviations in procedures and resolve problems. It also generates socio-environmental awareness and helps the teams involved in implementing the sub-project to foresee and avoid other failures.

The figure in Annex 11.3 shows the correction request form.

### **Social and Environmental Non-Conformities**

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Socio-environmental Non-Compliance must be issued if impacts are identified as a result of the problems identified as high or medium risk. Medium Risk is when an item poses a risk to human health, loss of assets or may cause a reversible impact on the environment; High Risk is when an item poses a direct or imminent risk to human health and life, loss of assets or irreparable or serious destruction of the environment.

Non-Conformities must be oriented and punitive. The latter should be associated with the measurements of the companies involved in the non-conformity. It is therefore essential that these procedures are duly described and made clear during the contracting processes and in the contracts of the companies providing the services, and that they are included in the Terms of Reference.

The figure in the Annex 11.3 shows the model Non-Conformity Notice.

### **Accompaniments**

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Once the Requests for Corrections and/or Socio-Environmental Non-Conformities have been issued, Supervision must monitor compliance. To this end, visits must be scheduled, which may or may not take place in conjunction with the Social and Environmental Surveys (depending on the deadlines for compliance).

For each visit, a follow-up form must be filled in, according to the model in the Annex 11.3.

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<sup>21</sup> Low Risk is characterized by those that do not pose a direct and significant threat to humans or the environment.

<sup>22</sup> Medium risk is risk to human health, loss of assets or a reversible impact on the environment.

<sup>23</sup> High Risk is when an item poses direct imminent harm or risk to human health and life, loss of assets or irreparable or serious destruction of the environment.



## 11. ANNEXES

## 11.1. Annex - Other relevant international agreements

### **Agreement Establishing the Inter-American Institute for Global Change Research (Minutes of Montevideo)**

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The Constitutive Agreement of the Inter-American Institute for Global Change Research, also known as the Montevideo Act, the fruit of the idea that emerged at the 1990 White House Conference on Scientific and Economic Research on Global Change, aims to guarantee the exchange of scientific information on the study of global climate change.

The agreement aims to create a regional network of institutions linked to scientific research, which will be called the "Institute". The aim of the Institute is to foster cooperation between countries studying climate change, allowing for the exchange of information and thus ensuring a more comprehensive understanding of the transformations that planet Earth is undergoing.

Its nineteen members agreed on the following guidelines: (a) promotion of cooperation in scientific studies to better understand the problem and propose solutions; (b) encouragement of scientific programs and projects to find solutions; (c) implementation of technical and scientific training, as well as promotion of structural possibilities for research; (d) making the information obtained from research available to society, governments and businesspeople, with the aim of enabling plans for climate change; (e) obligation to enable the free movement of people accredited to carry out scientific studies in the territories of the States Parties.

In Brazil, climate studies are carried out by INPE - the National Institute for Space Research - the technical and scientific body responsible for studying the subject of the international document in question. It should be noted that there is no control or implementation mechanism or reports on the problem.

### **Mercosur Environment Agreement**

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In 2001, Brazil, Argentina, Paraguay, and Uruguay signed the Mercosur Framework Agreement on the Environment, also known as the Mercosur Common Environmental Agenda. It came into force on September 17, 2004, via decree 5208, with the aim of establishing common guidelines for environmental preservation and sustainable development.

In order to achieve the goal of environmental preservation, the signatory countries agreed as follows: (a) using natural resources in the most efficient way possible, basing policies on principles of gradualness, flexibility and balance; (b) all environmental policies should be unified in order to strengthen the measures to be implemented; (c) focusing on sustainable development through cooperation between the States Parties; (d) prioritizing the causes of environmental problems as the focus of protectionist policies; (e) collecting and exchanging information about the environment; (f) encouraging environmental management policies; (g) standardizing environmental standards, taking into account the different geographical environments; (h) finding sources of funding for a sustainable environmental policy; (i) promoting policies for the sustainable development of labor, making the necessary preservation compatible with economic progress; (j) encouraging environmentally friendly production processes, services and activities; (k) promoting clean technological progress; (l) providing information on disasters affecting the States Parties; (m) promoting environmental education; (n) maintaining the cultural aspects of the local population whenever possible when carrying out public preservation initiatives.

Environmental issues are dealt with by two discussion forums: one technical - the Sub-Working Group No. 6 (SGT-6); and the other political - the Meeting of MERCOSUR Environment Ministers (RMMAM).

The main objective of SGT-6 is to formulate and propose strategies and guidelines that guarantee the protection and integrity of the environment of the States Parties in a context of free trade and consolidation of the customs union, while ensuring equal conditions of competitiveness. The Ministry of the Environment participates as the national coordinator of this Subgroup.

RMMAM is the MERCOSUR body responsible for dealing with politically sensitive environmental issues, which cannot always be discussed within the framework of the Sub-Working Group. Currently, SGT-6 and RMMAM are working to strengthen the environmental perspective in the other MERCOSUR bodies, following up on various projects and identifying priority technical and political issues in order to make the agenda more effective.

### **UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage**

Ratified by Brazil in March 2006.

On October 17, 2003, during the 32nd General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Convention for the Safeguarding of the Intangible Cultural Heritage was approved. This Convention entered into force on April 20, 2006. The 2003 Convention has several objectives:

- (a) safeguarding intangible cultural heritage;
- (b) respect for the intangible cultural heritage of the communities, groups and individuals involved;
- (c) raising awareness at local, national, and international level of the importance of intangible cultural heritage and its mutual appreciation;
- (d) international cooperation and assistance.

Claiming to be an instrument that promotes intangible cultural heritage, the main generator of cultural diversity and the guarantor of sustainable development, the 2003 Convention aims to fill a gap in the legal system for the international protection of cultural heritage, whose instruments, until now, did not consider intangible cultural heritage, but only tangible, movable and immovable cultural heritage, so that intangible cultural expressions could not be safeguarded through the international legal instruments that existed at the time.

According to the Convention, intangible cultural heritage is defined as "(...) the practices, representations, expressions, knowledge and skills - as well as the instruments, objects, artefacts and cultural spaces associated with them - which communities, groups and, where appropriate, individuals recognize as forming an integral part of their cultural heritage. This intangible cultural heritage, passed down from generation to generation, is constantly recreated by communities and groups according to their environment, their interaction with nature and their history, instilling in them a sense of identity and continuity, thus contributing to the promotion of respect for cultural diversity and human creativity" (Article 2).

It is therefore this intangible cultural heritage that the 2003 Convention aims to safeguard, providing, among other measures, for each State Party to draw up inventories of this heritage.

## **UN Declaration on the Rights of Indigenous Peoples - UNDRIP (2007)**

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Brazil's intention, as one of the signatories to the UNDRIP (2007), is to recognize indigenous peoples and traditional communities as a group distinct from the rest of its population and to create a legal framework to protect the rights of this group. The basis of this treaty focuses on interrelated areas:

- Indigenous peoples (traditional communities) are clearly a separate group from mainstream society with their own customs and beliefs. This includes collective and individual rights.
- The right to self-determination: indigenous peoples and (traditional communities) have the right to freely determine their political status and freely pursue their economic, social, and cultural development.
- Free, prior, and informed consent (FPIC). Allows indigenous peoples and traditional communities to give or withhold consent from a project that may affect them or their territories. Once they have given their consent, they can withdraw it at any stage. In addition, FPIC allows them to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated.

## **OAS American Declaration on the Rights of Indigenous Peoples**

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The American Declaration on the Rights of Indigenous Peoples (DADPI), approved by the General Assembly of the Organization of American States (OAS), is the first instrument in the history of the OAS to promote and protect the rights of indigenous peoples in the Americas. It was approved by acclamation by the Member States on June 15, 2016, in Santo Domingo, the capital of the Dominican Republic.

The member states of the Organization of American States (OAS) recall that the indigenous peoples of the Americas constitute an organized, differentiated, and integral segment of their population and have the right to be part of the national identity of the countries, with a special role in strengthening state institutions and achieving national unity based on democratic principles. It also recalls that some of the democratic concepts and institutions enshrined in the constitutions of the American states have their origins in indigenous peoples' institutions and that many of their current participatory systems of decision-making and authority contribute to the improvement of democracies in the Americas, and that it is necessary to develop national legal contexts to consolidate the multiculturalism of these societies.

The declaration raises issues involving the eradication of poverty and the right to development, respect for indigenous cultural and ecological aspects, coexistence, respect and non-discrimination, the right to territory and survival, security, and collective rights.

In Article II, the DADPI affirms states' recognition and respect for the multicultural and multilingual character of indigenous peoples, as an integral part of societies. The issue is related to the provisions of the Brazilian Constitution (Art. 209 § 2, 215 § 1, 231), as well as other infra-constitutional norms.

Article IX deals with the recognition of the legal personality of indigenous peoples, as well as their forms of organization, also supported by Articles 231 and 232 of the Federal Constitution.

The right of indigenous peoples to maintain and promote their own family systems is guaranteed by Article XVII, which also states that states shall respect and protect the different indigenous forms of family, as well as their forms of matrimonial union, filiation, descent, and family name. These guarantees are related to Article 6 of the Indian Statute (Law 6.003/1973). Also in Article XVII, by establishing the right of indigenous children to enjoy their own culture, religion or to speak their own language, among others, the Declaration presents precepts that are compatible with the Statute of the Child and Adolescent (Law 8.096/1990).

With regard to indigenous peoples in voluntary isolation or initial contact, Article XXVI of the American Declaration guarantees their right to remain in this condition and to live freely and in accordance with their cultures. The same provision establishes the duty of states to recognize, respect and protect the lands, territories, environment, and cultures of these peoples, as already provided for in Brazil's indigenous policy.

### **United Nations Convention to Combat Desertification - UNCCD**

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The United Nations Convention to Combat Desertification, officially the United Nations Convention to Combat Desertification in Countries Experiencing Severe Drought and/or Desertification, particularly in Africa (UNCCD), is a multilateral international treaty whose object is the protection of the natural environment and which, as its name suggests, has the central objective of combating desertification.

Desertification is a major contemporary problem.

It was negotiated during the United Nations Conference on Environment and Development, also known as Eco-92, held in Rio de Janeiro in 1992. It was finally adopted on June 17, 1994, in Paris, opened for signatures on October 14, 1994, and entered into force on December 26, 1996. The Conference of the Parties (COP) is its supreme body.

The work of the UNCCD is put into practice through National Action Programs (NAPs), an instrument for implementing the Convention. These programs outline long-term strategies and are formulated with the active participation of local communities. There are also Sub regional Action Programmes (PASR) and Regional Action Programmes (PAR), which help to harmonize and reinforce the national programmes. This is participatory development based on a "bottom-up" method, i.e. programs to combat desertification originate at the local level and are based on this specific participation.

The UNCCD responds to the aim of facilitating a far-reaching alliance for the sustainable development of vulnerable dryland ecosystems and, to this end, of improving the channeling of official development assistance investment. The Convention builds on the lessons of the past and expresses an international consensus on an integrated framework for action.

The Global Mechanism (MM) helps the COP to promote funding for the activities planned under the Convention. It is not in charge of obtaining or administering funds, but supports and advises donors, beneficiaries, development banks, NGOs, etc. to mobilize financial resources and allocate them where they are most needed.

Since it began its activities in 1998, the MM has been under the support of the International Fund for Agricultural Development (IFAD), one of the main international financial institutions in leveraging small farmers and in "giving poor rural people the chance to get out of poverty".

The COP was established by the Convention as the supreme decision-making body, and comprises ratifying governments and regional economic integration organizations, such as the European Union. The COP oversees the implementation of the Convention. The

Conference is the supreme body of the Convention: it establishes the decisions that will subsequently be carried out and integrates the ratifications made by all governments.

Along with 192 other countries, Brazil is a signatory to the United Nations Convention to Combat Desertification and Mitigate the Effects of Droughts (UNCCD). This commitment establishes work standards and convergent international targets for coordinated actions in the search for qualitative solutions that meet socio-environmental demands in arid, semiarid and dry sub-humid areas, particularly where the poorest populations on the planet live.

The UNCCD is recognized as the fundamental instrument for eradicating poverty and promoting sustainable development in rural areas of drylands, which include the Brazilian SSAs. The issue of desertification in the country is at the center of political formulation, both because of the legal framework, as it is the subject of a Bill currently being processed, and because of its strategic significance, as it reflects the new approach of qualifying the sustainable use of natural resources as a transforming element in the relationship between society and the environment.

The historical existence of local practices based on ethnic and traditional knowledge of the populations in the semiarid zones of Brazil, combined with official state interventions dating back to the time of the empire, have produced the conditions and critical mass necessary for the basis of cultural and social organization in order to enable coexistence with droughts, phenomena that are more common to certain areas than others depending on various environmental factors, and almost always anthropogenic vectors.

In this context, Brazil is seen as one of the Party Countries with the greatest global leadership in the process and is active at international level, building bi- and multilateral partnerships, such as the cooperation carried out within the Community of Portuguese Speaking Countries (CPLP) and the Group of Latin American and Caribbean Countries (GRULAC).

Desertification is defined as a process of environmental degradation caused by the inadequate management of natural resources in arid, semiarid and dry sub-humid areas, which compromises the productive systems of susceptible areas, environmental services, and the conservation of biodiversity. In Brazil there are 1,480 municipalities susceptible to this process, which can be caused by man or by nature itself and aggravated by climate issues. It particularly affects the northeastern states, as well as Minas Gerais and Espírito Santo. The studies carried out by the MMA in partnership with the governments of the 11 states show that the areas susceptible to desertification represent 16% of Brazil's territory and 27% of all municipalities involving a population of 31,663,671 inhabitants, where 85% of the country's poverty is concentrated. It therefore represents a context that demands specific public policies that are important for combating poverty and improving the living conditions of a significant part of the Brazilian population.

With the United Nations Conference on Environment and Development - Rio 92, the need for a specific convention on the subject was defined, establishing guidelines and commitments for countries. One of the main results of Rio 92 was the start of the negotiation process to draw up three conventions: the Framework Convention on Climate Change, the Convention on Biological Diversity, and the United Nations Convention to Combat Desertification in Countries Affected by Severe Drought and/or Desertification, particularly in Africa (UNCCD).

In Brazil, the desertification process is a consequence of the inadequate use of forest resources, mainly in the Caatinga and Cerrado, to supply forest biomass to meet a considerable percentage of the energy matrix in the Northeast and other regions, through deforestation; agricultural practices without adequate soil management, causing erosion processes and depleting the soil; overgrazing in extensive livestock farming,

compromising the texture of the soil and thus the regeneration of vegetation; and inadequate management of irrigation systems, with the consequent salinization of the land.

### **Rotterdam Convention**

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The Rotterdam Convention, in force since 2004, aims to promote shared responsibility and joint efforts by the Parties in the field of international trade in certain hazardous chemicals, in order to protect human health and the environment from possible harm. The agreement establishes a prior informed consent (PIC) procedure for the import of hazardous chemicals.

In other words, the Convention establishes an "early warning system" to help countries protect themselves against certain hazardous chemicals in international trade. It also aims to complement other international instruments by addressing this fundamental element (international trade) in the area of managing chemicals throughout their life cycle.

The Convention raises issues on hazardous chemicals related to: access to information; product labeling; emissions registration; CIP for the import of hazardous chemicals; non-confidentiality.

### **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**

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Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora, or Convention on International Trade in Endangered Species of Wild Fauna and Flora in Brazil, also known as the Washington Convention, is a multilateral agreement signed in Washington DC - United States, on March 3, 1973, bringing together a large number of states, with the aim of ensuring that trade in wild animals and plants, and products derived from them, does not endanger the survival of species or constitute a danger to the maintenance of biodiversity.

The CITES agreement was drawn up as a result of a resolution adopted in 1963 within the World Conservation Union (IUCN). The agreement provides for various levels of protection and today covers around 30,000 species of wild fauna and flora.

This is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed by Brazil in 1975 to effectively regulate trade in species of fauna and flora, preventing them from becoming endangered when the threat is international trade. To this end, it assigns producer and consumer countries their share of the common responsibility and establishes the necessary mechanisms to guarantee the non-damaging exploitation of populations. Based on the procedures proposed by the Convention, the Brazilian government - through the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), has incorporated into its procedures for assessing and issuing export/import licenses.

Around 5,950 animal species and 32,800 plant species from around the world are protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) from overexploitation due to international trade. They are included in the three appendices of CITES, grouped according to their degree of threat. In some cases, entire groups are included, such as primates, cetaceans (whales, dolphins, and porpoises), sea turtles, parrots, corals, cacti, and orchids; in others, only a subspecies or a geographically isolated population of a species (e.g. country-specific) is included.



According to Decree No. 3,607 of September 21, 2000, which implements Cites in Brazil, the species in Appendix I are considered to be endangered, the species in Appendix II are those which, although they are not necessarily currently in danger of extinction, could become so unless trade in specimens is subject to strict regulations, and the species in Appendix III were included in the list at the direct request of the country where their exploitation needs to be restricted or prevented and which requires cooperation in their international control.

### **Inter-American Convention on the Prevention, Punishment and Eradication of Violence Against Women, "Convention of Belém do Pará"**

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Adopted at Belém do Pará, Brazil, on June 9, 1994, at the twenty-fourth regular session of the General Assembly

The Inter-American Convention on the Prevention, Punishment and Eradication of Violence Against Women - Convention of Belém do Pará, adopted by the General Assembly of the Organization of American States - OAS in 1994, is considered an international milestone in the attempt to curb violence against women. Brazil ratified the Belém do Pará Convention in 1995. In 2006, the Brazilian government complied with General Recommendation 19 of the Committee on the Elimination of All Forms of Discrimination against Women - CEDAW, the Belém do Pará Convention and the 1988 Federal Constitution.

### **Convention for the Protection of the Flora, Fauna, and Natural Scenic Beauties of the Countries of America**

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It came into force on October 12, 1940, and was ratified by Brazil via decree 58.054 of March 23, 1966. Its objective is the protection and conservation of indigenous fauna and flora, as well as migratory birds, extensive habitat sites, landscapes of great beauty and extraordinary geological formations.

The States Parties signed the Convention for the Protection of the Flora, Fauna and Natural Scenic Beauties of the Countries of America with the aim of protecting and conserving in their natural environment specimens of all species and genera of indigenous flora and fauna, including migratory birds, in sufficient numbers and in locations that are extensive enough to prevent their extinction by all human means. In addition, the States Parties have aimed to protect and conserve landscapes of great beauty, extraordinary geological formations, regions, and natural objects of aesthetic interest or historical or scientific value, and places characterized by primitive conditions within the cases to which this Convention refers.

### **UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage**

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The Convention Concerning the Protection of the World Cultural and Natural Heritage, also known as the Paris Recommendation, is an international commitment created at the seventeenth session of the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which met in Paris from October 17 to November 21, 1972.

The Convention was established in parallel with the United Nations Conference on the Human Environment, the first major international meeting dealing with the basic principles of environmental protection, where the United Nations Environment Program was also created. It is an important regulatory framework for the protection of the cultural and natural heritage of the world's nations. It defined essential concepts of world

heritage, understanding it as "an irreplaceable source of life and inspiration", and provides the basis for the inscription of properties on the World Heritage List.

According to Silvia Helena Zanirato, from the State University of Maringá,

*Throughout the text, the understanding was expressed that the protection of such areas could not be carried out solely on a national scale, due to the magnitude of the means required for this procedure, which often went beyond the economic, scientific, and technological resources possessed by the countries that housed the heritage elements. It was then that the concept of world heritage was developed, consisting of works of exceptional interest, sometimes unique testimonies, which should be considered as belonging not only to the states in which they were located, but to the whole of humanity, which should be involved in their defense and safeguarding, in order to ensure their transmission to future generations.*

### **Convention for the Safeguarding of the Intangible Cultural Heritage**

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On October 17, 2003, the Convention for the Safeguarding of the Intangible Cultural Heritage was signed in Paris on November 3, 2003, and entered into force in Brazil on April 12, 2006, via Decree 5.753/06 and Legislative Decree No. 22/06. Its aim is to protect cultural and intangible heritage, promoting respect for the cultural and intangible heritage of the communities, groups and individuals that make up the societies of the States Parties, awareness in all spheres and without borders of the importance of the object of the international document, its recognition by all the nations involved and mutual international cooperation for its safeguarding.

To facilitate the identification and limits of international legal protection, Article 2 of the document contains the following definitions:

For the purposes of this Convention:

*(1) "Intangible cultural heritage" means the practices, representations, expressions, knowledge, and techniques - together with the instruments, objects, artefacts, and cultural places associated with them - that communities, groups and, in some cases, individuals recognize as an integral part of their cultural heritage. This intangible cultural heritage, which is passed down from generation to generation, is constantly recreated by communities and groups as a function of their environment, their interaction with nature and their history, generating a sense of identity and continuity and thus helping to promote respect for cultural diversity and human creativity. For the purposes of this Convention, only intangible cultural heritage that is compatible with existing international human rights instruments and with the imperatives of mutual respect between communities, groups, and individuals, and of sustainable development, shall be considered.*

*2. Intangible cultural heritage", as defined in paragraph 1 above, manifests itself in particular in the following fields:*

*a) oral traditions and expressions, including language as a vehicle for the*

*intangible cultural heritage;*

*b) artistic expressions;*

*c) social practices, rituals, and festive acts;*

*d) knowledge and practices related to nature and the universe;*

*e) traditional craft techniques.*

## **Convention on Biological Diversity**

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The Convention on Biological Diversity (CBD) is a United Nations treaty and one of the most important international instruments related to the environment.

The Convention was established during the notorious ECO-92 - the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in June 1992 - and is today the main global forum for issues related to the topic.

More than 160 countries have already signed the agreement, which came into force in December 1993. It was ratified in Brazil by Federal Decree No. 2,519 of March 16, 1998.

The Convention is structured on three main bases - the conservation of biological diversity, the sustainable use of biodiversity and the fair and equitable sharing of the benefits arising from the utilization of genetic resources - and refers to biodiversity at three levels: ecosystems, species, and genetic resources.

## 11.2. Annex - Other complementary federal laws

### Vegetation cover

- Federal Law No. 7.754, of April 14, 1989, which establishes measures for the protection of forests at river sources and makes other provisions.
- IBAMA Ordinance No. 37-N, of April 3, 1992, which provides for the official list of species of Brazilian flora threatened with extinction.
- Normative Instruction No. 06 of September 23, 2008, which lists species of Brazilian flora threatened with extinction.
- Law No. 12.651, of May 25, 2012 (New Brazilian Forest Code), as amended by Law No. 12.727, of October 17, 2012, which provides for the protection of native vegetation; amends Laws No. 6.938, of August 31, 1981, No. 9.393, of December 19, 1996, and 11.428, of December 22, 2006; repeals Laws 4.771, of September 15, 1965, and 7.754, of April 14, 1989, and Provisional Measure 2.166-67, of August 24, 2001; and makes other provisions. This law establishes general rules on the protection of vegetation, Permanent Preservation Areas, and Legal Reserve areas; forest exploitation, the supply of forest raw materials, control of the origin of forest products and the control and prevention of forest fires and provides for economic and financial instruments to achieve its objectives. Article 8 establishes that intervention or suppression of native vegetation in a Permanent Preservation Area will only take place in cases of public utility, social interest, or low environmental impact.

According to Article 4 of the Brazilian Forestry Code, which defines the areas of permanent preservation, in section III, the areas around artificial water reservoirs, resulting from the damming or impounding of natural watercourses, are considered APP, within the range defined in the project's environmental license.

### Fauna

- Federal Law No. 5.197, of January 3, 1967 (amended by Laws No. 7.584/87, No. 7.653/88, No. 97.633/89, and No. 9.111/95), which instituted the Fauna Protection Code.
- IBAMA Ordinance No. 1.522, of December 19, 1989, which provides for the official list of species of Brazilian fauna threatened with extinction.
- MMA Normative Instruction No. 03, of May 27, 2003, with the official list of species of Brazilian fauna threatened with extinction.
- IBAMA Normative Instruction No. 146, of January 10, 2007, which establishes the criteria for procedures relating to the management of wild fauna (survey, monitoring, rescue, salvage and disposal) in areas of influence of undertakings and activities considered to be effectively or potentially causing impacts on fauna subject to environmental licensing, as defined by Federal Law No. 6938/81 and CONAMA Resolutions No. 001/86 and No. 237/97.

### Conservation Units and other Protected Areas

- Federal Decree No. 84.017, of September 21, 1979, approving the regulations for Brazilian National Parks.
- Law No. 6.902, of April 27, 1981, which provides for the creation of Ecological Stations and Environmental Protection Areas.

- Federal Decree No. 89.336, of January 31, 1984, which provides for Ecological Reserves and Areas of Relevant Ecological Interest.
- Federal Decree No. 99.274, of June 6, 1990, which regulates Law No. 6.902, of April 27, 1981, and Law No. 6.938, of August 31, 1981, which provide, respectively, for the creation of Ecological Stations and Environmental Protection Areas and for the National Environmental Policy.
- CONAMA Resolution No. 13, of December 6, 1990, which establishes rules for the surroundings of Conservation Units with a view to protecting existing ecosystems.
- Federal Decree No. 1.298, of October 27, 1994, approving the National Forests Regulations.
- Federal Decree No. 1.922, of June 5, 1996, which provides for the recognition of Private Natural Heritage Reserves (RPPN).
- Federal Decree No. 2.119, of January 13, 1997, which provides for the Pilot Program for the Protection of Brazil's Tropical Forests and its Coordination Commission.
- Federal Law No. 9.985, of July 18, 2000, which institutes the National System of Nature Conservation Units (SNUC), establishes criteria and norms for the creation, implementation, and management of conservation units, amended by Law No. 11.132/2005.
- CONAMA Resolution No. 302, of March 20, 2002, which sets out the parameters, definitions, and limits of Permanent Preservation Areas of artificial reservoirs and the use regime of their surroundings.
- CONAMA Resolution No. 303, of March 20, 2002, which sets out the parameters, definitions, and limits of Permanent Preservation Areas.
- Federal Decree No. 4.340, of August 22, 2002, which regulates articles of Law No. 9.985/00 on the National System of Nature Conservation Units (SNUC).
- Federal Decree No. 5.092, of May 21, 2004, which defines the rules for identifying priority areas for the conservation, sustainable use and sharing of the benefits of biodiversity, within the scope of the Ministry of the Environment.
- Federal Law No. 11.132, of July 4, 2005, which adds an article to Law No. 9.985, of July 18, 2000, which regulates Article 225, § 1, items I, II, III and VII of the Federal Constitution and establishes the National System of Nature Conservation Units.
- Federal Law No. 11.284, of March 2, 2006, which provides for the management of public forests for sustainable production; establishes, within the structure of the Ministry of the Environment, the Brazilian Forestry Service - SFB; creates the National Forestry Development Fund - FNDF; amends Laws Nos. 10.683, of May 28, 2003, 5.868, of December 12, 1972, 9.605, of February 12, 1998, 4.771, of September 15, 1965, 6.938, of February 12, 1998, 6.83, of May 28, 2003, 5.868, of December 12, 1972, 9.605, of February 12, 1998, 4.771, of September 15, 1965, 6.938, of August 31, 1981, and 6.015, of December 31, 1973.
- CONAMA Resolution No. 369, of March 28, 2006, which sets out the exceptional cases of public utility, social interest or low environmental impact that make it possible to intervene or suppress vegetation in a Permanent Preservation Area (APP).
- Decree No. 5.746, of April 5, 2006, which regulates Article 21 of Law No. 9.985/00, which provides for the National System of Nature Conservation Units - SNUC. This article deals with the Private Natural Heritage Reserve - RPPN.

- CONAMA Resolution No. 371, of April 5, 2006, which establishes guidelines for environmental agencies for calculating, collecting, applying, approving, and controlling the spending of funds from environmental compensation, in accordance with Law No. 9.985, of July 18, 2000, and makes other provisions.
- Federal Decree No. 5.758, of April 13, 2006, which establishes the National Strategic Plan for Protected Areas - PNAP, its principles, guidelines, objectives, and strategies.
- Ordinance No. 09, of January 23, 2007, article 1 of which establishes that the areas referred to in paragraph 2, called Priority Areas for the Conservation, Sustainable Use and Benefit Sharing of Brazilian Biodiversity or Priority Areas for Biodiversity, are recognized as priority areas for the conservation, sustainable use and benefit sharing of Brazilian biodiversity, for the purpose of formulating and implementing public policies, programs, projects and activities under the responsibility of the Federal Government aimed at: I - in situ conservation of biodiversity; II - sustainable use of biodiversity components; III - sharing of benefits derived from access to genetic resources and associated traditional knowledge; IV - research and inventories on biodiversity; V - recovery of degraded areas and over-exploited or endangered species; and VI - economic valorization of biodiversity.
- CONAMA Resolution No. 429, of February 28, 2011, which sets out the methodology for recovering Permanent Preservation Areas (APPs).

### **Water Resources**

- Federal Decree No. 24.643, of July 10, 1934, establishing the Water Code.
- Federal Law No. 7,990 of December 28, 1989, which instituted financial compensation for states, the Federal District, and municipalities for the results of the exploitation of oil or natural gas, water resources for the purpose of generating electricity, mineral resources in their respective territories, continental platforms, territorial sea, or exclusive economic zone.
- Federal Law No. 8.001, of March 13, 1990, which defines the distribution percentages of the financial compensation referred to in Law No. 7.990, of December 28, 1989.
- Federal Law No. 9.433, of January 8, 1997, which instituted the National Water Resources Policy, created the National Water Resources Management System, regulates item XIX of article 21 of the Federal Constitution and amends article 1 of Law No. 8001, of March 13, 1990, which amended Law No. 7.990, of December 28, 1989. The objectives of the National Water Resources Policy (Article 2) are: I - to ensure the necessary availability of water for current and future generations, at quality standards appropriate to their respective uses; II - the rational and integrated use of water resources, including waterway transport, with a view to sustainable development; III - prevention and defense against critical hydrological events of natural origin or resulting from the inappropriate use of natural resources.
- CNRH Resolution No. 05, of April 10, 2000, which establishes guidelines for the formation and operation of River Basin Committees, in order to implement the National Water Resources Management System, as established by Law No. 9.433/1997.
- MMA Normative Instruction No. 4, of June 21, 2000, which approves the administrative procedures for issuing grants for the right to use water resources in bodies of water in the Union's domain, as set out in the Annexes to this Normative Instruction.

- Federal Law No. 9.984, of July 17, 2000 (amended by Provisional Measure 2.216-37, of August 31, 2001), which provides for the National Water Agency - ANA, the federal entity responsible for implementing the National Water Resources Policy and coordinating the National Water Resources Management System.
- CONAMA Resolution No. 274, of November 29, 2000, which revises the criteria for bathing in Brazilian waters.
- Federal Decree No. 3.692, of December 19, 2000, which establishes the regimental structure of the National Water Agency - ANA.
- CNRH Resolution No. 15 of January 11, 2001, which establishes general guidelines for groundwater management.
- CNRH Resolution No. 16, of May 8, 2001, which provides for the granting of water resources.
- Federal Decree No. 4.613, of March 11, 2003, which regulates the National Water Resources Council.
- CNRH Resolution No. 32 of October 15, 2003, which establishes the National Hydrographic Division into Hydrographic Regions for the purpose of guiding, supporting and implementing the Water Resources Plan.
- Federal Decree No. 4.895, of November 25, 2003, which provides for the authorization of the use of physical spaces of bodies of water in the Union's domain for aquaculture purposes.
- Federal Decree No. 5.069, of May 5, 2004, which provides for the composition, structure, powers and functioning of the National Aquaculture and Fisheries Council (CONAP).
- Federal Law No. 10.881, of June 9, 2004, which provides for management contracts between the National Water Agency and entities delegating the functions of Water Agencies related to the management of water resources in the Union's domain.
- ANA Resolution No. 707, of December 21, 2004, which sets out the technical and administrative procedures to be observed when examining grant applications.
- CONAMA Resolution No. 357, of March 17, 2005, which defines the classification of bodies of water and their environmental guidelines, as well as defining the conditions and standards for discharging effluents.
- CNRH Resolution No. 48, of March 21, 2005, which establishes general criteria for charging for the use of water resources.
- CNRH Resolution No. 58, of January 30, 2006, which approves the National Water Resources Plan (PNRH).
- CNRH Resolution No. 65, of December 7, 2006, which establishes guidelines for linking the procedures for obtaining the granting of the right to use water resources with environmental licensing procedures.
- ANA Resolution No. 308, of August 6, 2007, which sets out the procedures for collecting the revenue from charging for the use of water resources in bodies of water under the Union's domain.
- Federal Law No. 11.959, of June 29, 2009, which provides for the National Policy for the Sustainable Development of Aquaculture and Fishing, regulates fishing activities, repeals Law No. 7.679, of November 23, 1988, and provisions of Decree-Law No. 221, of February 28, 1967.

- CNRH Resolution No. 129, of June 29, 2011, which establishes general guidelines for the definition of remaining minimum flows.
- CNRH Resolution No. 145, of December 12, 2012, which establishes guidelines for the preparation of River Basin Water Resources Plans.

### **Noise Emission**

- CONAMA Resolution No. 01, of March 8, 1990, which provides for the emission of noise as a result of any industrial, commercial, social, or recreational activities, determining standards, criteria, and guidelines. The emission of noise as a result of any industrial, commercial, or recreational activities will comply, in the interests of health and public quiet, with the standards, criteria and guidelines established by NBR 10.151/2000.
- Brazilian Standard ABNT NBR 10151/2000, which deals with the assessment of noise in inhabited areas with a view to community comfort. It establishes the conditions required to assess the acceptability of noise in communities, regardless of the existence of complaints. It outlines methods for measuring noise, the application of corrections to the measured levels if the noise has special characteristics and a comparison of the corrected levels with a criterion that considers various factors.

### **Air Quality**

- CONAMA Resolution No. 05, of June 15, 1989, which provides for the National Air Pollution Control Program - PRONAR.
- CONAMA Resolution No. 03, of June 28, 1990, which establishes air quality standards and defines the objective to be achieved through the control strategy established by the emission standards that should guide the preparation of Regional Air Pollution Control Plans. It defines air quality standards as the concentrations of atmospheric pollutants which, if exceeded, could affect the health, safety and well-being of the population, as well as causing damage to flora and fauna, materials and the environment in general and establishes that (i) Primary Air Quality Standards - are the concentrations of pollutants which, if exceeded, could affect the health of the population. Secondly (ii) Secondary Air Quality Standards - are the concentrations of pollutants below which the minimum adverse effect on the well-being of the population is expected, as well as the minimum damage to fauna, flora, materials, and the environment in general.
- CONAMA Resolution No. 382, of December 26, 2006, which establishes the maximum emission limits for atmospheric pollutants from fixed sources.

### **Solid Waste**

- CONAMA Resolution No. 1A, of January 23, 1986, which establishes rules for the transportation of dangerous products that circulate near densely populated areas, the protection of water sources and the natural environment.
- Federal Law No. 7.802, of July 11, 1989, which provides for research, experimentation, production, packaging and labeling, transport, storage, marketing, commercial advertising, use, import, export, final destination of waste and packaging, registration, classification, control, inspection and inspection of pesticides, their components, and the like.



- Federal Decree No. 98.816, of January 11, 1990, which regulated Law No. 7.802/1989.
- CONAMA Resolution No. 307, of July 5, 2002, which establishes guidelines, criteria and procedures for the management of construction waste, regulating the necessary actions in order to minimize environmental impacts. It defines the responsibilities of public authorities and private agents with regard to construction waste and makes it compulsory for municipalities to adopt integrated management plans, as well as waste management projects on construction sites, while creating legal conditions for the application of Federal Law No. 9.605/1998 (Environmental Crimes Law) with regard to construction waste.
- Brazilian standard ABNT NBR 10004/2004, which classifies solid waste according to its potential risks to the environment and public health, so that it can be managed properly.
- CONAMA Resolution No. 362, of June 23, 2005, which provides for the collection, disposal, and final destination of used or contaminated lubricating oil.
- Law No. 12.305, of August 2, 2010, which defines the National Solid Waste Policy and provides for its principles, objectives and instruments, as well as guidelines for the integrated management and management of solid waste, including hazardous waste, the responsibilities of generators and public authorities and the applicable economic instruments. Classifies solid waste:
  - I - By origin: a) household waste; b) urban cleaning waste; c) urban solid waste; d) waste from commercial establishments and service providers; e) waste from public basic sanitation services; f) industrial waste; g) waste from health services; h) construction waste; i) agroforestry waste; j) waste from transport services; k) mining waste;
  - II - In terms of hazardousness: a) hazardous waste; b) non-hazardous waste.
- Federal Decree No. 7.404, of December 23, 2010, which regulates Law No. 12.305/2010, which instituted the National Solid Waste Policy, creates the Interministerial Committee of the National Solid Waste Policy and the Guidance Committee for the Implementation of Reverse Logistics Systems.
- CONAMA Resolution No. 454 of November 1, 2012, establishes the general guidelines and reference procedures for the management of material to be dredged in waters under national jurisdiction.

### **Soil and Groundwater Quality**

- Federal Decree No. 303, of February 28, 1967, which creates the National Council for Environmental Pollution Control.
- Federal Decree No. 1.413, of August 14, 1975, which provides for the control of environmental pollution caused by activities.
- CONAMA Resolution No. 396, of April 3, 2008, which provides for the classification and environmental guidelines for the classification of groundwater and other provisions.
- CONAMA Resolution No. 420, of December 29, 2009, which sets out criteria and guideline values for soil quality in terms of the presence of chemical substances and establishes guidelines for the environmental management of areas contaminated by these substances because of anthropic activities. With a view to preventing and

controlling soil quality, undertakings that carry out activities with the potential to contaminate soil and groundwater must, at the discretion of the competent environmental body: I - implement a soil and groundwater quality monitoring program in the area of the undertaking and, when necessary, in its area of direct influence and in surface waters; and II - submit a conclusive technical report on soil and groundwater quality, with each application for a license renewal and prior to the closure of activities.

### **Environmental licensing**

Environmental licensing was instituted throughout the country by Law No. 6.938/1981 and regulated by Decree No. 88.351/1983 (modified by Decree No. 99.274 of 1990), which established its main guidelines. It was structured into three mandatory licenses: Preliminary License (LP), Installation License (LI) and Operation License (LO), which correspond to the different phases of planning and implementing a project. Each license contains restrictions that condition the execution of the project and the activity's environmental control measures. The process also includes the follow-up routines for the licenses granted, i.e. the inspection and monitoring of the environmental effects of the project, essential components of the system, as well as the technical and administrative standards that regulate it.

All undertakings capable of modifying the environment are subject to licensing, i.e. those that potentially or effectively affect environmental quality, cause any form of pollution, or use environmental resources, developed by individuals or legal entities, including public administration entities, that are installed in national territory. Licensing therefore applies to the installation or expansion of private or governmental activities, including the installation of equipment or works of an industrial, commercial, extractive, agricultural, urban, transport infrastructure, energy and water generation and basic sanitation nature.

Since then, a series of resolutions by the National Environmental Council (CONAMA) have introduced other guidelines for the licensing of certain types of activity, as well as procedural and administrative elements. Of particular note are the criteria for applying environmental impact assessment to projects with significant polluting potential (Resolution 001/86). In general, the complementary rules and administrative procedures for their effective use are determined by the state environmental entities, in cases of state competence, or by the Brazilian Institute for the Environment - IBAMA, in cases of federal competence. In this context, the following CONAMA resolutions may be applied to the Project's interventions:

- CONAMA Resolution No. 01 of January 23, 1986, which establishes the definitions, responsibilities, basic criteria and general guidelines for the use and implementation of Environmental Impact Assessment as one of the instruments of the National Environmental Policy.
- CONAMA Resolution No. 05/88, which establishes rules subjecting sanitation works to environmental licensing;
- CONAMA Resolution No. 06, of September 16, 1987, which provides for the environmental licensing of works in the electricity generation sector.
- CONAMA Resolution No. 09, of December 9, 1987, which provides for public hearings.
- CONAMA Resolution No. 237, of December 19, 1997, which provides for the revision and supplementation of the procedures and criteria used for environmental licensing established by CONAMA Resolution No. 001/86, in addition to requiring

the presentation of Municipal Land Use and Occupation Certificates and technical examinations and statements by the municipalities affected by the project.

- CONAMA Resolution No. 274/2000, which establishes bathing standards for fresh, brackish, and saline waters.
- CONAMA Resolution No. 302/2002, which sets out the parameters, definitions, and limits of permanent preservation areas in artificial reservoirs and the regime for using the surrounding area.
- CONAMA Resolution No. 458/2013, which establishes procedures for environmental licensing in agrarian reform settlements.

### **Family farming**

**Law No. 11.326 of July 24, 2006**, establishes the guidelines for formulating the National Policy for Family Farming and Rural Family Enterprises. In addition to this law, the following pieces of legislation related to the topic should also be considered:

#### ***Decree 11.635/23***

Amends Decree No. 7.572, of September 28, 2011, which regulates provisions of Law No. 12.512, of October 14, 2011, which deals with the Environmental Conservation Support Program - Bolsa Verde Program. The Bolsa Verde Program will be implemented through the direct transfer of financial resources, under the responsibility of the Ministry of the Environment and Climate Change. The benefit is aimed at low-income families who practice some kind of natural resource conservation activity.

#### ***Decree 11.636/23***

Establishes the National Commission for Employed Rural Workers to manage the National Policy for Employed Rural Workers.

#### ***Decree 11.637/23***

It introduces the definition of an encampment as a group of families in a situation of social vulnerability, living in the same locality, who require INCRA actions for their inclusion in the PNRA, enrolled in the Federal Government's Single Registry for Social Programs as encamped people and registered by INCRA, in accordance with the procedures established by the municipality. It also updates the scores for the selection process

#### ***Decree 11.638/23***

Establishes the National Commission to Combat Violence in the Countryside

#### ***Decree 11.639/23***

Establishes an Interministerial Working Group for the National Plan for Youth and Rural Succession

#### ***Decree 11.640/23***

It establishes the National Pact for the Prevention of Femicide, with the aim of preventing all forms of discrimination, misogyny, and gender-based violence against women through the implementation of intersectoral governmental actions, from the perspective of gender and its intersectionalities.

#### ***Decree 11.641/23***

Establishes the National Citizenship and Good Living Program for Rural Women, which aims to guarantee access to basic civil documentation, joint land titling and the territory occupied by rural women, understood as women from the countryside, forests and waters, so that they can live with dignity, ensuring their civil, political, and social rights

### **Decree 11.642/23**

Establishes the Productive Backyard Program for Rural Women, within the scope of the Ministry of Agrarian Development and Family Agriculture and the Ministry of Development and Social Assistance, Family and Fight against Hunger, with the aim of promoting the economic autonomy of rural women through: I - structuring productive backyards; II - bringing women together in groups or collective organizations; III - helping them access public policies to support food production and marketing; IV - access to equipment, machinery, implements, utensils and supplies needed to set up or expand productive backyards; and V - social technologies for accessing water.

### **National Solid Waste Policy**

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The National Solid Waste Policy, established by Law No. 12.305 of August 2, 2010, sets out the principles, objectives, and instruments, as well as the guidelines for the integrated management and management of solid waste, including hazardous waste; the responsibilities of generators and public authorities and the applicable economic instruments.

This law established the shared responsibility of waste generators: manufacturers, importers, distributors, traders, citizens, and holders of urban solid waste management services in the Reverse Logistics of post-consumer waste and packaging.

It also set important targets that will contribute to the elimination of landfills and instituted planning instruments at the national, state, micro-regional, inter-municipal and metropolitan and municipal levels; as well as requiring private entrepreneurs to draw up their Solid Waste Management Plans.

The National Solid Waste Policy puts Brazil on an equal footing with the main developed countries in terms of the legal framework and innovates with the inclusion of waste pickers of recyclable and reusable materials, both in Reverse Logistics and in Selective Collection.

### **Occupational Health and Safety**

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The following are the legal diplomas and technical standards considered most relevant within the scope of the Program, with regard to Occupational Health and Safety.

- Decree-Law 5452 of May 1, 1943, Chapter V of Title II of the Consolidation of Labor Laws - CLT.
- Decree 62.130 of 29/07/2017 - Creates, within the direct, indirect, and foundational Administration, work teams called "Brigade against Aedes aegypti" whose function is to create specific brigades to combat the mosquito and reduce the incidence of arboviruses.
- Ordinance 3.523 of 28/08/1998 of the Ministry of Health: Approves Technical Regulations containing basic measures relating to procedures for visually checking the state of cleanliness, removing dirt by physical methods and maintaining the state of integrity and efficiency of all components of air conditioning systems, in order to guarantee Indoor Air Quality and prevent risks to the health of occupants of air-conditioned environments.
- Law 6514 of December 22, 1977 - which amends Chapter V of Title II of the CLT, relating to Occupational Safety and Medicine.
- Ordinance 3214 of June 8, 1978 - Approves the NRs - Regulatory Norms of Chapter V of Title II of the CLT.

**NR 01 - General Provisions:** aims to inform about the scope of the NRs, as well as the obligations of the employer and employee with regard to the legal document.

**NR 04 - Specialized Services in Safety Engineering and Occupational Medicine:** aims to inform the sizing of Specialized Services in Safety Engineering and Occupational Medicine, linked to the risk gradation of the main activity and the total number of employees in the establishment,

**NR 05 - Comissão Interna de Prevenção de Acidentes (Internal Accident Prevention Commission):** aims to prevent accidents and illnesses arising from work, in order to make work permanently compatible with the preservation of life and the promotion of workers' health.

**NR 06 - Personal Protective Equipment - PPE:** aims to provide information on the definition, mandatory use, and specifications for the use of PPE.

**NR 07 - Occupational Health Medical Control Programs:** aims to establish guidelines and requirements for the development of the Occupational Health Medical Control Program - PCMSO in organizations, with the aim of protecting and preserving the health of their employees in relation to occupational risks, according to the risk assessment of the organization's Risk Management Program - PGR.

**NR 09 - Evaluation and Control of Occupational Exposures to Physical, Chemical and Biological Agents:** establishes the requirements for evaluating occupational exposures to physical, chemical, and biological agents when identified in the Risk Management Program - PGR, provided for in NR-1, and subsidizing it with regard to preventive measures for occupational risks.

**NR 10 - Safety in Electrical Installations and Services:** aims to establish the minimum requirements and conditions for the implementation of control measures and preventive systems, in order to guarantee the safety and health of workers who, directly or indirectly, interact in electrical installations and services with electricity.

**NR 12 - Safety at Work in Machinery and Equipment:** aims to define technical references, fundamental principles and protection measures to guarantee the health and physical integrity of workers and establishes minimum requirements for the prevention of accidents and occupational illnesses in the design and use phases of machinery and equipment of all types, as well as their manufacture, import, sale, exhibition and assignment in any capacity, in all economic activities.

**NR 13 - Boilers, Pressure Vessels, and Piping:** Establishes minimum requirements for managing the structural integrity of steam boilers, pressure vessels and their interconnecting piping in aspects related to installation, inspection, operation, and maintenance, with a view to the safety and health of workers.

**NR 15 - Unhealthy Activities and Operations:** its purpose is to inform about the activities that are considered unhealthy by the MTE, due to exposure above the legal Tolerance Limits or through qualitative assessment of worker exposure.

**NR 16 - Hazardous Activities and Operations:** aims to inform about activities and operations considered hazardous due to exposure to explosives, flammables, electrical energy, ionizing radiation, and exposure to physical violence.

**NR 17 - Ergonomics:** aims to establish parameters that allow working conditions to be adapted to the psycho-physiological characteristics of workers, in order to provide maximum comfort, safety and efficient performance. Working conditions include aspects related to lifting, transporting and unloading materials, furniture, equipment and the environmental conditions of the workplace and the organization of work itself.

**NR 18 - Conditions and Environment of Work in the Construction Industry:** aims to establish administrative, planning, and organizational guidelines for the implementation of control measures and preventive safety systems in the processes, conditions, and environment of work in the construction industry.

**NR 19 - Explosives:** The manufacture, use, import, export, traffic, and trade of explosives must comply with the provisions of specific legislation, in particular the Brazilian Army's Regulations for the Inspection of Controlled Products (R-105), approved by Decree No. 3,665 of November 20, 2000.

**NR 20 - Flammable and Combustible Liquids:** Establishes minimum requirements for occupational health and safety management against accident risk factors arising from the extraction, production, storage, transfer, handling, and manipulation of flammable and combustible liquids.

**NR 21 - Open-air work:** This establishes standards for work in the open, making it compulsory to have shelters, even rustic ones, capable of protecting workers from inclement weather. It also requires special measures to protect workers from excessive sunlight, heat, cold, humidity and inconvenient winds. Finally, it stipulates that workers who live at the workplace must be provided with accommodation that offers adequate sanitary conditions

**NR 24 - Sanitary and Comfort Conditions in the Workplace:** Establishes parameters for (i) Sanitary facilities, (ii) Changing rooms, (iii) Cafeterias, (iv) Kitchens, (v) Accommodation and (vi) Hygiene and comfort conditions during meals.

**NR 26 - Safety Signs:** Establishes parameters for safety signs in workplaces to warn local workers about risks and dangerous products.

**NR 31 - Rural Work:** Aims to establish the precepts to be observed in the organization and environment of rural work, in order to make the planning and development of the sector's activities compatible with the prevention of accidents and illnesses related to rural work.

**NR 33 - Safety and Health at Work in Confined Spaces:** Establishes the minimum requirements for identifying confined spaces and recognizing, evaluating, monitoring, and controlling existing risks, in order to permanently guarantee the safety and health of workers who interact directly or indirectly in these spaces.

**NR 35 - Work at Height:** Work at height is considered to be any activity carried out above 2.00 m (two meters) from the lower level, where there is a risk of falling. Access by ropes is regulated in Annex 1 and for work on inclined planes, the application of this annex must be established by Risk Analysis.

Regarding legislation related to workers' health and safety, the Ministry of Labor and Social Security is the body responsible for the rights and protection of workers' health and safety in Brazil. Documents such as the PCMSO, the PPRA, or the constitution of the CIPA, linked to worker health and safety, as recommended by the Ministry's Regulatory Norms (NR), must be drawn up and reported to the Federal Government's eSocial system.

eSocial is a computerized system of the Public Administration and all the information it contains is protected by secrecy. Unauthorized access, voluntary or accidental provision of the access password or information and breach of confidentiality constitute infractions or illicit acts that subject the user to administrative, criminal, and civil liability. Employers must access eSocial by logging in to the Gov.br system (the Federal Government's unified system), having previously registered and been awarded the respective seal of trust on the Gov.br Portal, requiring an official Digital Certificate for access.

The Work and Social Security Card (CTPS) is a mandatory document for workers in Brazil. The CTPS is one of the only documents that can reproduce, clarify, and prove data about the worker's working life and must be used by the employer to make the appropriate functional records that will be linked to the records of the Ministry of Labor and Social Security systems.

Work cards in Brazil are issued by the Ministry of Labor and Social Security, and only those over the age of 14 can obtain a work card.

Federal Decree-Law 5,452 of May 1, 1943, approves the Consolidation of Labor Laws. The Regulatory Norms (NR), which are complementary provisions to Chapter V (On Occupational Safety and Medicine) of Title II of the Consolidation of Labor Laws (CLT), amended by Law No. 6,514 of December 22, 1977, must be considered. They consist of obligations, rights and duties that employers and workers must fulfill in order to guarantee a safe and healthy workplace, preventing the occurrence of illnesses and accidents at work.

The various Regulatory Norms were drawn up to provide safety for workers, and articles 8 and 11 (among other specific points in the norm) indicate the requirement to comply with workers' fundamental rights.

Regarding the protection of women's work, mentioned in Chapter III, it should be noted: Children and migrants are detailed in paragraphs 12 and 23 in terms of rights, however, the understanding of this paragraph brings special measures, therefore, anomalous situations that require attention on the part of the taker.

Chapter IV - On the Protection of Child Labor establishes working standards for minors between the ages of 14 and 18. It prohibits exploitative, degrading, or offensive work and dangerous work.

Title II - General Labor Protection Standards - includes all rights related to working conditions and terms of employment, including, for example: wages and benefits; wage deductions; working hours; overtime and payment arrangements; rest days; and sick leave, maternity leave, vacations, or vacations.

In relation to general provisions and occupational risk management, item 1.5.3 Responsibilities states that the organization must implement, by establishment, occupational risk management in its activities and that occupational risk management will constitute a Risk Management Program - RMP. The organization must consider working conditions, in accordance with RS-17 [Ergonomics], as well as taking the necessary measures to improve OSH [Occupational Health and Safety] results. The main NRs related to the scope of the PROCASE II Program are listed below:

- NR-5 - internal accident prevention committee
- NR-7 - Occupational Health Medical Control Program
- NR-9 - environmental risk prevention program
- NR-10 - safety in electrical installations and services
- NR-11 - transportation, movement, storage, and handling of materials
- NR-12 - occupational safety in machinery and equipment
- NR-15 - unhealthy activities and operations
- NR-16 - dangerous activities and operations
- NR-17 - ergonomics
- NR-18 - working conditions and environment in the construction industry

- NR-20 - occupational health and safety with flammable and combustible materials
- NR-21 - working in the open
- NR-23 - fire protection
- NR-24 - sanitary and comfort conditions in the workplace
- NR-25 - industrial waste
- NR-26 - safety signs
- NR-35 - working at heights

### **National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT)**

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Another very important issue related to cultural diversity and traditional populations is addressed in Brazil by the National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT), established in 2007 by Decree No. 6.040/2007. The Policy establishes that the National Commission for the Sustainable Development of Traditional Peoples and Communities - CNPCT, created by Decree of July 13, 2006, is responsible for coordinating the implementation of this Policy.

The PNPCT's specific objective is to promote the aforementioned "sustainable development" with an emphasis on recognizing, strengthening, and guaranteeing their territorial, social, environmental, economic, and cultural rights. It also advocates respecting and valuing the identity of traditional peoples and communities, as well as their forms of organization and their different institutions. This policy is structured around four strategic axes: 1) Access to Traditional Territories and Natural Resources, 2) Infrastructure, 3) Social Inclusion and 4) Promotion and Sustainable Production.

Specifically with regard to the infrastructure axis and other related axes, Article 3 states:

- III - to set up infrastructure suited to the socio-cultural realities and demands of traditional peoples and communities;
- IV - guarantee the rights of traditional peoples and communities directly or indirectly affected by projects, works and undertakings;
- V - to guarantee and value traditional forms of education and strengthen dialogic processes as a contribution to the development of each people and community, guaranteeing participation and social control in both formal and non-formal educational training processes;
- X - guarantee access to public social policies and the participation of representatives of traditional peoples and communities in social control bodies;
- XI - ensure that social inclusion programs and actions specifically target traditional peoples and communities;
- XII - to implement and strengthen programs and actions aimed at gender relations in traditional peoples and communities, ensuring women's vision and participation in government actions, valuing the historical importance of women and their ethical and social leadership;
- XVII - to support and guarantee productive inclusion with the promotion of sustainable technologies, respecting the social organization system of traditional peoples and communities, valuing local natural resources and traditional practices, knowledge, and technologies.



The CNPCT's mission is to agree on joint action by representatives of the direct public administration and members of the non-governmental sector for the social, economic, cultural, and environmental strengthening of traditional peoples and communities. Created by the Decree of December 27, 2004, and modified by the Decree of July 13, 2006, the body has a deliberative and consultative nature. It is chaired by the Ministry of Social Development and Fight against Hunger (MDS) and secretariat by the Ministry of the Environment (MMA). It is also made up of other representatives from federal bodies and entities and non-governmental organizations, who meet every four months. These include the National Indian Foundation FUNAI (for indigenous peoples), the Ministry of Fisheries and Aquaculture (for fishing communities) and the Palmares Foundation (for quilombola communities). As a direct result of the body's work, the National Policy for the Sustainable Development of Traditional Peoples and Communities was drawn up with the main objective of promoting the sustainable development of these groups with an emphasis on recognizing, strengthening and guaranteeing their territorial, social, environmental, economic and cultural rights, respecting and valuing their identities, forms of organization and institutions.

FUNAI is the official indigenist body of the Brazilian state. Created by Law No. 5.371, of December 5, 1967, linked to the Ministry of Indigenous Peoples, it is the coordinator and main executor of the Federal Government's indigenous policy. Its institutional mission is to protect and promote the rights of indigenous peoples in Brazil. FUNAI is responsible for carrying out identification and delimitation studies, demarcation, land regularization and registration of lands traditionally occupied by indigenous peoples, as well as monitoring and inspecting indigenous lands. FUNAI also coordinates and implements policies to protect isolated and newly contacted peoples. It also promotes policies aimed at the sustainable development of indigenous populations. In this field, FUNAI promotes ethnodevelopment, conservation and environmental recovery actions on indigenous lands, as well as controlling and mitigating possible environmental impacts resulting from external interference on indigenous lands.

As mentioned, FUNAI, Brazil's main indigenous defense agency, is linked to the Ministry of Indigenous Peoples, a ministry of Brazil's executive branch chaired by activist Sônia Guajajara, whose duties are to guarantee indigenous people access to education and health, demarcate indigenous lands, and combat the genocide of indigenous people. It was recently created in response to the historical demands of the indigenous movement (being the first ministry created dedicated to indigenous peoples).

The priorities and structure of the Ministry have been drawn up in the Thematic Group on Indigenous Peoples created during the government transition after the 2022 presidential election. The Ministry of Indigenous Peoples is responsible for indigenous policy, the recognition, guarantee and promotion of the rights of indigenous peoples, the recognition of the demarcation, defense, exclusive usufruct and management of indigenous lands and territories, the well-being of indigenous peoples, the protection of isolated and recently contacted indigenous peoples, and also the implementation on national territory of international agreements and treaties, especially Convention No. 169 of the International Labor Organization, when related to indigenous peoples.

### 11.3. Annex - Checklist and model sheets for environmental and social supervision

#### Figure 18 - Sample of the Inspection Report / Checklist

*Elaboration: Consultancy, 2024*

**Figure 19 - Sample Correction Request Form / Sheet 01**

Solicitação de Correção - Folha 01 de 02					
Item	Latitude	Longitude	km	Estaca	Data
Fundamentação da Documentação					
Registro Fotográfico					
Legenda Foto 1:			Legenda Foto 2:		
Legenda Foto 3:			Legenda Foto 4:		
Observações					

Elaboration: Consultancy, 2021

**Figure 20 - Sample of the Correction Request Form / Sheet 02**

Solicitação de Correção - Folha 02 de 02
<b>Descrição Sucinta do Problema Identificado</b>
<b>Impactos Decorrentes - Ambientes e Comunidades Afetados</b>
<b>Solicitação de Correções</b>
<b>Prazos para Correção</b>
<b>Supervisão Ambiental</b>
Responsável Pela Documentação:
<b>Responsável - Obra</b>
Nome / Assinatura:

Elaboration: Consultancy, 2021

**Figure 21 - Sample Social and Environmental Non-Compliance Notice - Sheet 01 of 02**

NÃO CONFORMIDADE			
Item	Latitude	Não Conformidade / Risco	
		<input type="checkbox"/> Baixo	<input type="checkbox"/> Moderado
		<input type="checkbox"/> Relevante	<input type="checkbox"/> Elevado
<b>Fundamentação da Documentação</b>			
<b>Registro Fotográfico</b>			
Legenda Foto 1:		Legenda Foto 2:	
Legenda Foto 3:		Legenda Foto 4:	
<b>Observações</b>			

Elaboration: Consultancy, 2021









## **Brazil**

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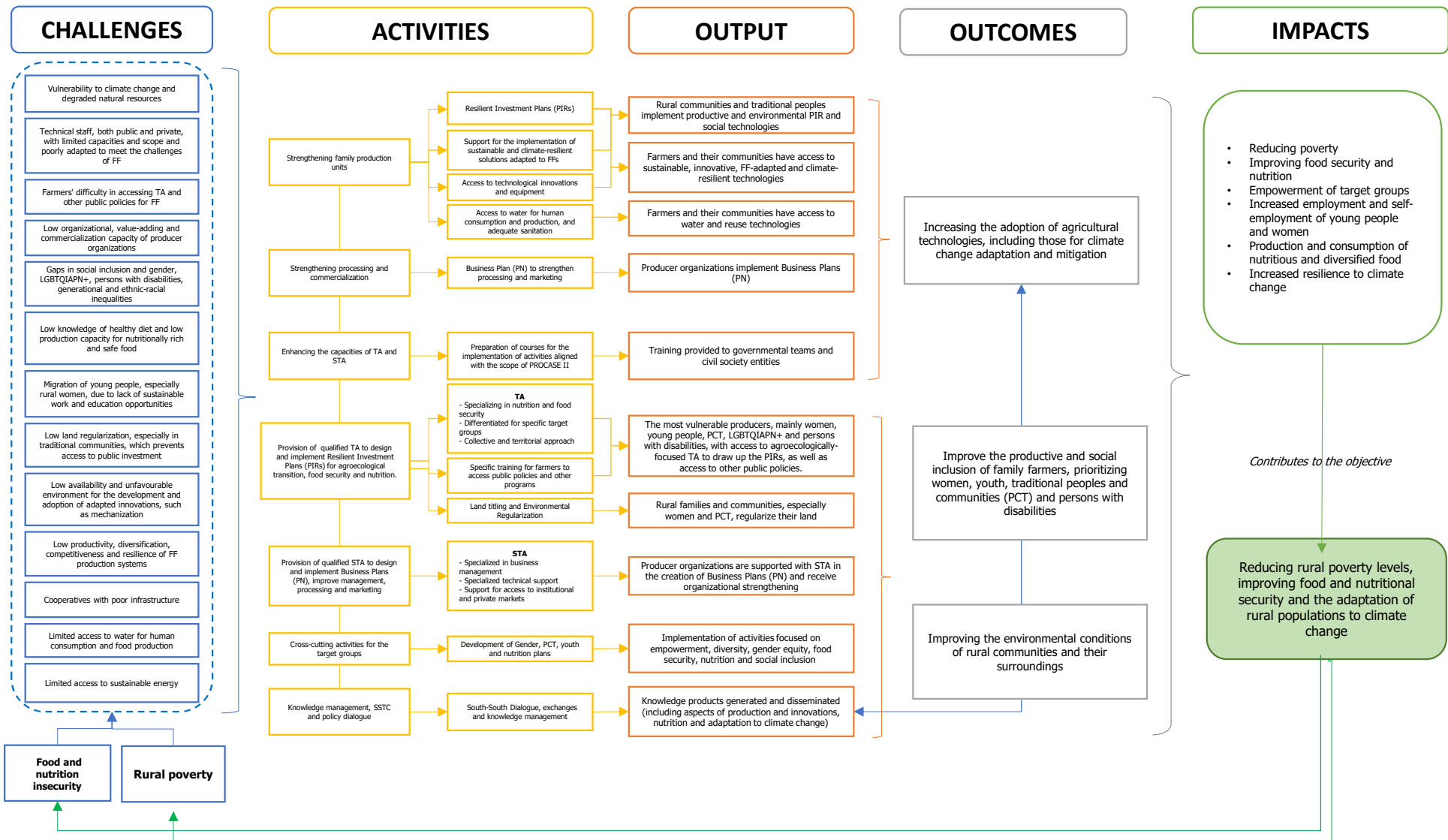
### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 9 Theory Of Change To C**

Mission Dates: 20-28/05/2024  
Document Date: 05/09/2024  
Project No. 2000004620  
Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 10 Component 1**

Mission Dates: 20-28/05/2024  
Document Date: 05/09/2024  
Project No. 2000004620  
Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



## **Paraíba Rural Sustainable Development Project PROCASE II**

**(BR-L1623)**

### **Component 1 Narrative**

**Development of resilient production systems to reduce rural poverty**

## Summary

1	JUSTIFICATION	3
2	OBJECTIVES	6
3	SUBCOMPONENTS	7
3.1	<b>Subcomponent 1.1: Implementation of resilient and biodiverse production systems</b>	<b>7</b>
3.1.1	Objective	7
3.1.2	Strategic orientation and methodology	7
3.1.3	Planned activities and results	10
3.1.4	Running arrangement	18
3.1.5	Costs and reach	18
3.1.6	Achievement of targets	19
3.1.7	Timetable for the 6 years of implementation	19
3.2	<b>Subcomponent 1.2: Strengthening and diversifying commercialization</b>	<b>19</b>
3.2.1	Objective	19
3.2.2	Strategic orientation and methodology	19
3.2.3	Planned activities and results	21
3.2.4	Running arrangement	27
3.2.5	Costs and reach	27
3.2.6	Timetable for the 6 years of implementation	27
3.3	<b>Subcomponent 1.3: Incentives for innovation</b>	<b>28</b>
3.3.1	Objective	28
3.3.2	Strategic orientation and methodology	28
3.3.3	Planned activities and results	28
ii.	Execution Arrangement	29
3.3.4	Costs	30
3.3.5	Implementation schedule	30

## 1 Justification

Rural Paraíba, the Project's intervention area, faces a series of limiting factors that were considered when elaborating this component's intervention proposal.

### Rural Poverty and Extreme Poverty

According to data from the Single Registry (Cadastro Único) from March 2024 (MDS), there are 191,000 families in rural Paraíba classified as being in poverty or extreme poverty (Single Registry - Cadastro Único - bands 1 and 2). Given that the total number of rural households in the state is 251,125<sup>1</sup>, based on IBGE 2010 data, 76% of rural families in Paraíba are in poverty and extreme poverty. Comparing this to 2010 data, where 59% of households were in poverty or extreme poverty, it is evident that the rural population of Paraíba has become poorer. Contributing factors likely include more severe droughts, the COVID-19 pandemic, and the reduction in social inclusion programs. This trend aligns with Brazil's return to the Hunger Map, as reported by the United Nations.

In Paraíba, only 36% of the population is food secure, while the rest are classified as mild, moderate, and severe food insecure (II VIGISAN, 2021).

The HDI in 146 municipalities is considered low (70%), medium in 62 (29%), and high in 2 (1%). According to IBGE 2010, around 28% of the population has some kind of disability (visual, hearing, motor, or mental).

### Paraíba's biomes

Paraíba is characterized by the presence of two regions and biomes: (i) the semiarid region, the largest part of the state, characterized by the Caatinga biome, which includes 193 of the state's 223 municipalities, covering 92% of the area and 62% of the state's population, and (ii) the Mata Paraibana region, characterized by the Atlantic Forest biome, located in the far east, which includes 30 municipalities, representing 8% of the state's surface area and home to 38% of the population.

The semiarid region is a rural region, home to 85% of the state's rural population and with the worst social indicators. The average annual rainfall in the semiarid region ranges from 330 to 900 mm, with rainfall concentrated in a short period that rarely exceeds four months. The Caatinga was deforested at a rate of 0.28% per year (2,352 km<sup>2</sup> /year) between 2002 and 2008. Another problem that increases the vulnerability of family farming in the semiarid region is desertification. This is a complex phenomenon whose causes involve interactions between biophysical, socioeconomic, and demographic variables and which could be accelerated by climate change. Depending on the considered climate scenario, areas with high susceptibility to desertification could increase by between 12.3% and 19.6% by 2045.

Rainfall totals are higher in the Atlantic Forest, ranging from 1,300 to 1,800 mm per year. There is also a seasonality to the rainfall in the Atlantic Forest, with the wettest or 'winter' season generally extending from February to August. It is estimated that Paraíba's Atlantic Forest currently occupies only 13.8% of its original area in the region. The technical report "Atlas of Atlantic Forest Remnants - Period 2021-2022", published by the organization SOS Mata Atlântica, shows that deforestation is continuing in this biome (SOS-MATA-ATLÂNTICA, 2023). During this period, 20,075 ha of Atlantic Forest were lost, equivalent to 0.1% of its current area<sup>2</sup>. At the level of the Brazilian Atlantic Forest, current deforestation varies between 11,000 and 25,000 hectares per year, which is equivalent to an annual deforestation rate of between 0.05 and 0.125%. While this rate is significantly lower than during the period from 1985 to 2000, it remains a serious cause for concern.

### Inefficient production systems

According to the 2017 Agricultural Census, there were 163,218 agricultural establishments in the state of Paraíba. Of these, 125,489 (76.9%) were family farms, while 37,729 (23.1%) were non-family or patronal. Approximately 12% of family farms belong to Agrarian Reform settlers. Family farming occupies 42% of the state's agricultural area and is responsible for 47.8% of

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<sup>1</sup> So far, the Demographic Census (IBGE 2022) has not provided the number of resident families segregated by urban and rural area. However, the IBGE has provided the geometric growth rate for the federation units, which in the case of Paraíba, was calculated as an increase of 0.45% in the intra-census period. In this case, this rate was added to the previous census figure of 250,000 households.

<sup>2</sup> Currently, there are approximately 20 million hectares of Atlantic Forest in Brazil, according to the SOS Atlantic Forest Atlas 2017. (SOS-MATA-ATLÂNTICA, 2017).



the total value of agricultural production, which is the second-highest proportion in the Northeast and the sixth-highest nationally. In the region of the Atlantic Forest, 20.16% of the area is occupied by family farms, while it reaches 50.75% in the Semiarid region of Paraíba.

Agricultural production is the main economic activity of most of the rural population in general and, in particular, family farming. The 2017 Agricultural Census highlights the following productions for their contributions to the total value of production: i) poultry, cattle, goats, and sheep account for 92% of the value of livestock; ii) permanent crops, bananas, passion fruit, Bahia coconut, and tangerines are the main productions in terms of value, and iii) pineapple, corn, cassava and sugar cane are the most important temporary crops. Family farming in Paraíba faces very severe and challenging conditions, especially in the semiarid region, which include low income, low productivity in farming activities, difficulties in accessing water for human consumption and production, and high risk related to climatic events. To increase the production, productivity and income of family farming, several obstacles must be resolved. These include limited access to finance for essential investments, limited access to technical assistance and rural extension that supports the learning of new technologies and techniques, challenges in accessing markets and integrating producers into value chains. These issues are further compounded by the weakness of rural organizations. According to the 2017 Agricultural Census, only 11.7% of agricultural establishments have access to water for irrigation. In addition to the low productivity of agricultural activities that depend on the availability of water, unsuitable production techniques are also used. For example, 32% of family farming establishments use pesticides, and 39% do not adopt any conservation practices (IBGE 2017). In the case of mechanization, out of 130 farmers, only 1 has access to a tractor, seed drill, or similar (IBGE 2017). Less than 1% of the family farming establishments applied lime or another soil pH corrector (IBGE, 2017). 67.4% of family farming establishments have implemented soil preparation systems.

The data from the 2017 Census shows that the majority (53%) of the producers responsible for the establishments are over 55 years old. Less than 10% are under the age of 35. These figures follow a national trend of a shrinking percentage of young people in rural areas while the rural population is getting older. This situation highlights the challenges of providing opportunities and prospects for young people and, at the same time, conditions for the older population to maintain agricultural activity and quality of life. This data, when added to the data on very low mechanization (see data below), can create obstacles to achieving greater productivity.

### **Land structure**

In the state, 54% of establishments have up to 5 hectares and, of these, 13% have less than one hectare, which characterizes extremely small areas for agricultural production, especially when considering the semiarid climate. Furthermore, around 15% of family farming establishments do not have guaranteed access to land (IBGE 2017).

### **Climate change and environmental degradation**

Climate change is causing significant losses in the productivity of some important crops for family farmers, such as cassava, beans, bananas, and corn.. Paraíba is among the states most at risk of losses, along with Ceará, Piauí, and Pernambuco. Production systems are largely not adapted to the increasing water scarcity or to the context of climate change in general. The combination of more intense droughts, increased desertification, and more heat extremes could jeopardize agricultural activities, especially those of family farmers, and disrupt local and regional food markets.

In the Atlantic Forest region, climate risks are more related to extreme rainfall events that cause floods and landslides. Agricultural production will be affected by reduced produce quality and crop losses due to the increased occurrence of diseases and soil erosion. These problems are compounded by poverty and the population's limited access to public policies aimed at reducing their vulnerability to climate change.

There is also a major problem of soil degradation due to the use of unsustainable practices on cultivated land, such as the systematic use of slash-and-burn, which has resulted in greater exposure of soils to the elements (SOS-MATA-ATLÂNTICA; INPE, 2015). The degradation of the environment has had a significant impact on the water cycle, as deforestation leads to a decrease in water infiltration and greater erosion. This has reduced the flow of water and led to the silting up of the region's watercourses (BRASIL-MDA-SDT, 2010), reducing the availability of water in the region (SILVA; BRUNO; AGUIAR; SOUSA FILHO *et al.*, 2020). In addition, the combination of the processes mentioned here has a significant negative impact on biodiversity. From a long-term

perspective, the sum of these factors (including predicted climate change) is expected to lead to more frequent extreme events (e.g., droughts and floods), which could trigger a significant loss of environmental quality. This, in turn, will have a direct effect on the productive potential of agricultural systems and on the population's quality of life.

### **Inadequate and insufficient Technical Assistance (TA) system**

Only 17% of family farming establishments in Paraíba have access to the TA service<sup>3</sup> (IBGE 2017), and 83.4% report that they receive it from the government (federal, state, or municipal). In addition to this low coverage rate, there is a lack of preparation and qualification of technicians from the point of view of knowledge of agroecological practices, which allow production systems to adapt to climate change, among other aspects (Information gathered during the field design mission). Without the support of qualified professionals, farmers are prevented from implementing more intensive, sustainable, and efficient agricultural practices, as well as adapting to climate change and the challenges of market access and access to finance. It is important to relate this data to the profile of the producers. In 2017 (IBGE), in 47.4% of the establishments that reported applying pesticides, the responsible person could not read nor write, and in 80.4% of the cases, the pesticide was applied without any technical guidance. Regarding credit, 17% of family farming establishments reported having had access to it in 2017.

### **Mechanization**

In the family farming establishments, most agricultural operations are carried out manually. Data from the 2017 Agricultural Census shows that only 0.8% of the farms in Paraíba have at least one type of machinery. The machinery and implements used are not always adequate or used appropriately. This lack of mechanization and the low availability of labor constitute a set of limiting factors for developing more efficient and relevant practices.

### **The challenge of digital inclusion**

Access to rural telephony and, above all, the internet is scarce in rural areas. According to studies by the Ministry of Agriculture and Livestock (MAPA), currently, more than 70% of rural areas nationwide do not have access to the internet<sup>4</sup>.

### **Low participation Specific difficulties for vulnerable groups (women, young people, LGBTQIAPN+ people, and residents of traditional communities)**

Data from the latest Agricultural Census of 2017 (IBGE) shows gaps in relation to vulnerable groups: Of all the family farming establishments in Paraíba, 76 % are run by men and only 24 % by women. Among family farming establishments, 64 % are run by people who say they are black or brown, 11.3% by young people under 35, and 0.9% by indigenous people. In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.12 hectares, those run by men have an average of 12.86 hectares. Of the family farms in the Project area that have access to water for irrigation, 6.7% are run by women, while 13% are run by men. Among female family farmers, 4,486 received TA (14.9% of the total), while 16,637 male family farmers (or 17.4% of the total) received TA. In the Single Registry (Cadastro Único), there are 6,328 indigenous families registered, 73.1% of whom live in poverty or extreme poverty, and 4,295 quilombola families registered, 67.9% of whom live in poverty or extreme poverty. Considering the families of artisanal fishers, 80.7% of them are in extreme poverty or poverty. This is a gap of 12.4% in relation to the poverty and extreme poverty situation of all registered rural families. Finally, among riverine families, 72.6% are in poverty or extreme poverty, a gap of 6.5% compared to rural families in the Project area.

### **Limited participation in collective organizations**

Only 3.7% of rural producers in the state are members of cooperatives, and 29.4% are members of associations (IBGE 2017). Enterprises that package, process, and market products have also encountered many difficulties. There are around 8,700 processing units in the Project area (IBGE 2017). According to MDS 2018, there were 77 enterprises in the northeastern region registered and able to offer their products to government buyers. Of these, only 7 are from Paraíba (10%).

### **Family Farming Cooperatives**

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<sup>3</sup> The average in the Northeast region was 7% in the 2017 Census.

<sup>4</sup> Source: Link - <https://www.gov.br/agricultura/pt-br/assuntos/inovacao/agrohub-brasil/produtores-rurais/internet-no-campo-1/internet-no-campo>.

The cooperative-type economic organizations present in the state focus on the collection, processing, and marketing of production, with the main chains being milk (bovine and caprine) and fruit. These organizations have weaknesses in terms of the capacities of their management teams on issues such as i) administrative and financial, including access to sources of working capital financing, ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people. These organizations also have important limitations in their production infrastructure, which does not always allow them to diversify their products or comply with health and environmental legislation. Most organizations do not use renewable energy sources in their processes, nor do they adequately treat their waste.

This set of factors limits these organizations' ability to function and their viability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, intermediaries predominate. Family farmers have limited marketing channels, dependent on local sales. According to FNDE data, Paraíba's PNAE received only 2% of the program's total resources in 2022. In relation to the northeast, this result puts the state only ahead of Sergipe, Rio Grande do Norte and Alagoas. It is worth noting that the PNAE is an important means of marketing family farming products.

### **Basic Sanitation**

Article 3 of Law no. 14.026/2020 considers Basic Sanitation to be a set of public services, infrastructures, and operational facilities for: i) drinking water supply, consisting of the activities and the provision and maintenance of infrastructures and operational facilities necessary for the public supply of drinking water, from collection to building connections and their measuring instruments; ii) sanitary sewage (collection, transportation, treatment and adequate final disposal of sanitary sewage) and iii) urban cleaning and solid waste management (collection, transportation, transshipment, treatment and environmentally appropriate final disposal of household solid waste).

Regarding drinking water supply in the state, the Water and Sanitation Institute reports that in 2019, the rural service rate reached 24.16 % (in Brazil, the rate is 30.77%) through the implementation of systems with a distribution network and simplified chlorine disinfection treatment, guaranteeing the potability of the water. In other situations, fountain-type systems are implemented without a distribution network and with chlorine disinfection treatment. Finally, when there is no possibility of implementing one of the above solutions, the construction of cisterns for human consumption becomes the only alternative.

As for the sanitary sewage situation, the rural service rate in Paraíba is 18.82% (Instituto Água e Saneamento, 2020), significantly below the national average of 42.54%. It is worth mentioning that in the costal micro-region, this percentage is 1.04%, showing the great precariousness of this region of the state. Most of the sewage is covered by septic tanks and/or sinks, but the treatment units have no control over the disposal of sewage effluent, either on the ground or in water bodies, making it yet another polluter of the environment. In addition, some of these septic tanks are of the black tank type, where the sewage is dumped directly in the ground. In these areas it is common to find sewage running out into the open and even houses without toilets.

The set of vulnerabilities outlined in this chapter, coupled with climate change, puts the region's production systems in crisis and in a vicious circle in which the processes of social and environmental degradation fuel the impoverishment of rural families and increase migration to urban areas.

## **2 Objectives**

The aim of this component is to increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change, as well as improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and Persons with Disabilities.

The specific objectives are:

- Transform existing systems by introducing innovative, more intensive, and diversified agroecological practices;
- Seek greater resilience of production systems adapted to climate change;
- Promote improved food security and nutrition;

- Improve the integration of producers into value chains, prioritizing women, young people, people with disabilities, Traditional Peoples and Communities (PCT), indigenous peoples, fishing communities and gypsies;
- Make investments in social technologies, ensuring better access to and reuse of water, and sustainable energies;
- Support producer organizations (associations and cooperatives) to enable production to be processed, adding value and consequently improving marketing and market access through investments in machinery and minor renovations;

Productive investments, both in the communities and in the cooperatives, will be accompanied by technical assistance (TA) and specialized technical assistance (STA), respectively, financed by Component 2, so that better business management, marketing, and sustainability can be guaranteed.

### 3 Subcomponents

Component 1 is organized into three sub-components: 1.1: Implementation of resilient and biodiverse production systems ; 1.2: Strengthening and diversifying commercialization; and Sub-component 1.3: Incentives for Innovation.

#### 3.1 Subcomponent 1.1: Implementation of resilient and biodiverse production systems

##### 3.1.1 Objective

The aim of this sub-component is to strengthen and adapt production systems based on the implementation of agroecological practices and low greenhouse gas emissions, seeking greater resilience and allowing for an improvement and diversification in the production of healthy food for self-consumption and the market. It is expected that these activities will improve families' food security and nutrition while at the same time helping to improve their income.

Investments will also be made in social technologies (small water and energy infrastructures), which play a fundamental role in building and strengthening more resilient production systems and improving the basic living conditions of families.'

The technical characteristics of the production proposals supported by the Project will be adapted according to the specific agro-climatic characteristics of each biome.

##### 3.1.2 Strategic orientation and methodology

Resilient Investment Plan (PIR, according to the Portuguese acronym): This will be the main instrument for planning and implementing the resources of this subcomponent. Each PIR will have a territorial focus and will be prepared with one or more communities, with the support of agroecological TA. Each PIR will be carried out by an existing community association, representing the beneficiary community or communities, with which the Project will sign an agreement establishing its obligations and rights. The Project will transfer the defined funds to the association, which will make the procurements and contracts established in the PIR, reporting back to the Project with the support of technical assistance.

The scope of the PIR will be a Local Territory<sup>5</sup>, consisting of up to three communities, and its beneficiaries will be the families of these communities. The PIR will support productive activities (new or reinforcing existing activities) aimed at adapting to climate change, with the potential to guarantee food security and improve income by marketing surpluses. The PIR aims to incorporate concepts of good production practices based on the principles of agroecology, nutritional education, and food security for families, as well as ensure integration with social technologies.

The PIR will finance three axes of intervention: i) Production and commercialization, ii) Environmental, and iii) Social Technologies, between which complementarity and synergy will be sought to promote sustainable change, as shown below:

**Production and commercialization axis:** The aim will be to develop productive systems at the family level, always based on the use of agroecological practices and with a low impact on greenhouse gas emissions, such as: (i) agroforestry systems (AFSs) for diversified production; (ii) agroecological backyard gardens for the production of fruit, vegetables including PANC<sup>6</sup> and medicinal plants; (iii) beekeeping and meliponiculture; (iv) agroecological consortia for organic production including cotton; (v) goat

<sup>5</sup> This spatial unit is specific to PROCASE II and was defined when the Project was being drawn up, for the purposes of planning and implementing actions.

<sup>6</sup> Unconventional Food Plants

farming for milk and meat with fodder AFSs; (vi) dairy cattle farming with fodder AFSs; and (vii) free-range poultry farming with fodder AFSs. The list is not exhaustive and other activities may be considered if they are in line with the demands of the beneficiaries and the objectives and criteria of the Project. It is important to mention that in the case of support for cattle breeding, the Project's strategy will be to support dairy production exclusively (it will not be possible to support breeding for meat production), to improve productivity from the existing herd and will not finance the purchase of animals, except for the purchase to replace breeding stock. This axis will also strengthen the capacity to market production in the various channels accessible to families (local fairs, PAA, PNAE, local commerce, etc.) and relevant to the beneficiaries.

Compared to the first phase of PROCASE, which focused exclusively on the semiarid region of the Caatinga biome, the PROCASE II management team will have to pay close attention to identifying relevant proposals for developing productive activities with the potential to adapt to climate change in the Atlantic Forest biome.

All the activities supported under this Productive and commercialization axis will be in accordance with the Environmental and Social Management Plans (ESMP) of each PIR and with the project's Strategic Environmental and Social Management Plan (SESMP).

Extractivism, both in the Caatinga biome and in the Atlantic Forest biome, could also be supported through PIRs, both to enhance non-timber products such as fruit, fibers and lianas, seeds, honey from native bees, and other bio-economic products. As the Project area includes an important coastal area, the improvement of artisanal fishing activities, including shellfish gathering, which is generally carried out by women, could be considered when drawing up the PIRs.

In addition to the activities mentioned above and considering that part of the Project's area of operation has strong potential, economic diversification activities based on tourism (particularly in the coastal Atlantic Forest) and handicrafts could be developed through the PIR. These non-agricultural activities, which generally involve women and young people, will be very relevant and in line with the project's objectives.

The Productive and Commercialization Axis will focus on activities to sustainably strengthen primary production and the commercialization of products generally *in natura* and on the local market. It will be encouraged and supported through agroecological TA and the establishment of partnerships with cooperative production processing units, supported by the Project through subcomponent 1.2. This should make it possible to add value to primary production to reach other types of market.

**Environmental Axis:** The aim is to manage and restore the environment at the Local Territory level, whether it is associated with the activities of the PIR's Productive Axis.

The PIRs will have specific and collective resources to encourage the implementation of territorial environmental activities, such as: i) Casas de Sementes da Paixão<sup>7</sup>; ii) Implementation of nurseries focused on the production of native species; iii) Reforestation, recovery of permanent preservation areas (such as springs, riparian forests, areas with a slope of more than 45°, etc.) and degraded areas; iv) Soil and water protection activities; v) Recycling or composting plans, amongst others. It was agreed during the design of the Project that in the PIRs that will support the production of bovine milk, the resources of the environmental axis will be primarily allocated to the recovery of degraded areas. These activities will be implemented in each territory by an environmental management group made up of project beneficiaries, in which the participation of Local Development Agents (ADL, according to the Portuguese acronym)<sup>8</sup> will be prioritized, as key players in introducing environmental education activities and new environmental practices. To implement these activities, synergies and complementarities will be sought with the activities, and competencies of SEMAS (Secretariat for the Environment and Sustainability), AESA (Executive Agency for Water Management), the State Environment Superintendence (SUDEMA), and the National Semiarid Institute (INSA), Brazilian Agricultural Research Company (EMBRAPA), Paraíba Research, Rural Extension and

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<sup>7</sup> In Paraíba, several civil society organizations have organized themselves in recent years to support community initiatives around the preservation and dissemination of transgenic-free Creole seeds, known as Sementes da Paixão (Seeds of Passion).

<sup>8</sup> One ADL per PIR, financed by Component 2. The ADLs are young people selected from the community who are paid for two years to help TA and the Project in mobilizing the community and in communication between the community and the Project.

Land Regularization Company (EMPAER), Federal University of Campina Grande (UFCG), State University of Paraíba (UEPB), and Federal University of Paraíba (UFPB), among other institutions.

The activities of the Environmental Axis may result from the Environmental and Social Management Plans (ESMP), which will be drawn up at the same time as the diagnosis of each PIR. The ESMPs will provide a simplified analysis of environmental and social impacts to promote and encourage the adoption of environmental and agroecological practices. Environmental activities will be carried out with the support of TA, which will also support production and commercialization.

**Social Technology Axis:** The aim of this axis is to implement social technologies at the family level, such as: i) 2<sup>nd</sup> water cisterns (agricultural production); ii) grey water reuse systems; and iii) trench dams (underground dams). In addition to these technologies, 1<sup>st</sup> water cisterns (for human consumption) and other household sanitation solutions will also be implemented, such as evapotranspiration basins or access to more sustainable domestic energy, such as biodigesters and eco-efficient stoves. The social technologies will be implemented by entities contracted by the Project Management Unit (PMU) specifically to provide TA for this axis, considering the specific nature of social technologies and the legal framework. These entities will be trained by PROCASE II, although most of them have the experience to do so. In addition to implementation, these organizations will also provide training to ensure that these technologies are properly appropriated, used and maintained by the families.

The connection and complementarity between the productive, environmental, and social technology axes should be sought and highlighted when drawing up the PIRs, with the aim of maximizing the results of the investments made by the Project.

In each of these areas, the introduction of innovative practices and technologies will be prioritized, in particular those that will be supported through Subcomponent 1.3, such as mechanization and the use of tools and equipment adapted to the reality of family farming, with a focus on vulnerable groups such as women, young people and persons with disabilities.

The PIRs could also support the strengthening of the functioning of community associations by purchasing specific equipment, for example, to improve connectivity (access to the internet), access to audio-visual material, etc.

### **General aspects of PIRs**

During the implementation of the PIRs, in addition to close and permanent synergy with TA activities (including STA where justified), strengthening community organizations, and supporting innovation, complementarities will be established with other Component 2 activities, such as: land and environmental regularization; activities related to diversity, gender, youth, PCT and families with persons with disabilities.

The PIR will benefit groups of families, prioritizing women, young people, traditional communities, and persons with disabilities, and will finance inputs, tools, equipment, and other investments needed to enable the adoption of technologies to improve productivity, adapt to climate change and improve food security and nutrition.

The investments will be financed with non-reimbursable resources and with a financial or economic counterpart from the beneficiaries of at least 10%.

In all cases, the selected activities will come from the Participatory Rural Diagnosis, which will identify not only the demands, but also the problems, priorities and potential demands of the beneficiary communities and families. These activities must meet eligibility criteria that will be detailed in the Project Operational Regulations (ROP) and present: i) high adherence to the productive means characteristic of the biome, region, and community, ii) allow productive intensification based on the principles of agroecology, as well as adaptation to climate change and iii) follow the full agreement of the involved families.

The same PIR can support more than one productive activity or environmental axis and include the implementation of various types of Social Technologies, thus seeking coherence with the reality of family farming to meet the demands of the communities in a diversified way and guarantee the inclusion of various profiles of beneficiaries, particularly women and young people. In these cases, the beneficiaries will be organized into interest groups around the selected activities to make up the PIRs.

During the process of drawing up the PIRs, the integration of new members and partners into existing organizations will be encouraged, giving priority to women, young people, and families with persons with disabilities.

### **Provision of Agroecological Technical Assistance (TA) services**

All PIR beneficiaries and their organizations will receive agroecological TA for a period of three and a half years (Annex "Promoting Agroecological Transitions in Brazilian IFAD Projects"<sup>9</sup>), contracted by the PMU through a competitive process that meets IDB/IFAD standards. These services will be financed by Subcomponent 2.1, which presents them in detail. They should enable the beneficiaries to be strengthened and advised on how to design, implement, monitor the operation of, and complete the PIRs. This includes advice on agroecological production and adaptation to climate change, management, organization, access to public policies and marketing, guaranteeing compliance with current health and environmental legislation. The support provided by the TA entities should include support for the beneficiaries in carrying out the procurement and accountability processes related to the implementation of the PIRs, considering that the financial resources will be transferred to the beneficiary associations through a procedure defined in the ROP. In the selection of TA services, criteria will be applied that allow for the inclusion of women technicians in the teams, being as adherent as possible to the specific needs of women and to proposing more appropriate solutions for the women beneficiaries of the Project's activities. For example, it will be a selection criterion for TA organizations to have a minimum percentage of 30% women on their teams.

In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted for this purpose, which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of Social Technologies and training beneficiaries to apply good usage and maintenance practices.

### **3.1.3 Planned activities and results**

#### **Identifying communities**

To select the communities, a field survey will be carried out by a state agency, coordinated, and supervised by the PMU and with the support of the Regional Project Management Units (RPMU), to survey the characteristics of the communities based on a list of criteria and the methodology defined in the ROP.

#### **Community eligibility criteria:**

To be eligible, communities must meet the following criteria:

- i) Be rural communities of family farmers who are engaged in agricultural or non-agricultural activities aligned with the productive activities of the Project;
- i) High percentage of families registered in the Single Registry (Cadastro Único);

Based on this survey, a list of communities with the profile and characteristics to receive investment and support from the two components will be drawn up in each Rural Territory.<sup>10</sup>

#### **Prioritization and selection of communities:**

From this list of identified communities, the Project team will visit the communities (between 5 and 10 per municipality) to validate the data provided during the identification.

#### **Criteria for prioritizing communities:**

- i) Being a traditional and indigenous community (quilombola, indigenous, artisanal fishers, others);
- ii) High rate of families registered in the Single Registry (Cadastro Único);
- iii) High proportion of families needing a cistern for drinking water and sanitation;
- iv) Prioritize families that have not benefited from other projects that finance similar activities to those that the PIR will finance;

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<sup>9</sup> The annex describes how the concept of agroecology is applied in IFAD projects in Brazil, and specifically in the PROCASE II Project.

<sup>10</sup> Rural Territory: Paraíba is divided into rural territories that identify and prioritize their specific needs. These territories collaborate on common policies across municipalities and present their demands to the state government. This approach aims to ensure that public policies for family farming effectively reach the rural population.

- v) A high proportion of families represented by women and young people and families with persons with disabilities;
- vi) Evidence of environmental degradation (using appropriate monitoring platforms for environmental degradation);  
and
- vii) No or low level of access to TA services.

Once the field assessment has been completed, the PMU team will draw up a prioritization list of communities by Rural Territory, which will be presented and validated at a plenary meeting in each Territorial Council, ensuring the selection process is legitimate and recognized by other local stakeholders.

The entire process of identifying, prioritizing, and selecting communities will be carried out under the supervision of the PMU during the first few months of Project implementation. Ideally, this process should be prepared and initiated before the Project's official start (leveraging the possibility of retroactive financing) to prevent potential delays in the initial phase of the Project.

At the end of this stage, all the communities in which the Project will carry out some kind of activity will be selected. It has been estimated that the Project will be able to work in approximately 600 communities.

For reasons related to implementation, the work of ATER, the ADLs and the creation of local dynamics and synergies, these 600 communities will be organized into small groups of up to 3 surrounding communities (or the equivalent of approximately 100 families), thus constituting a Local Territory. As part of the Project design process, 3 communities per Local Territory were considered, thus reaching around 200 Local Territories and, consequently, 200 PIRs. This organizational model in Local Territories has been used in other projects (especially in Bahia with the Gente de Valor and Pró-semiárido projects), with beneficial outcomes for both Project execution and enhancing the beneficiaries' organizational processes.

Each PIR will be prepared and implemented with an existing community association that is able to make this commitment to the Project. This formalized association will represent all the communities that make up the Local Territory and will be selected based on its organizational capacity and experience.

#### **Participatory Rural Diagnosis for PIR**

In each selected community, the TA entity will draw up the PIR together with the communities, starting with a Participatory Rural Diagnosis, to characterizing the problems and challenges (productive, environmental and social) affecting the communities and rural families, identifying the needed investments to solve them, and collecting all the data and information needed to draw up the activities that the Project will implement through the PIRs.

The aim of the diagnosis is to

- i. Evaluate the community's characteristics regarding the productive activities to be supported (availability of natural resources, potential adaptation to climate change, viability, etc.);
- ii. Collect technical data on production capacity and market access, identifying potential and related risks;
- iii. Analyze the state of conservation of vegetation cover, biodiversity, soil and water resources and the ways in which these natural resources are used for productive purposes;
- iv. Survey the social characteristics of the beneficiaries, their previous experiences and forms of organization, collective management capacity and level of social organization;
- v. Collect data on obtaining the Declaration of Aptitude for PRONAF (DAP) and registering families in the Rural Environmental Registry (CAR);
- vi. Identify the needs of the families and the association about TA to strengthen capacities relating to productive issues, adaptation to climate change, organizational capacities, management, and governance;
- vii. Identify the characteristics and socio-productive needs of each group, and in particular the priority groups - PCT, women, young people, and families with persons with disabilities;
- viii. Identify the needs, relevance, and modalities for carrying out environmental recovery activities;
- ix. Identify the demand for access to water for production (52,000-liter cisterns and reuse of grey water);
- x. Identify the need for and the situation regarding access to other social technologies for collecting, storing, and reusing water, sanitation, improving energy consumption, such as biodigesters, access to renewable energies, and waste management;
- xi. Identify the connectivity situation in terms of internet access;



- xii. Identify the land ownership situation of the association's members;
- xiii. Identify access to public policies;
- xiv. Identify the environmental and social risks of the supported production activities in accordance with social and environmental safeguards;
- xv. In the case of PCT, survey the specific forms of organization (collective work and production, for example) and management of natural resources, characteristics of socio-cultural habits; and
- xvi. Assess the potential for coordination with other local stakeholders.

Drawing up the diagnosis will be a participatory process, with consultations carried out through successive collective meetings with all the members of the association and specific meetings with women and young people, thus enabling the identification of demands. These consultations will be complemented by visits to the farms and production areas. It is estimated that it will take a maximum of two months to prepare the diagnosis.

The diagnosis should point to the activities that could be carried out in the community and will therefore be the basis for drawing up the PIR, as well as gender, diversity and youth activities and land and environmental regularization.

Once the diagnosis has been drawn up (within a maximum of 2 months), it will be validated by all the beneficiaries in a collective meeting.

### **Drawing up PIRs**

Once the diagnosis has been completed, the PIRs will be drawn up. This process will be participatory and conducted by TA entities previously contracted and trained by the PMU to draw up and implement the PIRs (see details on capacity building in subcomponent 2.1). Throughout the elaboration process, the RPUMs will play an important support and quality control role. Each PIR will be drawn up and implemented with technical support from the same TA organization, thus ensuring greater commitment, quality, and continuity throughout the process.

The scope of the PIR will be the territory of the selected communities and all the families in these communities. During the preparation process, new families will be encouraged to join the associations, particularly those represented by young women and families with persons with disabilities, to expand the scale of work and encourage the integration of this public.

For the design of the Project, it was estimated that each PIR will cover an average of 90 families from the Project's target groups, selected according to the criteria presented above and detailed in the ROP. The PIR will support productive activities in the community (new or consolidating existing activities) with potential for commercialization, incorporating concepts of sustainability and agroecology, good production practices and environmental resilience, nutritional education, and food security and nutrition for families, encouraging nutritious and diversified diets, expanding agri-food diversity, as well as ensuring integration of social technologies.

Agricultural activities with the region's main production systems and non-agricultural activities (such as handicrafts, community-based rural tourism, etc.) can be supported. The same PIR may support more than one productive activity, provided it is justified and has the potential to be viable. In these cases, the beneficiaries will be organized into interest groups around each activity, and the same beneficiary may not participate in more than one group. The Project's methodology will be based on strengthening and establishing synergies and complementarities with existing dynamics developed with other actors and projects present in the Rural Territories (COOPERAR Project, Project Dom Hélder Câmara III, and Sertão Vivo Project (PCRP)).

The PIR will be drawn up based on the data collected during the diagnosis (see Annex PIR structure, at the end of this document). The same TA team that carried out the diagnosis will conduct this work, following the methodology defined in the ROP, (with reference to the methodology of the System for Financial Analysis of Productive Projects<sup>11</sup> (SAF-PP) developed by IFAD/ Project Semear and applied in various projects). The SAF-PP that is used in other projects funded by IDB/IFAD, for example, in Piauí, and is now under the guidance of the Federal University of Viçosa (UFV), and must be acquired by PROCASE II and adjusted to fit its features.

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<sup>11</sup> The system allows you to enter all the information relating to the investments made and the projections of costs and results to calculate the main economic and financial evaluation indicators.

The PIR should describe the initial situation of the families, the investments to be made and the expected results for the three axes (productive, environmental, and social technologies). Investments should always consider the integration of innovative practices for the sustainable use and management of natural resources appropriate to the local context, conservation practices for each biome and other low greenhouse gas emission agricultural techniques that maximize the provision of ecosystem services.

The PIR's strategy and methodology will be based on agroecological practices, combining sustainable production intensification with the conservation of natural resources, and promoting a paradigm shift to transform current practices into adaptive and resilient models, increasing diversity (biological and productive) and resulting in an improvement in the quality of life of beneficiary families. The Project will not be able to finance the purchase of pesticides and other synthetic inputs, but only inputs aligned with the principles of agroecology.

Due to the importance of supporting commercialization, the PIRs will define and support market access strategies and may also allow for the acquisition of the necessary material (stalls for fairs, scales, boxes for transporting products, visual identity material, etc.). In these commercialization strategies, access to the PNAE and PAA will be considered. Given the importance of valuing access to markets for agroecological products and those produced in traditional communities, courses and workshops will be held by TA entities for the beneficiaries, to present the conditions for obtaining the Quilombos and Family Farming labels, among other possibilities. With the participation of representatives of the beneficiaries and the TA teams, these courses should help to structure the productive activities of the PIRs, contributing to their economic viability. The PIRs' market access activities should be linked to the activities envisaged under subcomponent 2.2 - Strengthening organizations' commercialization capacities.

When drawing up the PIRs, prioritization criteria will be applied so that women, young people and persons with disabilities can be involved and be direct beneficiaries of the Project's activities, particularly in the processes of processing, access to markets and the use of new technologies, including virtual commerce and other digital solutions.

A feasibility and financial profitability study will be carried out using the SAF-PP system by TA (who will have received training for this) on a realistic projection basis, assessing the expected increase in income per family, considering self-consumption of production. The selected PIRs must demonstrate technical, economic, financial, and environmental viability and sustainability.

### **Criteria for drawing up PIRs**

The PIRs will be drawn up considering the following criteria (see details in the ROP):

- I. Number of families: a PIR can serve no fewer than 30 families and no more than 120;
- II. The name and CPF<sup>12</sup> of each representative member of the beneficiary family will be attached to the PIR;
- III. The amount of funding from the Project cannot exceed: USD 1,900 per family for the productive axis, USD 100 per family for the environmental axis and USD 786 per family for the Social Technologies axis, totaling USD 2,786 per family as the maximum investment;
- IV. The minimum amount of Project resources per PIR is USD 83,580 and the maximum is USD 334,320;
- V. The funds from the Project will be non-reimbursable. The beneficiaries must provide a counterpart of at least 10% of the amount financed by the PIR, which can be either financial or economic, such as labor, goods and services directly related to the implementation of the PIR;
- VI. Priority will be given to PIRs for associations and/or interest groups in which more than 50% of the beneficiaries are women, or which are led by women;
- VII. Priority will be given to PIRs for associations and/or interest groups with at least 20% young beneficiaries of the activities funded;
- VIII. Priority will be given to PIRs for associations and/or interest groups with at least 5% of PCT beneficiaries;
- IX. The funds allocated to the PIR can finance goods for collective use (e.g., a milk cooling tank or a forage harvester) or for family use (setting up a fodder production field or pruning tools, etc.);

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<sup>12</sup> "Cadastro de Pessoas Físicas" (Natural Persons Register)

- X. The PIR should define the rules for the use, maintenance, and management of collective assets;
- XI. The PIR should define the forms and modalities of access to the market for production from the PIR and the connection with processing units, particularly those financed by the Project;
- XII. Describe the needs and points of attention in terms of TA and strengthening the capacities of the association and its members;
- XIII. To highlight the investments and activities carried out to adapt production systems and organizations to climate change, as climate investments;
- XIV. Beneficiaries who have not registered in the CAR at the drafting stage must do so in the initial phase of implementing the PIR with the support of TA and the PMU team.
- XV. The community must be represented by an entity that has been legally constituted for at least two years;
- XVI. Entities must be in good standing with the Federal, State and Municipal Revenue Service.

For the design of the PROCASE II Project, four PIRs were drawn up to form a sample for the Economic and Financial Assessment. Based on field visits and analysis of secondary data, the following production activities were selected: i) Improving bovine milk production by implementing AFS, ii) Improving goat milk production by implementing SAF, iii) Implementing irrigated backyard gardens for fruit and vegetable production and iv) raising poultry for egg and meat production. These activities were selected because they have strong potential, present good integration in the socioeconomic and agro-environmental context and can be in individual or collective areas.

It is important to note that the four PIRs that were drawn up as a sample during the design of the Project will have to be updated (mainly in the financial part, to take account of changes in procurement costs, and to update the list of intended beneficiaries, which may change between the design and the start of implementation).

During the design phase of PROCASE II, it was not possible to draw up sample PIRs for a group of communities organized in a Local Territory. The four sample PIRs therefore include only one community.

The ROP will detail the items that can and cannot be financed with the PIRs. The main ones are as follows:

**Investments eligible for PIR funding:**

The Project will finance the investments needed to make the PIRs viable. These investments can be classified into three groups. The extended list of eligible investments is available in the ROP:

- i) Group 1 - Non-Consulting Services. This group includes investments associated with hiring technical-operational services, such as transportation, application of inputs, installation of equipment, vehicle rental, TA for producers, among others;
- iii) Group 2 - Assets. This group includes investments associated with the purchase of inputs, such as seedlings or seeds, and equipment for the production, processing, marketing, and distribution of the PIR products to be promoted;
- iv) Group 3 - Works. This group includes investments associated with the provision or renovation of productive structures and/or economic infrastructure, such as drilling wells and processing units, with a maximum of 20% of the value of each PIR. If this percentage is exceeded, a no-objection request must be made to IDB and IFAD, which will analyze each specific case.

**Types of Climate Adaptation investments that can be financed by investments in the PIRs:**

- Implementation of good ecological fertilization practices (such green manures) in areas vulnerable to climate change;
- Implementation of erosion and soil erosion management technologies in areas vulnerable to climate change,
- Implementation of crop protection technologies in critical areas, with Nature-based Solutions concepts ;
- Implementation of technologies to recover soil degraded by salinization in areas vulnerable to climate change. The use of correctors such as organic matter and the insertion of microorganisms to accelerate processes will be supported;

- Productive diversification in crops and livestock in areas most vulnerable to climate change. Avoid monoculture and invasive exotic species (particularly in AFSs). Encourage crop rotation, permanent vegetation cordons, among other techniques;
- Integrated pest and disease management in areas most vulnerable to climate change, considering restrictions on the use of pesticides and genetic manipulation (transgenics);
- Management of natural pastures to guarantee animal feed and reduce vulnerability to climate change. The ESMP (Environmental, Social and Climate Management Plan) will consider monitoring to prevent undue deforestation to establish pastures;
- Improvement and transfer of genetic resources in plantations and genetic improvement to increase their resilience to climate change;
- In situ and ex situ conservation of biodiversity to increase resilience to climate change;
- Added value of agricultural products in value chains vulnerable to climate change;
- Irrigation or use of water in the agricultural sector, considering the source of the resource (wells, for example) and the restrictions or conditions to be respected;
- Improving existing water reservoirs for agricultural use;
- Implementation of "seeding" and water harvesting interventions;
- Implementation of intra-property infrastructure for the conduction, distribution, and application of irrigation water;
- Implementation of irrigation systems with water-efficient technologies;
- Technical assistance for the sustainable use of water;
- Conservation and recovery of natural infrastructure in basins vulnerable to climate change;
- Implementation of early warning systems for floods, droughts, and alluvial floods in basins vulnerable to climate change;
- Implementation of water quality monitoring systems in basins vulnerable to climate change.

#### **Types of Climate Mitigation Investments that can be financed by investments in PIRs**

##### **a) Agricultural production**

- Improving the industrial energy efficiency of projects in operation (e.g., photovoltaic systems);
- Reduced energy consumption in operations;
- Agricultural projects that contribute to increasing soil carbon or preventing soil carbon loss through erosion control measures;
- Reduction of GHG emissions from low-carbon agricultural practices or technologies;
- Projects that reduce methane or other GHG emissions;
- Projects that improve carbon sequestration through land management;
- Forestry or agroforestry projects that sequester carbon through sustainable forest management, avoid deforestation or prevent land degradation;
- Projects that reduce food loss or waste or promote low-carbon diets;
- Projects that contribute to the reduction of GHG emissions through the production of biomaterials / bioenergy from biomass; and
- Improving the energy efficiency of existing irrigation system projects, implementing technologies or equipment with low energy consumption, promoting good control practices, or reducing water losses (drip irrigation).

##### **b) Solid Waste and Effluent Management in Processing and Marketing Units**

- Anaerobic digestion of bio-waste collected separately;
- Composting bio-waste collected separately;
- Other types of bio-waste recovery;
- Mechanical or biological treatment of mixed waste;
- Care and handling in operation, use of personal protective equipment and accident response systems; and
- Effluent treatment systems.

##### **c) Buildings in the agricultural sector**

- Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions and or increase carbon sinks by using vegetation in new and existing buildings and associated land;
- Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions and, or measures that increase carbon sinks by using vegetation in new or refurbished buildings and associated land, thus meeting certification standards;

- Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions and or increase carbon sinks through the use of vegetation in public areas or facilities; and
- New or low-consumption appliances or equipment;
- Pilot experiments to introduce renewable energy sources, such as biogas or solar energy.

**Investments not eligible for PIR funding:**

Some types of investment will not be financed by the Project. Among other things, they cannot be financed:

- Purchase of real estate of any kind;
- Spending on land and environmental regularization;
- Current expenses (salaries and social charges for existing staff, water, electricity, internet, telephone);
- Operating and maintenance costs, construction, expansion, modernization, renovation, and construction of civil or water works on real estate that does not have title to the land, but can present a declaration of ownership, a declaration of purchase and sale or a loan agreement;
- Purchase of bovine matrices;
- Purchase of agrochemicals such as herbicides, fungicides, insecticides and synthetic fertilizer;
- Construction or refurbishment of processing plants that use firewood as a source of energy, in whole or in part.

The ROP contains the list of non-financeable investments. The PIRs and the definition of productive activities will be drawn up in accordance with the guidelines of the Strategic Environmental and Social Analysis (AASE). In the case of PIRs drawn up with traditional communities, it will be necessary to meet the requirements of the Free, Prior, Informed Consultation (FPIC) process.

**PIR approval process:**

Throughout its preparation, the PIR will be entered into the Project's management system, to make the information accessible and available for wide consultation.

During the drafting process, the teams from the RPUMs will make an important contribution to validating and verifying the information in the PIR. Once finalized, the PIR will be submitted to an evaluation by CEGIP (Executive Committee for the Management of Productive Investments), made up of the PMU and representatives of Paraíba state agencies (detailed composition is in the ROP). CEGIP will draw up an opinion covering the technical, economic, social, and environmental areas. The assessment will follow the criteria defined in the ROP, including:

**Criteria for evaluating and prioritizing PIRs:**

- I. Proof of economic and financial viability;
- II. Integration of technological innovations with environmental benefits (on water, biodiversity, soils, native vegetation, riparian forests, recovery of springs, etc.);
- III. Prove of the ability to integrate and adopt techniques for the recovery and protection of environmental resources;
- IV. Proof of the adoption of technological proposals based on the principles of agroecology;
- V. Proof of feasibility and technical sustainability;
- VI. Potential for strengthening family capacities and community organization;
- VII. Prove the integration and relevance of the use of social technologies;
- VIII. Achieving the required 10% match, whether monetary or non-monetary;
- IX. Representation of groups of women, young people, and families with persons with disabilities;
- X. Belong to traditional communities and socially vulnerable family farming communities.

The criteria mentioned in the table below have been drawn up for transparency and will be used as a reference during the evaluation process conducted by CEGIP.

Table 01: Criteria for evaluating PIRs

	VARIABLE (K)	MEASUREMENT (1-10)	WEIGHTING (1-5)	SCORE
	Analysis of the contextualization (Reference Framework) of the Project (Points from 1 to 5)	1 to 5	5	25
	Analysis of the Results Matrix (feasibility, level of risks) Notes from 1 to 5	1 to 5	3	15
P R O P O S A L	Profitability (%) of PIR: classes ( $X \leq 5 = 3$ points; $5.1 \leq X \leq 10 = 5$ ; $10.1 \leq X \leq 20 = 7$ ; $X \geq 21 = 10$ )	10	2	20
	Economic internal rate of return (eIRR) (%) of the PIR (classes ( $12 \leq X \leq 17 = 3$ points; $17.1 \leq X \leq 25 = 5$ ; $X \geq 25.1 = 10$ ).	10	5	50
	Lowest cost per beneficiary, (USD1.00/producer) (classes ( $X \leq 2,000 = 10$ points; $2,001 \leq X \leq 2,500 = 7$ ; $2,501 \leq X \leq 3,000 = 5$ ; $3,001 \leq X \leq 4,000 = 3$ ; $X > 4,000 = 0$ ).	10	5	50
	Percentage of women direct beneficiaries, (women direct beneficiaries/total beneficiaries) (classes ( $X \leq 10\% = 0$ points; $10\% \leq X \leq 50\% = 3$ ; $50\% \leq X \leq 75\% = 7$ ; $X \geq 75\% = 10$ ).	10	5	50
	Percentage of PCT direct beneficiaries, (PCT direct beneficiaries/total beneficiaries) (classes ( $X = 0\% = 0$ points; $1\% \leq X \leq 25\% = 3$ ; $25\% \leq X \leq 65\% = 5$ ; $X \geq 65\% = 10$ ).	10	5	50
	Expectation of annual growth in production activity (< 10%=1 point, 10.1% to 20%= 2 points, > 20.1%= 3 points)	3	3	9
	Percentage of young people (up to 35 years old) who are direct beneficiaries, (young direct beneficiaries/total beneficiaries) (classes ( $X \leq 10\% = 0$ points; $10\% \leq X \leq 50\% = 3$ ; $50\% \leq X \leq 75\% = 7$ ; $X \geq 75\% = 10$ ).	10	5	50
	Expected increase in income for beneficiary producers (up to 20% = 1 point, > 20% = 2 points)	2	5	10
	Market risks <sup>(3)</sup> (None or NA=10; Small= 8; Medium= 5; Large- 2; Uncertain= 1)	10	3	30
	Counterpart mobilized (from 10.1 to 20 %=1, > 20.1 % =2 points)	2	3	6
	Proportion of resources allocated to environmental adaptation including social technologies (< 20% = 2 points; from 20.1% to 50% = 5 points; from 50.1% to 80% = 7 points; > 80% = 10 points)	10	5	50
	Technical Capacity to Generate Water Security Compatible with the Project	10	5	10
	Ability to guarantee food security for beneficiary families.	10	5	10

Once the Committee's no-objection has been received, an agreement based on the PIR will be signed by the president and one other representative of the proposing association and SEAFDS, thus allowing the transfer of funds and the start of the PIR's implementation.

The Project includes a compulsory social inclusion measure and must guarantee that 50% of the resources in the PIR as a whole benefit women, 20% benefit young people, 5% benefit PCTs and 2% benefit families with persons with disabilities. The PMU must monitor and enable the achievement of this target throughout the process of evaluating and validating PIR proposals.

#### **3.1.4 Running arrangement**

SEAFDS, through the PMU, will be the executor of this subcomponent and will contract civil society organizations and service cooperatives to provide TA in the selected communities. The selection will be made through a competitive process, in accordance with the IDB's procurement policies. The teams from the RPMUs will be mobilized to supervise the implementation of the PIRs and to establish synergies and complementarities between the Project and other interventions.

The implementation of the investments defined in the PIRs will be carried out through the agreement signed with SEAFDS and an association representing the Local Territory that drew up and submitted the PIR for approval.

As Local Territories are generally made up of several communities (up to 3 communities) and there may be more than one association in the Territory that is able to sign an agreement with PROCASE II/SEAFDS. In these circumstances, it will be necessary to choose the one that will sign the agreement, which will be defined at a general assembly of the communities that make up the Local Territory. At this assembly, the various criteria that are relevant to making this choice are discussed (such as the existence of a legally constituted association in good fiscal standing, openness to incorporating new members, previous experience of managing resources, and others).

The beneficiary organizations that have signed the agreement will be responsible for purchasing goods and services with the funds received through the agreement and for accounting for these funds. To support the organizations in these activities, they will receive training and support from TA (see Subcomponent 2.1).

The state of Paraíba requested this methodology of making beneficiary organizations accountable through the transfer of funds to associations, based on the good results obtained during the implementation of PROCASE I, among other projects monitored by the IDB and IFAD in other states. Other projects supported by IDB, such as PDSA II in the state of Acre, have also achieved good results, both in terms of implementing activities and strengthening beneficiaries' capacities to collectively manage resources to implement activities. This strengthening contributes to sustainability and the ability to replicate the activities once the projects have been completed.

The funds will be transferred according to the criteria defined by the fiduciary area and mentioned in the ROP.

The aspects and modalities that will have to be applied for financial implementation, the procurement processes and the accounting of the beneficiaries' counterparts will be detailed in the ROP.

Based on these aspects, there will be a training process led by the PMU to create the necessary capacities to manage the implementation of the PIR. The TA entity responsible for drafting and monitoring its implementation will train the heads of the associations involved and provide the necessary support to the beneficiaries to comply with the defined rules.

For the implementation of the PIR and with the support of TA, the partner associations will organize thematic committees (such as procurement, accountability, and transparency) to support management, in which the participation of women and young people will be a composition criterion. The participation of young people will be encouraged, in particular to develop the use of digital technology, for the implementation and monitoring of the PIRs.

#### **3.1.5 Costs and reach**

Subcomponent 1.1 has a total budget of USD 56 million, which represents 54% of the Project's total budget.

The Project will work in up to 600 communities, through 200 PIR, considering that each PIR will be drawn up for around 3 communities, thus constituting a Local Territory. The PIR of a Local Territory will be equivalent to the accumulation of 3 community PIRs, such as the models drawn up in the design (sample for the Economic and Financial Assessment).

Table 02: Costs and scope of Subcomponent 1.1

Discrimination	Unit	Number	Costs (US\$)		Reach
			Unit	Total	
Resilient Investment Plan (PIR)	PIR	200	281 080	56 216 000	18 000 Families

### 3.1.6 Achievement of targets

The PIRs will benefit approximately 18,000 families, of which 50% should be represented by women, 20% by young people and 5% by Traditional Peoples and Communities and 2% for families with persons with disabilities.

### 3.1.7 Timetable for the 6 years of implementation

Table 03: 6-year timetable for the implementation of Subcomponent 1.1

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Action 1: Resilient Investment Plans drawn up																								
Action 2: Resilient Investment Plans executed (>75%)																								

## 3.2 Subcomponent 1.2: Strengthening and diversifying commercialization

### 3.2.1 Objective

This subcomponent aims to improve commercialization and the inclusion of families in value chains by improving the management and production structures of family farmers' cooperatives.

### 3.2.2 Strategic orientation and methodology

The subcomponent aims to strengthen cooperatives by means of a Business Plan (PN), thereby consolidating their management capacities, adding value, diversifying their commercial offer, and accessing markets under better conditions. Rather than seeking to create new cooperatives, priority will be given to existing cooperatives and to improving their management capacities and those with operational weaknesses.

The elaboration of these PNs will consider the strengthening of production carried out in subcomponent 1.1 through the PIRs, with the aim of integrating producers into these cooperatives to access the market.

The development of the PN will seek to diversify the accessed markets. In addition to institutional markets, such as PNAE and PAA, other players will be sought, mainly from the private sector. The Project will seek to include the organizations in the Regional Information System for Family Farming in the Northeast (SIRAF), created by the Northeast consortium and which has been offering a new channel for establishing contact between producers and buyers.

Business Plans (PNs) will be the main instrument for implementing the subcomponent and will be drawn up with producers' economic organizations, usually cooperatives. The PNs should make it possible to finance structuring investments that could



benefit family farmers, including the producers benefiting from the PIRs. Specialized Technical Assistance (STA) specially dedicated to the PNs and to strengthening the capacities of the beneficiary organizations will also be financed by the PNs.

The PNs should allow for the implementation of competitive mechanisms, tailored towards innovative and environmentally sustainable solutions, to strengthen network marketing and cooperative centers. Investments will be focused on existing organizations that have weaknesses in their management processes, that are unable to achieve sufficient levels of commercialization, that find it difficult to comply with environmental and health legislation, or that operate below their capacity. In these cases, the Project will strengthen the capacities of the management teams, support the improvement and modernization of equipment and facilities, improving the processing and diversification of products, with a focus on adapting and/or expanding the physical infrastructure (such as processing and storage areas), with the aim of also meeting the health and environmental standards for obtaining certifications (SIF, organic certification, distinctive collective labels, valuing sustainable products from the Caatinga and Atlantic Forest biomes, etc.). Where relevant, the development of participatory guarantee systems (PGS) for certification processes will also be supported. Subcomponent 2.2 will make an important contribution to these activities and complementarities will be built.

In exceptional cases, the Project's support may be aimed at developing the productive capacity of a cooperative, operating within the supported production chains. These cases will be specific and subject to prior feasibility analysis, considering in particular the existence of other similar organizations in the Project area.

Strengthening the capacities of the cooperatives' teams will be a key point of the PNs, which will address the issue of best processing practices, as well as others, such as administrative and financial management. In this case, courses are planned on good management practices and the organization of production, processing, adding value, financial management, institutional strengthening, marketing strategies, amongst others. The management teams of these enterprises will be the main beneficiaries. These courses will mainly be carried out through STA (such as individual consultants, EMPAER, EMBRAPA, SEBRAE, SENAR, etc.).

The preparation of the PNs will include a diagnosis of the organization's situation, clearly identifying the most important problems, challenges and the opportunities that can be seized. The PNs may include agricultural activities of primary production, processing, and marketing of this production. Other economic initiatives can also be included, such as handicrafts, community-based tourism, and others, provided they have the potential to generate income in a sustainable way. As the object of these plans will be 'business' related, involving production and market issues, it is necessary to include more detailed information such as a 'map' of the value chain identifying flows and actors, an analysis of the products demanded by the market and their trends (volumes, prices), an analysis of the competition, a strategy for operating in the market, a sales plan and an investment management strategy. The PNs will identify the material investments that will have to be made (construction/refurbishment, machinery, equipment, etc.). In addition, it should point out necessary training (which may cover production, marketing, administrative and financial management, or other dimensions) that the implementation of the PN will require.

### **Provision of Specialized Technical Assistance (STA)**

Considering the capacities found in the organizations in the region served by the Project, it will be necessary to contract STA (Specialized Technical Assistance) services for the preparation and implementation of all the PNs. These services will be contracted by the PMU, through a competitive process that meets IDB/IFAD standards, with funds provided in the budget for Subcomponent 2.2. However, in certain cases and when the beneficiary organization shows experience and capacity, it could take on the responsibility of contracting the STA directly.

Individuals or legal entities may be contracted to provide these services. The selection criteria for providers will include: i) experience in providing technical assistance to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.

STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the PNs it supports. Opportunities for cooperation and alliances with the private sector will also be sought whenever possible.

### **3.2.3 Planned activities and results**

#### **Identification and selection of beneficiary organizations**

Considering the heterogeneity between the cooperatives in the Project area in terms of structure, capacities and experience, the process of selecting and drawing up the PNs will be different depending on the size of the organizations.

**For small organizations**, with an annual turnover of up to USD 100,000 (average of the last 3 years), which are generally inexperienced organizations with more limited capacities for drawing up a PNs, the PMU will carry out a direct survey of these organizations in the area of operation and will conduct a selection process. Once the organization has been selected, the PMU will contract the services of STA, either an individual or a legal entity, to begin drafting the PN and its subsequent implementation.

For larger organizations with annual turnover of over USD 100,000 (average of the last 3 years), which generally have greater capacity, the identification and selection process will be done through publishing calls for proposals. In the first years of implementation, a broad dissemination and information process will be carried out by the PMU to ensure that interested organizations are aware of this selection procedure. Proposals (Expressions of Interest, presenting a project proposal) will be drawn up directly by the proposing organizations and sent to the PMU, which will be evaluated by the Evaluation Committee.

In both cases (small organizations and larger organizations) the selection of proposals will be based on the following criteria: i) Productive activity with potential technical, economic, financial and environmental viability; ii) Not having received benefits from other grant projects for similar items; iii) Inclusion of new members in the cooperative through the investment, with priority given to women, young people and persons with disabilities; iv) Ability to provide a counterpart (monetary and non-monetary) of more than 20% of the value of the PN; v) Making innovative environmental investments and climate adaptation and mitigation.

To provide STA, the Project could seek partnerships with experienced organizations, such as SEBRAE, so that an integrated technical assistance plan can be drawn up.

#### **Preparation of the PNs**

Once the PN proposals have been selected (criteria defined in the ROP), the drafting process will begin, which will be identical in format for both modalities (small and large organizations), being adapted to the level of complexity of each organization.

The first stage of the preparation will be to carry out a diagnosis (within a maximum of 3 months), with the aim of:

- i. Validate the organization's demand in terms of the processing process and market access to be supported;
- ii. Evaluate the organization's capacity to manage the requested PN and assess its experience in similar areas to carry out procurement, production, commercial and accounting management, etc.;
- iii. Carrying out specific and pragmatic studies to provide information on the characteristics, bottlenecks and potential of each product and identifying innovative and differentiated markets that can add value to the sustainable production initiatives supported by the Project;
- iv. Carry out local demand studies (inputs and production for sale) detailing key factors such as volumes sold, prices, quality, ease of access, competition, weaknesses, and deficiencies;
- v. Survey the availability of raw materials, taking into account, among other factors, the planned production of the PIRs supported by the Project, in order to guarantee the viability of these units and the distribution of the production of the families benefiting from the PIRs;
- vi. Gather technical data on the evolution of production and marketing capacity, identifying potential and risks;
- vii. Identify the main competition and other similar units in the region;
- viii. Gather information and lessons learned about previous support received to strengthen the organization;
- ix. Survey the social characteristics of the members, the capacity for collective management and the level of social organization, which will include the participation of women and young people in decision-making processes;

- x. Compliance with aspects related to environmental and health management and in accordance with the relevant legislation;
- xi. Identify the needs in terms of STA to strengthen capacities in production process, marketing, management, and governance;
- xii. Identify the need for adaptations for persons with disabilities;
- xiii. Identify technical proposals to introduce technologies such as biodigesters, solar energy and internet access;
- xiv. Identification of points of attention related to social and environmental safeguards;
- xv. Identifying the ability to access public policies;
- xvi. Articulation with other local actors and in particular with COOPERAR, which has developed similar actions;
- xvii. Compliance with aspects related to Health and Safety at Work in accordance with the relevant legislation.

Based on the diagnosis, the PN will define the needed resources to invest in infrastructure, equipment, and goods, as well as to finance STA services to implement and strengthen management capacities (considering that the resources to finance STA are allocated to Component 2).

The main items that can be financed by the PN are:

- i. Adapting and/or expanding existing processing units and adjusting comply with health and environmental legislation, as well as ensuring accessibility for the persons with disabilities;
- ii. The investments should enable cooperatives to adapt to climate change, for example through the use of solar energy, water collection and reuse systems, etc. These investments could include social technologies such as production cisterns or grey water reuse systems;
- iii. Support from STA for the development of marketing strategies, including the definition of strategies for reaching the municipal and state institutional market, as well as access to the private market. This could include the development of printed material or electronic media (website, Instagram, etc.) for the dissemination of information and e-commerce;
- iv. Support for obtaining organic and agroecological certifications and labels of origin;
- v. Construction, adaptation, or renovation of processing units with producer organizations in compliance with environmental and health legislation;
- vi. Improvement of management processes (through technical support, acquisition of a program/system to improve process management, etc.) with a focus on efficiency and transparency;
- vii. Investment in the installation of renewable energy and rural connectivity, investment in product development and packaging;
- viii. Investments that enable greater participation by young people, women and persons with disabilities.

All the activities financed in the PNs will be in accordance with the Environmental and Social Management Plan (ESMP) for each one and with the Project's Strategic Environmental and Social Management Plan (SESMP).

During the process of drawing up the PN, the following criteria will have to be considered (detailed in the ROP):

- i. PN for small cooperatives: The minimum amount per PN (without counterpart from the beneficiary organization) is USD 40,000 and the maximum amount is USD 80,000. Cooperatives with fewer than 30 members cannot be financed. The amount of funding from PROCASE II cannot exceed USD 700 per cooperative member;
- ii. PN for medium and large cooperatives: The minimum amount per PN (without counterpart from the beneficiary organization) is USD 120,000 and the maximum amount is USD 250,000. Cooperatives with fewer than 80 members cannot be financed. The amount of funding from PROCASE II cannot exceed USD 800 per cooperative member;
- iii. The funds from the Project will be non-reimbursable. A counterpart contribution must be made by the beneficiary organization, equivalent to at least 20% of the amount financed by the Project, and may be monetary or proven in goods and services related to the implementation of the PN;
- iv. There must be a commitment for organizations to increase the number of new members, especially women and young people;

- v. The resources allocated to the PN should make it possible to finance goods for collective use (such as processing equipment);
- vi. Planning proposed within the framework of marketing to include additional production from the PN (and related PIRs);
- vii. Definition of the STA services that will be carried out for the main themes such as management, governance, good practices in production and marketing processes, environmental and social management;
- viii. Evidence of investments in activities carried out to adapt processes and adhere to climate change (which can be described as climate investments);
- ix. Facilitate dialogues with financial institutions to access PRONAF and other sources of credit;
- x. The list of fundable and non-fundable items is shown below and is detailed in the ROP.

### **Investments eligible for funding**

PROCASE II will finance the investments needed to make the PNs viable. These investments can be classified into three groups:

- i) **Group 1 - Non-Consulting Services.** This group includes investments associated with hiring technical-operational services, such as transportation, application of inputs, financing of working capital for the first year of operation, installation of equipment, rental of vehicles, among others;
- ii) **Group 2 - Assets.** This group includes investments associated with the purchase of inputs for the cooperative, such as seedlings or seeds, and equipment for the production, processing, marketing, and distribution of the products of the PN to be promoted;
- iii) **Group 3 - Works.** This group includes investments associated with the provision or renovation of production structures and/or economic infrastructure, such as road rehabilitation, well drilling and processing units, with a maximum of 20% of the value of each business plan.

### **Types of Climate Adaptation investments that can be financed by investments in the PNs:**

- Implementing good agroecological fertilization practices in areas vulnerable to climate change;
- Implementation of erosion and soil loss management technologies in areas vulnerable to climate change;
- Implementation of crop protection techniques in critical areas;
- Implementation of technologies to recover soils degraded by salinization in areas vulnerable to climate change;
- Productive diversification in crops and livestock in areas most vulnerable to climate change;
- Integrated pest and disease management in areas most vulnerable to climate change;
- Management of natural pastures to guarantee food for young animals and reduce vulnerability to climate change;
- Improvement and transfer of genetic resources in plantations and genetic improvement to increase their resilience to climate change;
- In situ and ex situ conservation of biodiversity to increase resilience to climate change;
- Strengthening risk transfer systems in the event of adverse climatic events;
- Implementation of strategic agro-climatic information services to adapt to the effects of climate change;
- Implementation of adaptive technological innovation services in the face of climate change in agricultural value chains;
- Added value of agricultural products in value chains vulnerable to climate change;
- Irrigation or water use in the agricultural sector;
- Improving existing water reservoirs for agricultural use;
- Implementation of "seeding" and water harvesting interventions;
- Implementation of intra-property infrastructure for the conduction, distribution, and application of irrigation water;
- Implementation of irrigation systems with water-efficient technologies;
- Technical assistance for the sustainable use of water;
- Conservation and recovery of natural infrastructure in basins vulnerable to climate change;
- Implementation of early warning systems for floods, droughts, and alluvial floods in basins vulnerable to climate change;
- Implementation of water quality monitoring systems in basins vulnerable to climate change; and
- Implementation of information systems to improve the planning and management of water resources in basins vulnerable to climate change.

## **Types of Climate Mitigation Investments that can be financed by investments in the PNs**

- a) Agricultural production**
  - Improving the industrial energy efficiency of projects in operation;
  - Reduced energy consumption in operations;
  - Agricultural projects that contribute to increasing soil carbon or preventing soil carbon loss through erosion control measures;
  - Reduction of GHG emissions and low-carbon agricultural practices or technologies;
  - Projects that reduce methane or other GHG emissions;
  - Projects that improve carbon sequestration through land management;
  - Forestry or agroforestry projects that sequester carbon through sustainable forest management, avoid deforestation or prevent land degradation;
  - Projects that reduce food loss or waste or promote low-carbon diets;
  - Projects that contribute to the reduction of GHG emissions through the production of biomaterials / bioenergy from biomass; and
  - Improving the energy efficiency of existing irrigation system projects, implementing technologies or equipment with low energy consumption, promoting good control practices, or reducing water losses (drip irrigation).
  
- b) Solid waste and effluent management in processing and marketing units**
  - Anaerobic digestion of bio-waste collected separately;
  - Composting bio-waste collected separately;
  - Other types of recovery and recovery of bio-waste; and
  - Mechanical or biological treatment of mixed waste.
  
- c) Buildings in the agricultural sector**
  - Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions, or increase carbon sinks by using vegetation in new and existing buildings and associated land;
  - Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions, or measures that increase carbon sinks by using vegetation in new or refurbished buildings and associated land, thus meeting certification standards;
  - Measures that reduce energy consumption, resource consumption or CO<sub>2</sub> emissions and or increase carbon sinks through the use of vegetation in public areas or facilities; and
  - New or low-consumption appliances or equipment;
  - Pilot trials of processing plants using renewable energy sources, such as biogas or solar energy.

## **Investments Not Eligible for Financing**

Some types of investment will not be financed by the Project, even if they are necessary to make the PNs viable. Among other things, they cannot be financed:

- i) Purchase of real estate of any kind, spending on land regularization;
- ii) Current expenses (salaries and social charges for existing staff, water, electricity, internet, telephone);
- iii) Operating and maintenance costs, construction, expansion, modernization, refurbishment, and construction of civil or water works on properties with a lending agreement;
- iv) Activities related to raising cattle for meat production;
- v) Purchase of agrochemicals such as herbicides, fungicides, insecticides and synthetic fertilizer;
- vi) Construction or renovation of flour mills and other processing units that use firewood as a source of energy, in whole or in part.

Some of these investments may be considered as the beneficiary's counterpart to the Project.

During the process of drawing up the PNs, the Project and STA teams will be responsible for checking that the type of investment complies with these conditions.

### Criteria for evaluating and prioritizing PNs

Once the ROP has been drawn up, it will be presented to the Council of Territories for consultation and then submitted for evaluation by CEGIP (Executive Committee for Productive Investment Management), made up of the PMU and representatives of Paraíba state bodies. The evaluation will follow the criteria defined in the ROP. These include:

- i. Potential for adding value;
- ii. Technical, economic, financial, and environmental feasibility;
- iii. Achieving the required counterpart level;
- iv. Percentage of the PN earmarked for financing environmental investments;
- v. Proof of the adoption of technological proposals based on the principles of agroecology;
- vi. Integration of new members into cooperatives, particularly women, young people, and families with persons with disabilities;
- vii. Participation of women and young people as members and in positions of responsibility on the board of the beneficiary organization;
- viii. Creation of new jobs;
- ix. Absorption capacity of production from PIRs financed by Subcomponent 1.1;
- x. Ability to contribute to accessing new markets;
- xi. Ability to help integrate new producers as raw material suppliers.

The Project includes a mandatory social inclusion measure and must guarantee that 50% of the resources from all the PNs benefit women, 20% benefit young people, 5% benefit PCTs and 2% benefit families with persons with disabilities. The Project Committee must monitor and enable the achievement of this target throughout the process of evaluating and validating the proposals for the PNs.

The criteria mentioned in the table below have been drawn up with a view to transparency and will be used as a reference during the evaluation process conducted by CEGIP.

Table 04: PN evaluation criteria

	VARIABLE (K)	MEASUREMENT (1-10)	WEIGHTING (1-10)	SCORE
	Analysis of the contextualization (Reference Framework) of the Project (Points from 1 to 10)	1 a 10	5	50
	Analysis of the Results Matrix (feasibility, level of risks) Notes from 1 to 10	1 a 10	5	50
P R O P O S A L	Profitability (%) of agribusiness estimated in PN (classes ( $X \leq 5$ ) =3 points; ( $5.1 \leq X \leq 10$ ) =5; ( $10.1 \leq X \leq 20$ ) =7; ( $X \geq 21$ ) =10)	10	2	20
	Economic internal rate of return (EIRR) <sup>13</sup> (%) of the Business Plan (classes ( $12 \leq X \leq 17$ ) =3 points; ( $17.1 \leq X \leq 25$ ) =5; ( $X \geq 25.1$ ) = 10).	10	5	50
	Lowest cost per beneficiary, (USD1.00/producer) (classes ( $X \leq 2,000$ ) =10 points; ( $2,001 \leq X \leq 2,500$ ) =7; ( $2,501 \leq X \leq 3,000$ ) =5; ( $3,001 \leq X \leq 4,000$ ) =3; ( $X > 4,000$ ) = 0).	10	5	50

<sup>13</sup> Business plans with a TIRE of less than 12% will not be eligible to receive funds from the Project.

	VARIABLE (K)	MEASUREMENT (1-10)	WEIGHTING (1-10)	SCORE
	Percentage of women direct beneficiaries, (women direct beneficiaries/total beneficiaries) (classes ( $X \leq 10\%$ = 0 points; ( $10\% \leq X \leq 50\%$ ) =3; ( $50\% \leq X \leq 75\%$ ) =7; ( $X \geq 75\%$ ) = 10).	10	10	100
	Percentage of PCT direct beneficiaries, (PCT direct beneficiaries/total beneficiaries) (classes ( $X=0\%$ = 0 points; ( $1\% \leq X \leq 25\%$ ) =3; ( $25\% \leq X \leq 65\%$ ) =5; ( $X \geq 65\%$ ) = 10).	10	10	100
	Percentage of young direct beneficiaries, (young direct beneficiaries/total beneficiaries) (classes ( $X=0\%$ = 0 points; ( $1\% \leq X \leq 25\%$ ) =3; ( $25\% \leq X \leq 65\%$ ) =5; ( $X \geq 65\%$ ) = 10).	10	7	70
	No. of producers benefiting from the PN (classes: up to 100 =3; 100 up to 150 =7; > 150=10 points)	10	2	20
	Expected increase in income for beneficiary producers (up to 20% = 1 point, > 20% = 2 points)	5	2	10
	Market risks (None or NA=10; Small= 8; Medium= 5; Large- 2; Uncertain= 1)	10	3	30
	Proponent's maturity (( $2 \leq X \leq 3$ years) = 2 points; ( $3 \leq X \leq 5$ years) =5 points; ( $6 \leq X \leq 10$ years) =7 ( $X \geq 10$ years) = 10 points)	10	5	50
	Technical capacity to generate water security compatible with the Project	10	5	10
	Ability to guarantee food security for beneficiary families	10	5	10
	<b>TOTAL TENDER</b>			

Once the ROP has been approved, an Agreement will be signed between the beneficiary organization and SEAFDS. The funds will be transferred according to the criteria defined by the fiduciary sector and mentioned in the ROP.

To prepare the Project, two PNs were drawn up to form a sample for the Economic and Financial Assessment. Based on field visits and analysis of secondary data, the following economic organizations and productive activities were selected: i) Primary production and processing of honey, and ii) Strengthening of production capacities and primary processing of organic cotton. These activities were selected because they have strong potential and are well integrated into the socioeconomic and agro-environmental context. It is important to mention that during implementation, based on the demands and identified economic organizations, other agricultural and non-agricultural chains may be supported through PNs, provided they meet the criteria and objectives of the Project.

### Implementation of the PNs

Implementation of the PN will begin once the agreement has been signed and the funds have been made available to the organization. The use of the PN amount will follow the rules defined in the ROP, through installments, proof, and validation of spending, provided that at least 60% of the amount already disbursed is accounted for.

The implementation phase will follow the timetable drawn up during the preparation of the PN. In general, in the first year of implementation, priority will be given to investments in infrastructure and equipment. Capacity building in the areas of management, marketing and market access will be carried out over two years with the support of STA. During this phase, STA will be looking to establish agreements and partnerships between the cooperatives and associations benefiting from the PIR, to source, process and market production.

#### 3.2.4 Running arrangement

SEAFDS, through the PMU, will be responsible for implementing this sub-component. In each Rural Territory of the state, the teams from the RPMU will be mobilized and will contribute to establishing synergies and complementarities between the implemented PN and other interventions (COOPERAR in particular).

The implementation of the PNs will be carried out through the agreement signed by SEAFDS with each beneficiary organization.

#### 3.2.5 Costs and reach

Table 05: Costs and scope of subcomponent 1.2

Discrimination	Unit	Quantity.	Costs (US\$)		Reach (families)
			Unit	Total	
Business plans for large and medium-sized cooperatives	PN	20	198 000	3 960 000	3 000
Business plans for small cooperatives	PN	40	48 000	1 920 000	2 000
<b>Total</b>	<b>PN</b>	<b>60</b>	-	<b>6 000 000</b>	<b>5 000</b>

#### 3.2.6 Timetable for the 6 years of implementation

Table 6- 6-year timetable for the implementation of Subcomponent 1.2

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Economic organizations with agreed Business Plans																								
Economic organizations with executed business plans (>75%)																								



### 3.3 Subcomponent 1.3: Incentives for innovation

#### 3.3.1 Objective

Innovations are an important part of this component, focusing mainly on the topic of mechanization (see also Annex "Knowledge Management (KM), South-South and Triangular Cooperation (SSTC) and Innovations in PROCASE II").

PROCASE II will promote innovation initiatives by providing funding and technical assistance to identified innovators, supporting them in scaling up their initiatives to reach other farmers.

#### 3.3.2 Strategic orientation and methodology

PROCASE II will promote innovations developed specifically for family farming systems, such as tools for agroecological practices, machinery for small-scale agro-industries, biotechnologies aligned with the concept of resilient production systems, among others. Some examples include small tractors, pruning tools, fodder cutting machines and oilseed processing engines. Many of these innovative initiatives already exist in the Project area. They will need to be identified, assessed in terms of their suitability for strengthening resilient family systems, improved (where appropriate), and/or disseminated. In several cases, it will be a question of promoting tests of the use of new equipment in the real conditions of family units in Paraíba. Promising innovative initiatives that need resources to consolidate themselves as a benchmark for innovation to be disseminated may be financed by an investment fund that will provide between US\$ 10,000 and 60,000 (R\$ 50,000 and 300,000) for each one, depending on their financing needs. The selected projects will be accompanied by a team of experts in the expansion process (the costs of the support activities are included in the amount of funding received by each initiative).

#### 3.3.3 Planned activities and results

The Project will fund the development of initiatives (which could be small 'backyard' companies, research groups, experimenting farmers, among others) aimed at creating products and technologies tailored to the local context, such as machinery adapted to small producers and equipment for processing and adding value (priority themes). The Project will also fund innovations in secondary themes, such as products derived from native/traditional species, bio-inputs (soil nutrition, bio-insecticides), efficient water management technologies, solid waste treatment, etc. The investment dedicated to this subcomponent will allow up to 25 of these initiatives to be financed (with amounts of up to US\$ 60,000 each).

##### *Expected benefits for each initiative*

The companies or teams selected will receive the following benefits:

- i) Funding from US\$ 10,000 and 60,000 (including support activities mentioned below);
- ii) Technical assistance;
- iii) Mentoring focused on the business and the market;
- iv) Development of business plans;
- v) Support with design and visual communication;
- vi) Networking and partnership opportunities

##### *Priority Innovative Themes*

- 1) **Mechanization for small producers/organizations:** Adapted mechanization for agroecological and agroforestry family farming, such as motor cultivators, fodder palm choppers and feeders, long-arm pruning shears, woodchippers and other small implements. Companies that share or rent<sup>14</sup> machines and implements will also be supported.
- 2) **Technologies for Cooperatives and Associations:** machines and implements for cooperatives and associations, such as pulpers, dehydrators, dryers, mills, packaging machines and processing machines in general, as well as recycling machines such as waste separators and processors.

##### *Secondary Innovative Themes*

- 3) **Agroecological Markets and Local Biodiversity:** Promoting nutrition based on local biodiversity, through the development of products derived from native/traditional species, the extraction of oils and essences, the creation of agroecological fairs, greengrocers, restaurants, and snack bars, etc.
- 4) **Adapting to Climate Change:** water harvesting and efficiency technologies, climate comfort, etc.

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<sup>14</sup> Cf.: <https://www.sciencedirect.com/science/article/pii/S0308521X18314914> and <https://repository.cimmyt.org/xmlui/bitstream/handle/10883/22429/65927.pdf?sequence=1&isAllowed=y>

- 5) **Access to renewable energies:** Financing and installation of photovoltaic panels for small producers, heat pumps, energy efficiency works, reduction in the use of firewood, biodigesters, etc.
- 6) **Soil nutrition and integrated pest/weed management:** manufacture of organic fertilizers and products used in the biological control of pests and weeds, such as the production of green manure seedlings and seeds, inoculation of natural enemies, production of compost, bio-slurries, and other bio-inputs.
- 7) **Studies and research projects:** small research projects that can be classified as innovative projects, for example new variants of agroforestry systems.
- 8) **Digital tools for small producers:** Access to digital technical assistance (including plant and insect identification, recommendations for fertilization or weed or pest control), Information services (prices, logistics, soil conditions, weather information and early warning systems), Financial services (financial management tools and access to credit and insurance), Digitization of the supply chain (recording information, planning tools, sharing implements, shared transport of products and inputs, etc.) and Access to markets and inputs (Sale of family farming products, purchase of inputs, etc.) and Access to markets and e-commerce (Sale of family farming products, purchase of inputs, etc.).
- 9) **Digital tools for cooperatives and associations:** Resource sharing (machinery, tools, processing equipment/facilities, etc.), Market access and e-commerce, Planning and management tools (recording information, organizing inventories, etc.) and Certification and legal compliance tools, (checklists for obtaining licenses or preparing for health inspections, etc.).

### Execution Arrangement

The PMU will appoint a foundation responsible for innovation that will examine existing prototypes in the Project area and select innovators according to predefined criteria. The Project will finance the expansion of these initiatives, providing guidance, refining the prototypes, and facilitating access to the market. The selection can be made through a competitive process (calls for tenders) or through a direct search in the Project area, with the help of the Project team and TA technicians. The direct search for existing innovations will involve the RPMUs and will focus on Federal Institutes (IFs), Agricultural Family Schools (EFAs), Universities, Rural Schools, and local artisans. The work carried out by local institutions such as SERTA (<https://serta.org.br/>) serves as an example of how the innovations identified by the Project could be supported.

The selected foundation must be a non-profit organization and preferably linked to a university, with the same foundation being responsible for the Knowledge Management and South-South Cooperation component (2.5). The incubation and monitoring of innovations can be done directly by the Foundation (if it has experience in this area) or in partnership with a social entrepreneurship incubator, such as IACOC (incubator of the Paraíba Technology Park).

### Possible criteria for funding and support

Below are some criteria that could be considered when choosing the innovative initiatives to be supported by the Project. These criteria will be further detailed in the ROP.

- 1) **Social Criterion:** The innovation must seek to have a positive social and environmental impact, for example by aiming for low prices for farmers and fair pay for workers.
- 2) **Right to repair:** Machinery, implements and equipment must be designed in such a way that they are easily repairable using accessible technologies and with easy parts replacement, thus avoiding the user being forced to buy a new copy.
- 3) **Economic sustainability:** The entity must prove that there is a demand for its service/product in the long term.
- 4) **Environmental sustainability:** The entity must show that its product/service does not generate significant environmental impacts (GHG emissions, waste, etc.).
- 5) **Local Impact:** Team members come from the Project regions.
- 6) **Traditional/ancestral knowledge:** Valuing and integrating indigenous and traditional/ancestral knowledge and technologies.
- 7) **Focus on young people and women:** We suggest quotas of 50% for women and 50% for young people, with 50% of young people's places reserved for women.

### 3.3.4 Costs

Actions	Unit	Number	C. Unit (in US\$)	Estimated value in (US\$)
Support for Innovative Initiatives	Unit	25	40 000	1 000 000
<b>TOTAL</b>				<b>1 000 000</b>

Implementation schedule

Table 8: 6-year timetable for the implementation of Subcomponent 1.3

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Support for Innovative Initiatives																								

**Annexes**  
**Resilient Investment Plan (PIR) structure**

1. Summary of the Resilient Investment Plan
  - 1.1 General Data
2. Information on the municipality and territory
3. Information about the community and the organization
  - 3.1 About the community
  - 3.2 About the organization
4. Main problems, challenges and opportunities identified (focus on beneficiaries)
5. PIR proposal
6. Structural elements of the project
7. Economic and financial aspects
  - 7.1 Detailed investment
  - 7.2 Main assumptions adopted to carry out the analysis
  - 7.3 Revenue projections
  - 7.4 Statement of production costs
  - 7.5 Statement of fixed costs and expenses
  - 7.6 Investment viability
  - 7.7 Outcome measures and feasibility indicators
8. ANNEXES

**Business Plan (PN) structure**

1. summary of the business plan
  - 1.1 General Data
2. Information on the municipality and territory
3. Information about the community and the organization
  - 3.1 About the community
  - 3.2 About the organization
4. Main problems, challenges and opportunities identified (focus on the cooperative)
5. PN proposal
6. Structural elements of the project
7. Economic and financial aspects
  - 7.1 Detailed investment
  - 7.2 Main assumptions adopted to carry out the analysis
  - 7.3 Revenue projections
  - 7.5 Statement of Profit and Loss for the Year
  - 7.6 Investment viability
  - 7.7 Working capital requirements
8. ANNEXES

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 11 Component 1 Additional Doc Social Technologies**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



VERSION 1.0  
DATE 14-06-2024



SUPPORT STUDIES AND PROPOSALS FOR THE IMPLEMENTATION OF THE PARAÍBA SUSTAINABLE RURAL DEVELOPMENT PROJECT - PROCASE II (BR-L 1623), SPECIFICALLY IN THE ACTIONS OF COMPONENT 1 - RESILIENT PRODUCTION SYSTEMS TO REDUCE RURAL POVERTY

## **SOCIAL TECHNOLOGY REPORT**

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## FIGURES

FIGURE 1-FLOWCHART SOCIAL TECHNOLOGY FOR WATER SUPPLY - PHASE I AND III.....	7
FIGURE 2-FLOWCHART OF DOMESTIC EFFLUENT REUSE.....	8
FIGURE 3 FACTORS AFFECTING THE USE AND OPERATION OF CISTERNS.....	14
FIGURE 4-ESTIMATED FINAL DISPOSAL OF MUNICIPAL SOLID WASTE MANAGEMENT .....	17

## TABLES

TABLE 1 ELIGIBILITY CRITERIA ACCORDING TO THE CISTERN PROGRAM .....	11
TABLE 2 - ELIGIBILITY CRITERIA FOR ST ACCORDING TO IMPLEMENTATION PHASES. ....	12
TABLE 3- TECHNICAL CRITERIA FOR ST EXECUTION .....	13
TABLE 4 INTERVENING FACTORS IN THE USE AND FUNCTIONING OF PHASE III STS .....	15
TABLE 5- FACTORS THAT INTERVENE IN THE USE AND FUNCTIONING OF THE ST - PHASE IV .....	16

## ABBREVIATIONS AND ACRONYMS

ANA	National Water and Sanitation Agency
BET	Evapotranspiration Basin
CODEVASF	São Francisco and Paraíba Valley Development Company
CWSS	Collective Water Supply Solution
ETA	Water Treatment Plant
FIDA	International Fund for Agricultural Development
FUNASA	National Health Foundation
GM/MS	Ministry of Health Minister's Office
IAS	Water and Sanitation Institute
IDB	Inter-American Development Bank
IN	Normative Instruction
IWSS	Individual Water Supply Solution
MDS	Ministry of Development and Social Assistance, Family and Fight against Hunger
MSB	Water and sewage micro-region
P1MC	One Million Cisterns Program
PCT	Traditional Peoples and Communities.
PIR	Resilient Investment Plan
PMSB	Municipal Basic Sanitation Plans
PNRS	National Solid Waste Policy
PNSR	National Rural Sanitation Program
PROCASE	Cariri, Seridó, and Curimataú Sustainable Development Project
PROCASE II	Sustainable Development Project
RIDE	Integrated Economic Development Regions
SEAFDS	State Secretariat for Family Farming and Semiarid Development
SESAN	National Secretariat for Food and Nutrition Security
SIG	Integrated Management System
SNIS	National Sanitation Information System
WSS	Water Supply System



## SUMMARY

<b>PRESENTATION</b> .....	<b>3</b>
1 PRELIMINARY REPORT TO SUPPORT THE PREPARATION OF THE PIR IN SOCIAL TECHNOLOGY. ....	3
2 BASIC SANITATION IN PARAÍBA.....	4
3 - SOCIAL TECHNOLOGIES .....	5
4- SOLID WASTE MANAGEMENT.....	17
5- FINAL CONSIDERATIONS. ....	18
6- REFERENCES:.....	18

## PROJECT PRESENTATION.

The Cariri, Seridó, and Curimataú Sustainable Development Project (PROCASE), funded by IFAD and the Paraíba State Government, was implemented between 2012 and 2022 and benefited 56 (fifty-six) municipalities in the semi-arid region of the state of Paraíba, specifically those located in the Agreste Paraibano, Borborema and Sertão Paraibano mesoregions. It aimed to contribute to sustainable rural development in the semi-arid region of Paraíba, reducing levels of rural poverty and strengthening actions to prevent and mitigate desertification in its intervention area.

The Paraíba Sustainable Rural Development Project (PROCASE II), which is currently being designed, will be implemented in 223 (two hundred and twenty-three) municipalities, distributed among the 23 micro-regions of the state of Paraíba, and aims to reduce rural poverty levels by improving food and nutritional security and adapting the rural population to climate change. Implementation will be the responsibility of the State Secretariat for Family Farming and Semi-arid Development (SEAFDS) and will be supported by the PROCASE team and structure. The total amount is US\$ 105,000,000.00, of which US\$ 70,000,000.00 will come from the IDB, US\$ 10,000,000.00 from an IFAD loan, and US\$ 25,000,000.00 from the Paraíba State Government.

The PROCASE II proposal is for two (2) components: Component 1 - Resilient production systems to reduce rural poverty and Component 2- Organizational strengthening, capacity building and knowledge management. Both are accompanied by Project Management, Monitoring, and Evaluation.

The aim of Component 1 is to increase the implementation of agricultural technologies, including climate change adaptation and mitigation, as well as improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities. Component 1 is subdivided into three subcomponents: 1.1- Implementation of resilient and biodiverse production systems, 1.2- Strengthening and diversifying commercialization and 1.3 Incentives for innovation. Project investments in rural communities financed under Component I will be carried out through Resilient Investment Plans (RIPs). The PIR will finance three areas of intervention: i) Productive and Commercialization; ii) Environmental and iii) Social Technologies and will have a territorial focus composed of one or more communities.

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### **1 Preliminary Report to support the preparation of the PIR in Social Technology.**

The PIR will be made up of three axes: i) Productive; ii) Environmental, and iii) Social Technology (ST) which will benefit family units. Each PIR will serve a Local Territory<sup>1</sup> (up to three neighboring communities with approximately 100 families) in which more than one productive and/or environmental activity can be covered, and various types of ST can be implemented.

The implementation of the ST will be carried out by entities contracted by the PMU to provide TA, and they must follow the references of the Normative Instructions of the MDS Cistern Program and the ABNT Technical Standards with attention to local and regional peculiarities and specificities.

In addition to the ST, this report presents a chapter on Solid Waste Management in rural areas to support the preparation of the PIR regarding the environmentally appropriate final disposal of household solid waste and processing and marketing units. These activities can be developed as a type of Climate Mitigation investment that the PIR can finance.

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<sup>1</sup> The Project will serve up to 600 communities, which will represent 200 Local Territories.

The guidelines for the use of the ST will follow the references of Article 1 of Ordinance No. 2,462/2018 of the Ministry of Social Development<sup>2</sup> (MDS), which are:

- i. promoting decentralized, autonomous, and sustainable access to water;
- ii. **access to water that complements and does not exclude access to other forms of supply;**
- iii. gradual expansion of water collection and storage capacity to ensure water security for families;
- iv. assisting families without requiring fees or financial compensation;
- v. **promoting access to water for human consumption, with priority given to drinking and cooking; and**
- vi. **promoting access to water for food production**, considering the family's productive system and in conjunction with policies for the development of family farming and traditional peoples and communities.

This Product 5 will present the main characteristics of the ST and solid waste management activities and will provide support material for choosing the communities that can be part of the PIR and the other stages of the Project that involve carrying out these activities. The priority and eligibility criteria were developed with the aim of changing the local reality and not just meeting demands.

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## 2 Basic Sanitation in Paraíba

According to the data provided by SNIS 2022, the total population of Paraíba served by water supply systems is 77.0%, and sewage systems serve 40%. The Water and Sanitation Institute (IAS), based on data from SNIS 2019, shows the following percentages for Paraíba's rural population: 24.16% of the population is served by a water supply network and 18.82% by a sewage system. These percentages exclude those not served by a water or sewage network and those using alternative water supply and sewage solutions.

Paraíba has actions, programmed or implemented by the state, to promote water, sewage, and solid waste in municipalities with up to 50,000 inhabitants, developed by the following bodies (Paraíba State Water Resources Plan, Diagnostic Report-vol-2, March 2022):

### i) Ministry of the Environment:

- Food and Nutrition Security: Water Desalination;
- Support for the Implementation of Structural Instruments of the National Solid Waste Policy;
- Recovery and Preservation of Watersheds

### ii) Ministry of Health/National Health Foundation Basic Sanitation:

- Support for the Quality Control of Water for Human Consumption for the Prevention and Control of Diseases;
- Support for the Management of Basic Sanitation Systems in Municipalities with up to 50,000 inhabitants;
- Implementation, Expansion, and Improvement of Public Water Supply Systems in Municipalities with a population of up to 50,000 inhabitants, except in Metropolitan Regions (RM) or Integrated Economic Development Regions (RIDE);
- Implementation, Expansion, and Improvement of Public Sanitation Systems in Municipalities with a population of up to 50,000 inhabitants, except in Metropolitan Regions (RM) or Integrated Economic Development Regions (RIDE);

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<sup>2</sup> Ministry of Social Development (MDS), now known as the Ministry of Development and Social Assistance, Family and Fight against Hunger.

- Implementation and Improvement of Public Solid Waste Management Systems in Municipalities with up to 50,000 inhabitants, excluding Metropolitan Regions (RM) or Integrated Economic Development Regions (RIDE);
- Implementation of Household Sanitation Improvements for the Prevention and Control of Diseases in urban areas of municipalities with a population of up to 50,000 inhabitants;
- Implementation, Expansion or Improvement of Sustainable Basic Sanitation Actions and Services in Small Rural Communities or Traditional Communities.

iii) Executive Water Management Agency of the State of Paraíba:

- Action: Implementation and Improvement of Water Resources Management Instruments;
- Action: São Francisco River Integration Project;
- Action: Implementation of the Dam Safety Policy;

In addition to these actions, Paraíba has the Cooperar project for rural sanitation through the implementation of Complete Water Supply systems, known as WSS, and Single Water Supply systems, known as collective WSS, CWSS. The following units are currently being implemented:

- 26 WSS units are being tendered, serving a total of 1,288 families in 17 municipalities;
- 18 CWSS units, currently out to tender, serving a total of 344 families in 13 municipalities;
- 15 units of CWSS (Desalinator with photovoltaic power supply), currently out to tender, serving a total of 429 families in 13 municipalities;
- 6 CWSS units completed, serving a total of 95 families in 5 municipalities;
- 26 units of CWSS (Desalination Plant with photovoltaic power supply), completed, serving a total of 608 families in 18 municipalities;

Of the 223 municipalities in Paraíba, 20 have their Municipal Basic Sanitation Plans (PMSB) drawn up, 42 are in the process of doing so and 151 have no plan (Instituto Água e Saneamento<sup>3</sup>, 2020).

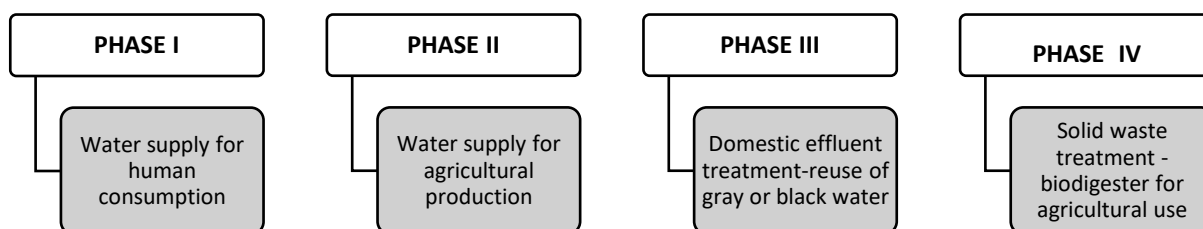
Complementary Law No. 168/2021 regionalized the 223 municipalities into 4 Water and Sewage Microregions with the following division:

- 1-MSB - Alto Piranhas micro-region made up of 38 municipalities;
- 2- MSB - Espinharas micro-region made up of 46 municipalities;
- 3- MSB - Borborema micro-region made up of 84 municipalities;
- 4- MSB - Microregion of the Coast made up of 55 municipalities;

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### 3 - Social Technologies

For this study, the STs were divided into four phases according to their implementation methods



The ST defined in each phase to initially make up PROCASE II are as follows:

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<sup>3</sup> Instituto Água e Saneamento is a platform that facilitates access to information on sanitation in Brazil's 5,570 municipalities. <aguaesaneamento.org.br>

- **Phase I:** 16,000-liter slab cistern;
- **Phase II:** 52,000-liter rainwater cistern; 52,000-liter sidewalk cistern; underground dam; trench yard and stone tank;
- **Phase III:** gray water reuse (Vermifilter or Banana Tree Circle) or black water reuse (Evapotranspiration Basin - Green Trench);
- **Phase IV:** Biodigester for agricultural waste;

The ST and solid waste management activity will support PROCASE II's sustainability and contribute to the Project's objectives in eliminating waterborne diseases, controlling water use, preserving the environment, and mitigating climate change. They are intrinsic to basic sanitation and must follow its premises. Specifically, the ST of PHASE I will serve an extremely vulnerable target group and should benefit households that cannot be served by local water supply systems or solutions for hydraulic or geographical reasons<sup>4</sup>. Thus, they can be implemented in isolation or consortium according to the following premises:

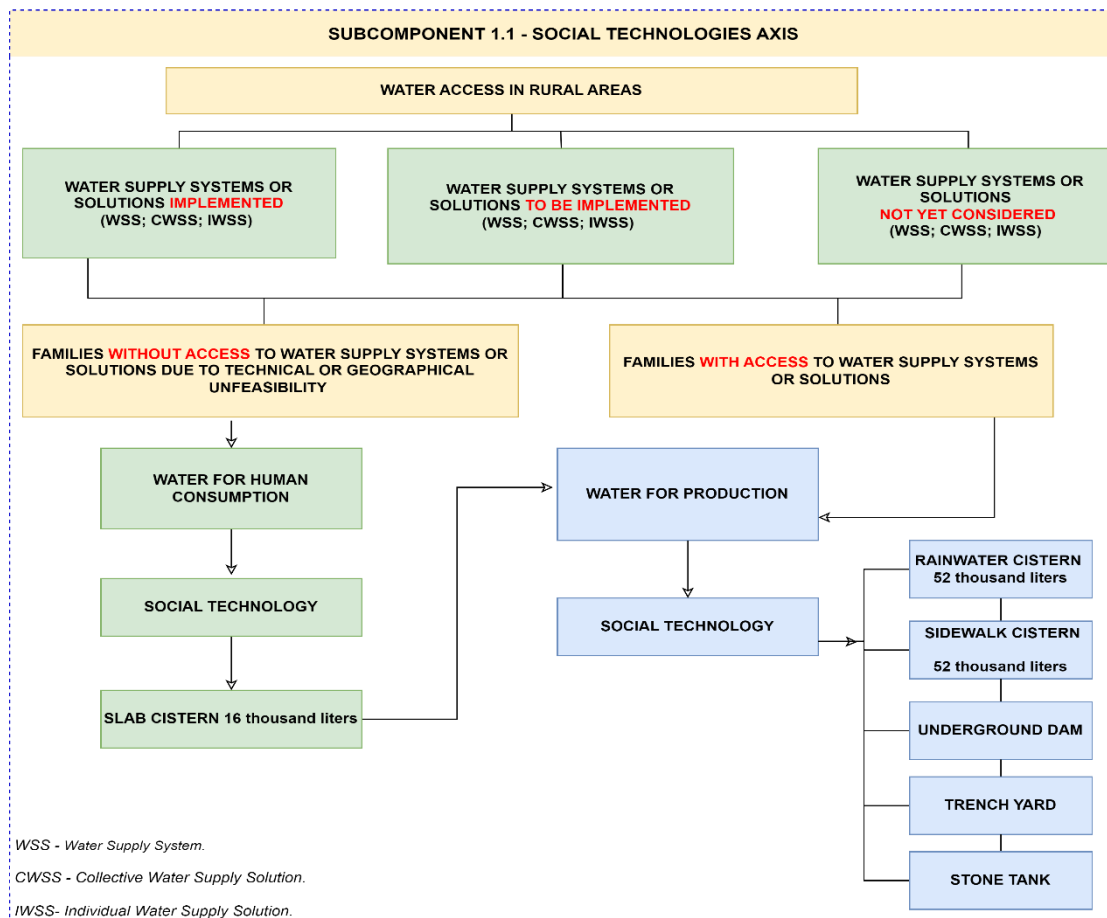
- STs implemented in consortium: these are the STs from phases I and III, which must provide treated water and properly dispose of domestic sewage effluents to guarantee the effectiveness of their actions within the basic sanitation proposal;
- STs implemented in isolation: these are the STs from phases II to IV, which should only be implemented if water is guaranteed for human consumption. They will contribute to controlling the use of water for human consumption and other purposes. Guaranteeing access to water for human consumption means assuming that the areas to be served by the Project are assisted by public sanitation policies.

The PIR to be covered by ST must guarantee access to water for human consumption and, to this end, the choice of beneficiary families must be based on the existing types of drinking water supply, with the ST in phase I taking priority over the others, as shown in the Flowchart in Figure 1:

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<sup>4</sup> Geographical reasons: dispersed households, located in very remote areas or with difficult access that makes it impossible to interconnect with the local water supply system or solution.

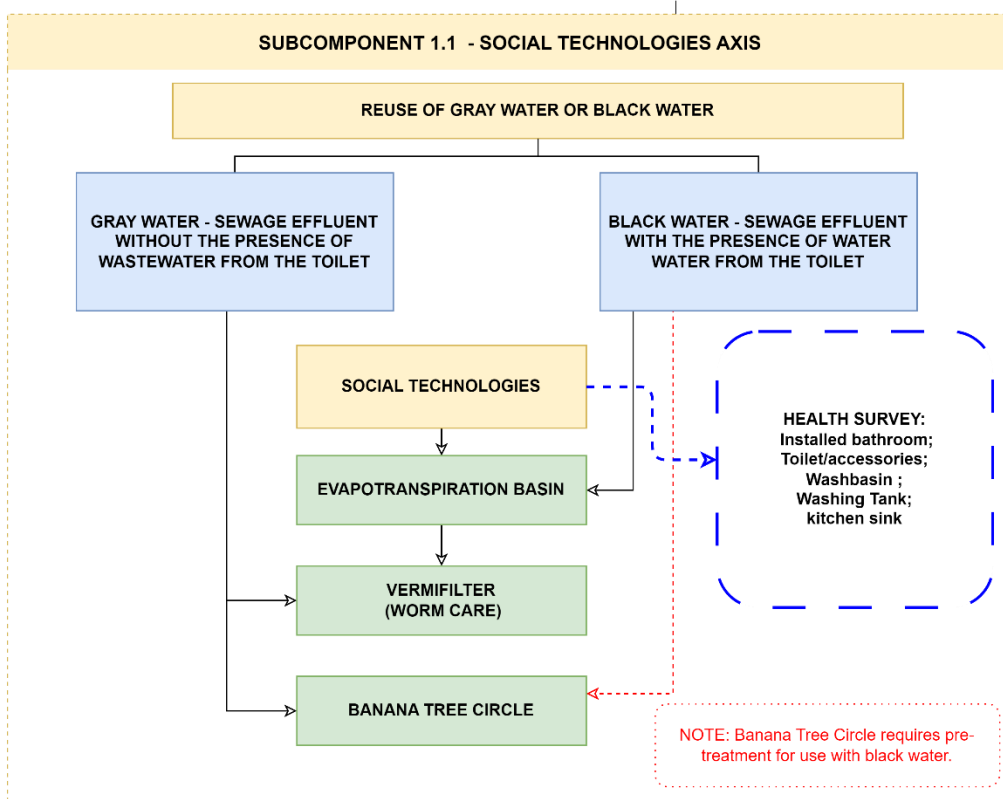
**FIGURE 1-FLOWCHART SOCIAL TECHNOLOGY FOR WATER SUPPLY - PHASE I AND III**



Source: Own (2024).

The ST of PHASE III should prioritize the ST of PHASE I and promote the sustainability of basic sanitation in water and sewage. However, the application of this ST in the other phases should only be implemented if it transforms the local reality. Its units are set out in the Flowchart in Figure II, which highlights the Wastewater Health Survey as a relevant factor because the elements that make up the health survey can make the implementation of reuse units unfeasible due to technical and financial factors.

FIGURE 2-FLOWCHART OF DOMESTIC EFFLUENT REUSE



Source: Own (2024).

### 3.1 Characteristics of Social Technologies (ST)

The ST will follow the references of the Normative Instruction (IN) of the MSD. For each ST, the corresponding IN number will be presented. Each IN has an annex with execution and assembly procedures; activities for mobilizing, selecting, and registering families in the Cisterns SIG (Integrated Management System) computerized<sup>5</sup>; training of families to manage the technologies; training of people to build the technologies; training of the construction process; and estimated unit values for implementing the technology within the scope of the Cisterns Program.

#### i) PHASE I: Water supply for human consumption:

- **16,000-liter slab cistern:** the operational requirements for implementation are set out in **SESAN/MDS Normative Instruction No. 9 of 03/03/2023** and its annexes. This social technology should provide access to quality water in sufficient quantity for human consumption for low-income families living in rural areas by capturing and storing rainwater, combined with training and education in water management. This technology should improve living conditions by facilitating access to quality water for human consumption, directly impacting health, food security, and nutrition.

The methodology for implementing this technology follows the following stages: i) mobilization, selection, and registration of families; ii) training of beneficiaries on the proper use of the cistern and on the management of stored water and those responsible for construction; iii) construction of the cisterns.

<sup>5</sup> SIG Cisterns: is the guarantee of the management, control and transparency of the Cisterns Program, all Social Technologies are registered in this system.

ii) **PHASE II: Water supply for agricultural use:**

- **A 52,000-liter rainwater cistern**, with catchment from a rainwater bed, set out in **SESAN-Support/MDS Normative Instruction No. 31 of 23/05/2023** and its annexes, aims to provide low-income families living in rural areas with access to water for food production and/or animal watering. This technology should improve living conditions, facilitate access to water, contribute to ensuring food security and nutrition, and generate income from the sale of surpluses, if applicable.

The methodology for implementing this technology follows the following stages: i) mobilization, selection, and registration of families; ii) training of beneficiaries on water management in agri-food production, including exchanges of experiences, and of those responsible for construction; iii) implementation of the cisterns; and iv) implementation of a productive nature;

- **52,000-liter sidewalk cistern**, with a rainwater catchment area based on a 200-meter sidewalk<sup>2</sup>, set out in **SESAN-Support/MDS Normative Instruction No. 10 of 03/03/2023** and its annexes, aims to provide access to water for food production and/or animal watering for low-income families living in rural areas, combined with technical training and training for water management and handling. This technology should improve the living conditions of beneficiary families, facilitating access to water and helping to guarantee food security and nutrition and generating income from the sale of surpluses, if applicable.

The methodology for implementing this technology follows the following stages: i) mobilization, selection, and registration of families; ii) training of beneficiaries on water management from the perspective of agri-food production, including exchanges of experiences, and of those responsible for construction; iii) implementation of the cisterns; and iv) implementation of a productive nature;

- The purpose of the **Underground Dam**, set out in **Normative Instruction SESAN-Apoio/MDS No. 32 of 24/05/2023** and its annexes, is to provide low-income families living in rural areas affected by drought or regular water shortages with access to water for food production, combined with technical training and training in water management. This technology should improve beneficiary families' living conditions, helping guarantee food security and nutrition and generating income from the sale of surpluses, if applicable.

The methodology for implementing this technology follows the following stages: i) mobilization, selection, and registration of families; ii) training of beneficiaries on water management for agri-food production, including exchanges of experiences; iii) implementation of the dams; and iv) implementation of a productive nature;

- **Dugout trench (Barreiro trincheiro)**, set out in **Normative Instruction SESAN-Apoio/MDS No. 33 of 07/07/2023** and its annexes, aims to provide low-income families living in rural areas with access to water for food production and animal watering, combined with technical training and training in water management and handling. This technology should improve beneficiary families' living conditions, helping guarantee food security and nutrition and generating income from the sale of surpluses, if applicable..

The methodology for implementing this technology follows the following stages: i) mobilization, selection, and registration of families; ii) training of beneficiaries in water management, including exchanges of experiences; iii) implementation of trench sluices; and iv) implementation of a productive nature;

- **Stone Tanks** or Cauldrons, an easy-to-implement technology for food production and/or animal feed, are built in areas with cliffs or rock formations, natural places that can



accumulate water. It is not included in the Cistern program's list of social technologies, but it is used in semiarid regions in other actions such as the Articulation in the Brazilian Semiarid (ASA).

iii) **PHASE III-Reuse of gray water and black water:**

Among the list of Social Technologies adopted by the MDS Cistern Program, the following technologies are in line with PROCASE II in terms of sanitary sewage: reuse of gray water (through physical and biological treatment - use of earthworms) and reuse of black water (Green Trench), both without the need for pre-treatment or post-treatment units for release into the soil or water body.

- **Gray water reuse:** treats wastewater that does not come from the toilet, as set out in **IN SESAN/MDS No. 36 of 08/03/2024** and annexes. The treatment of these effluents through the reuse system consists of a filtering process using biological and physical impediment mechanisms. Initially, the gray water, rich in chemical and organic waste, is directed to a filter where the organic matter is biodegraded by a population of microorganisms and earthworms (*eisenia fetida*), removing its main pollutants (Annex). This treatment is of the Vermifilter type<sup>6</sup>.

It should be noted that most of the guidelines in this document were obtained from the systematization completed in 2015 by Assessoria, Consultoria e Capacitação Técnica Orientada Sustentável - ATOS, in partnership with the Federal Rural University of the Semiarid, IFAD and the Dom Helder Câmara Project, which resulted in the *Manual for the implementation and management of the family bio-water system: water reuse* (Annex to IN SESAN/MDS No. 36).

In addition to this, the Banana Tree Circle can also be used, which is specified in academic works<sup>7</sup>, but not yet regulated in the Federal Government's Normative Instructions specifically for gray or black water, and for the treatment of black water, pre-treatment must be installed.

- **Black water reuse:** treats the specific water from the toilet, the evapotranspiration basin (Green Pit; Ecological Pit) will be used, as set out in the Annex to **IN SESAN/MDS No. 36 of 08/03/2024**. The ecological or green pit is a technology designed to collect and treat fecal water (toilet effluent) from an evapotranspiration tank. It is a planted system where the anaerobic decomposition of organic matter takes place, mineralization, absorption of nutrients and water by the plant roots and, finally, the water is returned to the hydrological cycle through the evapotranspiration of the plant species planted in the ecological pit.

iv) **PHASE IV - Biodigester for farming.**

Biodigesters<sup>8</sup> are easy to operate and maintain and can be implemented at the family level. PROCASE I implemented a biodigester in partnership with UFCG at the Ecoprodutiva unit in the municipality of Congo-PB.

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<sup>6</sup> Vermifilter can be used for black water, domestic sewage, but it is necessary to carry out a pre-treatment technology such as a septic tank.

<sup>7</sup> The Banana Tree Circle is not included in Brazilian standards, but it is suggested by FUNASA (FUNASA, 2015 and 2018) and its effectiveness has been proven by academic research (FIGUEIREDO, in press) and by its current use in permaculture and agroecology projects (Book Domestic Sewage Treatment UNICAMP, 2018).

<sup>8</sup> The biodigester for treating domestic effluent does not require pre-treatment, but it is necessary to install post-treatment of the treated effluent for disposal in the soil or water body, requiring more specific monitoring, which differs from the project proposal.

They are not included in the list of MDS INs, but they are easy-to-implement and operate units with published academic studies. Of particular note here is Article 1 of **NORMATIVE INSTRUCTION No. 1 SEISP/SEDS/MC, OF DECEMBER 1, 2020**, published in the DOU on December 2, 2020, which states "...

*Any alteration to the technical specifications of the social technologies for access to water supported by the Cisterns Program contained in the operational instructions and normative instructions in force must be submitted for prior analysis by this Ministry and must be accompanied by a study or technical report issued by federal or state public universities or by federal or state public agencies that prove its suitability and viability."*

- **Biodigester:** a domestic sewage effluent treatment unit and biofertilizer production unit supplied with plant or animal production waste (animal urine and manure). Biogas and biofertilizers are produced.

The rural biodigester implemented by PROCASE I was supported by the Human Resources Training Program for the Construction of Rural Biodigesters, aiming to train human resources and build rural biodigesters. The biodigester implemented was of the sertanejo type, supplied by waste generated by 20 pigs and ten cattle, and was able to provide energy equivalent to an average of 7.8 cooking cylinders per month.

### 3.2 - Eligibility criteria for the choice of ST.

Table 1 shows the eligibility criteria for the target public defined in the Normative Instructions of the Cistern Program.

**TABLE 1 ELIGIBILITY CRITERIA ACCORDING TO THE CISTERN PROGRAM**

Eligibility criteria: MDS Normative Instructions	Social Technologies	Target audience (all ST) and prioritization criteria for water supply and wastewater reuse
<b>Mobilization, which involves holding local and territorial meetings to plan the actions to be carried out and working to mobilize the community for the participatory identification and implementation of the Project.</b>	All: Cisterns, Earthen dams, Trench dams, Vermifilters and Green trenches	The potential target audience is families with an income of up to half the minimum wage <i>per capita</i> living in rural areas without access to drinking water.
<b>Selection and registration of families, based on the training and involvement of social leaders and local public authorities who organize community meetings, guide home visits, validate the selection process, and monitor the entire implementation process.</b>	All: Cisterns, Earthen dams, Trench dams, Vermifilters and Green trenches	<b>Prioritization criteria, in that order, for water supply TS:</b> <ol style="list-style-type: none"> <li>i. Families in extreme poverty;</li> <li>ii. Families with a Single Registry profile;</li> <li>iii. Female-headed households;</li> <li>iv. Families with more children aged 0 to 6;</li> <li>v. Families with more school-age children;</li> <li>vi. Families with persons with disabilities;</li> <li>vii. Families headed by the elderly (in this case, a gross family income of up to three minimum wages is allowed)</li> </ol>
<b>Selection, which involves identifying sites with suitable soil conditions for building the cistern and identifying the families to be assisted, according to the prioritization criteria.</b>	All: Cisterns, Earthen dams, Trenches, Vermifilters and Green trenches	
<b>Registration of beneficiaries in the SIG Cisterns computerized system</b>	Cisterns, earth dams, trenches, vermifilters and green trenches	
<b>Training families in water management for human consumption</b>	16,000-liter cisterns for human consumption.	<b>The prerequisite for water reuse STs is that the family/household has:</b>

<b>Training families in water management for food production.</b>	Sidewalk cistern; Overflow cistern; Earth dam; Trench cistern; Vermifilter and Green pit	<ul style="list-style-type: none"> <li>i. water for domestic use, not brackish;</li> <li>ii. bathroom and sink;</li> <li>iii. toilet, if the ecological pit is installed;</li> <li>iv. area for vegetable production close to home</li> </ul>
<b>Training families in simplified water management systems for food production.</b>	Sidewalk cistern; Earth dam; Trench yard; Vermifilter and Green trench	<b>Prioritization criteria, in addition to the minimum requirements indicated above for water reuse TS:</b> <ul style="list-style-type: none"> <li>i. families belonging to traditional peoples and communities;</li> <li>ii. women-headed households;</li> <li>iii. families with more children aged 0 to 6;</li> <li>iv. families with more school-age children;</li> <li>v. families with persons with disabilities;</li> </ul>
<b>Exchange of experiences: a dynamic that involves interaction between Project beneficiaries and other farmers, based on the horizontal exchange of knowledge and experiences, making it possible to value local practices and knowledge.</b>	Sidewalk cistern; Overflow cistern; Earth dam; Trench cistern; Vermifilter and Green pit	
<b>Implementation of the cisterns: corresponds to the building/construction processes</b>	16,000-liter cistern; sidewalk cistern; earth dam; dugout trench; vermifilter and green trench; vermifilter and green trench	
<b>Productive implementation: corresponds to the delivery of inputs and infrastructure material.</b>	16,000-liter cistern; Sidewalk cistern; Trench yard	
<b>Implementation: corresponds to the delivery of inputs and infrastructure material and the installation of the system associated with the productive character of the technology.</b>	Trench cistern; Flood cistern; Earth dam; Trench yard	

Table 2 complements the criteria in Table I to align them with the PROCASE II design.

**TABLE 2 - ELIGIBILITY CRITERIA FOR ST ACCORDING TO IMPLEMENTATION PHASES.**

IMPLEMENTATION PHASES OF -TS	TYPE OF TS	ELIGIBILITY CRITERIA
<b>PHASE I</b>	16,000-liter plate cistern	benefit households that cannot be served by any other type of drinking water supply, either for technical reasons of civil or hydraulic engineering or for geographical location (located in very dispersed areas that make it unfeasible to invest in interconnection with other WSS or Supply Solutions) - see Figure 1;
		must have priority over the other PHASES
<b>PHASE II</b>	Sidewalk and rainwater cistern with 52,000-liter; underground dam, trench, and stone tank	must be implemented in households that have water for human consumption;
		prioritize assistance, where appropriate, to families benefiting from the ST of phase I.
<b>PHASE III</b>		priority in households benefiting from PHASE I

	Vermifilter, Banana Tree Circle and Green Trench	families benefiting from a water supply other than a cistern must provide proof of the existence of a grease trap, toilet, and sink; toilet, for plant production and close to the home
<b>PHASE IV</b>	Biodigester for agricultural use	must be implemented in households that have access to water for human consumption.

The proposed criteria in Tables 1 and 2 should be aligned with the following propositions:

- The published Municipal Basic Sanitation Plan must be a tie-breaking criterion when choosing the technologies for Phases I and III;
- The area covered by the implementation of the social technologies should be the four basic sanitation micro-regions of Paraiba;
- The TA teams must have qualified and trained professionals with experience in rural sanitation on their staff so that they can support both the eligibility process for the technologies and the process of guiding the implementation, operation, maintenance, management, and monitoring of each of the social technologies;
- Training should prioritize the teaching of the rational use of water in terms of the purpose for which it is used and the control of waste;
- The sanitary survey is indispensable and must be implemented in all the areas covered by social technologies. It must include questions about the conditions of access to water for any purpose, the conditions of sanitary sewage (toilets, grease traps, open sewage, ways of sanitizing, etc.);

Of note in these guidelines is the guarantee of drinking water consumption for all the covered STs. This is pertinent to the Project, which specifies the target audience to be served in the context of the productive and social inclusion of family farmers, as well as the adaptation and mitigation of climate change, contributing to the sustainability of PROCASE II.

The Municipal Basic Sanitation Plan should be used as a tiebreaker for the choice of ST, where relevant since the Plans do not reflect the reality of basic sanitation in the municipalities. There may be municipalities with a published PMSB but without implemented water and sewage systems. However, the published PMSB presents the basic sanitation guidelines and can support the choice of beneficiary areas, serving as a valid justification for the choice of ST.

### 3.3- Technical criteria for implementing ST

The ST of all the phases mentioned are structures that are easy to execute, operate and maintain. However, their efficiency comes from technical characteristics that must be appropriately presented during training, as highlighted in Table 3.

**TABLE 3- TECHNICAL CRITERIA FOR ST EXECUTION**

TECHNICAL CRITERIA	FEATURES	NOTE
<b>Location</b>	<ul style="list-style-type: none"> <li>▪ terrain and relief conditions for building the structures;</li> <li>▪ difficult to access for operation and/or maintenance;</li> <li>▪ building cisterns near trees and bushes;</li> <li>▪ building cisterns for human consumption near unhealthy environments (corrals, septic tanks, garbage dumps);</li> </ul>	The location of the ST units is a major factor in the service life of the ST because it covers both structural and operational aspects.

<b>Type of soil</b>	<ul style="list-style-type: none"> <li>need for evaluation for the foundation;</li> <li>will define the type of backfill and forms of soil compaction, among others;</li> <li>earthmoving: will define the use of the appropriate equipment for excavation, Phase III ST, in terms of rent and hours worked;</li> </ul>	Even though these points are the responsibility of the designer and the construction companies, it is pertinent that the beneficiaries have basic knowledge of the characteristics of execution as they play an important role in supervising the works.
<b>Sizing</b>	<ul style="list-style-type: none"> <li>Present the volume with reference to the intended use of each ST to control water use and avoid waste;</li> <li>for PHASE IV - biodigester - provides information on biogas consumption and biofertilizer production;</li> </ul>	Knowing the production capacity of each technology prevents waste and contributes to proper use.
<b>Material</b>	<ul style="list-style-type: none"> <li>identification of materials;</li> <li>storage;</li> </ul>	It is relevant that beneficiaries know the materials to check the type and quantity provided for in the Project and storage conditions during the work and post-work.
<b>Equipment:</b>	<ul style="list-style-type: none"> <li>operating manual, hand pump, electric pump, photovoltaics, eco-stoves, biodigesters, among others;</li> </ul>	Emphasize the importance of the equipment's operating manual in training sessions and present the relevant points didactically in plain language.
<b>Labor</b>	<ul style="list-style-type: none"> <li>having a qualified bricklayer during the construction work;</li> <li>presence of a qualified technician;</li> </ul>	Professionals are essential for the execution of works, even if the labor is provided by the beneficiaries. The competence of the professional raises the quality of the work and eliminates many faults.
<b>Site measurements</b>	<ul style="list-style-type: none"> <li>control of the construction budget spreadsheet;</li> <li>knowledge of the work's physical and financial schedule;</li> </ul>	Foster beneficiary's interest in controlling the services and materials contracted and executed.
<b>Construction Diary</b>	<ul style="list-style-type: none"> <li>Include the beneficiary in the work's technical notes.</li> </ul>	The association should be responsible, but the presence of the beneficiary is important, as they will be the operator of the technology, where appropriate.

Figure 3 shows intervening factors during the use and operation of cisterns presented in a study on cisterns, which is fully aligned with the premises of the ST axis and will be used with pertinent adaptations for the other phases established in this process.

Tables 4, 5, and 6 will adapt the information according to the other Phases III and IV. Phase II is similar to the cistern criteria, differing only in the water quality parameter criterion, which specifically focuses on human use.

**FIGURE 3 FACTORS AFFECTING THE USE AND OPERATION OF CISTERNS**

Group	Dimension	Variable	Effect
Operation	Technique	Cistern design	Functional use of the cistern
		Roof area of the residence	Increase/decrease in water availability
		Water Pump Type	Appropriation and use by the population
		Construction process	Strength and durability
		Quality of the work	Efficiency in the implementation of systems
		Physical conditions of the structure and hydraulic installations	Preservation of water quality and quantity
		Existence of sanitary barriers	Improved water quality
		User maintenance of the system	Preservation of the physical integrity and functioning of the cistern
	Institutional	Program Design and Investments Made	Effectiveness of human supply of cisterns
		Post-construction municipal assistance	Technical assistance, maintenance and repairs
		Control of drinking water	Maintenance of water quality
		Standardization of the use of rainwater by means of cisterns	Establishment of guidelines and quality standards for the construction, operation and maintenance of systems
Use	Sociocultural	Social Participation	Appropriation of technology
		Health and Environmental Education	Adoption of personal hygiene, food and water security habits
		Hygiene in domestic water handling	Compromise of water security
		Social conditions of the family	Freeing women and children from the task of collecting water, in return for work and education
		Alteration in gender relations	Women's empowerment in water management
	Sanitary and Environmental	Water quality	Impact on the health of the supplied family
		Water Quantity	Commitment of well-being and personal and food hygiene
		Pluviometry	Feasibility of using cisterns
Climate Change		Vulnerability of systems to climate change impacts	

Source: Dissertation: Cistern for Human Supply - Silva, Anne (2017)

**TABLE 4 INTERVENING FACTORS IN THE USE AND FUNCTIONING OF PHASE III STS**

DIMENSION	VARIABLE	EFFECT
Technique	<b>Gray or black water reuse project</b>	<b>Applicability</b>
	Construction process	Strength and durability.
	Quality of work	Efficient system implementation.

	The physical condition of the structure and hydraulic installations (grease trap, hand-washing sink, toilet, etc.).	Ensuring the use of treated effluent in plant production and producing humus from earthworms.
	Existence of sanitary barriers	Protecting areas that could be contaminated by the rupture of the structure.
	User maintenance and operation of the system	Appropriate destination for domestic effluent.
<b>Institutional</b>	Post-construction assistance	Technical assistance, maintenance, and repair.
	Monitoring of treated effluent and fertilizer	Maintaining the quality of domestic effluent.
	Standardization of effluent use	Following the recommendations of the relevant technical standards and the IN of the Cistern Program.
<b>Sociocultural</b>	Social Participation	Appropriation of technology.
	Health and environmental education	Knowledge of the operation of treatment units and their use in plant production.
	External hygiene of the home	Avoiding diseases linked to open sewage.
<b>Sanitary and environmental</b>	Quality of treated effluent	Impacting on environmental protection of soil and/or water bodies.
	Climate change	Contributing to climate change mitigation.

**TABLE 5- FACTORS THAT INTERVENE IN THE USE AND FUNCTIONING OF THE ST - PHASE IV**

<b>DIMENSION</b>	<b>VARIABLE</b>	<b>EFFECT</b>
	<b>Biodigester project - farming</b>	<b>Applicability</b>
<b>Technique</b>	Construction process	Strength and durability.
	Quality of work	Efficiency in setting up the unit.
	Physical condition of the structure	Ensuring the use of biogas and biofertilizer.
	Existence of sanitary barriers	Protecting units that could be contaminated by the misuse of biodigester waste.
	User maintenance and operation of the system	Encouraging proper management of livestock waste.
<b>Institutional</b>	Post-construction assistance	Technical assistance, maintenance, and repair.
	Monitoring biogas and biofertilizer production	Availability of waste to produce gas and biofertilizer.
	Standardization of effluent use	Following the recommendations of the relevant technical standards.
<b>Sociocultural</b>	Social Participation	Appropriation of technology, income generation, biogas for cooking, lighting, among others.
	Health and environmental education	Converting electrical and thermal energy.
	External hygiene of the home	Avoiding illness when handling waste.
	Quality of the waste generated	Reducing greenhouse gases. Avoiding soil and aquifer contamination. Clean technology.

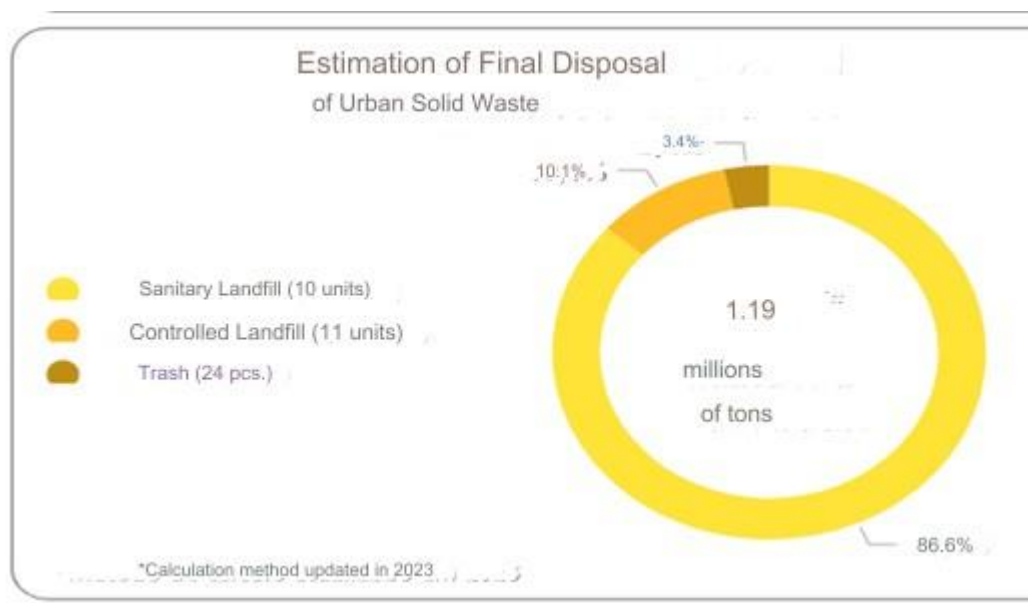
Sanitary and environmental I	Climate change	Contributing to climate change mitigation.
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#### 4- Solid Waste Management

Solid waste management is not part of the Social Technologies axis of sub-component 1.1 and will, therefore, be mentioned in this chapter as complementary information. In Component 1, it is listed under the Types of Climate Mitigation Investments that can be financed by PIR and PN investments. However, solid waste management is part of the basic sanitation axes and requires attention regarding waste generated in rural areas.

Solid waste management depends on several variables, mainly those relating to landfills and municipal solid waste plans. The few existing landfills, see Figure 4, are planned to directly serve urban areas, municipal seats, or districts with high population density, and some municipalities have not completed their Municipal Plans.

FIGURE 4-ESTIMATED FINAL DISPOSAL OF MUNICIPAL SOLID WASTE MANAGEMENT



Rural areas have situations of isolation and/or difficulties in accessing households. The potential sources of solid waste generation are diverse, ranging from agricultural production waste to household waste, in addition to the lack of sanitation in these areas. In other words, all these factors, together with the lack of access to solid waste collection, mean that the population has the option of burying, burning or irregularly disposing of the waste produced in their homes and in their agricultural activities. Another point of impact is the change in consumption patterns in rural communities, where the composition of rural household waste is increasingly like urban solid waste, with an increase in the disposal of plastics, metal cans, batteries, tires, light bulbs, household appliances, among others (CAPANEMA, 2014).

Faced with the scenario of rural areas with isolated households difficult to access and a basic sanitation deficit, it becomes pertinent to implement actions that can contribute to the elimination of dumps, i.e. to minimize the polluting effects of agglomeration of waste.

Among the implemented actions, these can be carried out in isolation or groups, as long as they minimize the effects generated by the lack of solid waste management. Examples of activities include:



- Purchase of collectors for packaging waste;
- Implementation of a voluntary drop-off point - PEV;
- Acquisition of any type of transport, large or small, to support municipal waste management;
- Implementation of recyclable sorting units;
- Support for the creation or renovation of sites for recycling activities;
- Support for waste pickers;
- Support for the implementation of natural or accelerated composting;
- Training;
- Proof that the implemented activity will change the local scenario in terms of the generation, storage, and final disposal of solid waste in the covered areas.

These activities contribute to reducing pollutants and mitigating climate change and are easy to implement as part of the Project design. However, their effectiveness depends on municipal management, which is responsible for the final destination of solid waste. Given the shortfall in solid waste management in Paraíba, the associations selected for this purpose should have as an eligibility criterion the greatest positive impact generated by their implementation and use the Municipal Solid Waste Plan as a tie-breaking factor.

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## 5- Final considerations.

This Social Technology (ST) Report presents the social technologies to be developed in the PIRs and the proposal for implementing solid waste management.

Eligibility criteria and priorities for the implementation of ST were presented, which will serve as a reference for the identification and selection of families that can benefit from these STs and be assisted through TA.

These criteria will guarantee the use of simple-to-apply and sustainable technologies where execution, operation, maintenance, monitoring, and management can be carried out by the beneficiary families and supported by the relevant state bodies so that together they can guarantee technical, socio-cultural, environmental, and budgetary control of each phase of the project.

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## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 12 Component 2**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## **Paraíba Rural Sustainable Development Project PROCASE II**

**(BR-L1623)**

### **Component 2 Narrative**

#### **Organizational strengthening, capacity building and knowledge management**

**Final version**

**12/06/2024**

## Table of Contents

1	Justification .....	4
2	Objectives .....	17
3	Subcomponents .....	18
3.1	Subcomponent 2.1 - Strengthening family farmers' capacities .....	18
3.1.1	Objective .....	18
3.1.2	Strategic orientation and methodology.....	18
3.1.3	Planned Activities.....	19
3.1.4	Execution arrangements .....	22
3.1.5	Costs.....	23
3.1.6	Results.....	23
3.1.7	Implementation schedule .....	23
3.2	Subcomponent 2.2 - Strengthening organizations' commercialization capacities.....	24
3.2.1	Objective .....	24
3.2.2	Strategic orientation and methodology.....	24
3.2.3	Planned activities .....	24
3.2.4	Execution arrangement .....	26
3.2.5	Costs.....	27
3.2.6	Results.....	27
3.2.7	Implementation schedule .....	27
3.3	Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security.....	27
3.3.1	Objective .....	27
3.3.2	Strategic orientation and methodology.....	27
3.3.3	Planned activities .....	28
3.3.4	Execution arrangement .....	33
3.3.5	Costs.....	34
3.3.6	Implementation schedule .....	34
3.4	Subcomponent 2.4 - Land and environmental regularization.....	35
3.4.1	Objective .....	35
3.4.2	Strategic orientation and methodology.....	35
3.4.3	Planned activities .....	35
3.4.4	Execution arrangement .....	39
3.4.5	Costs.....	39
3.4.6	Results.....	39
3.4.7	Implementation schedule .....	40
3.5	Subcomponent 2.5 - Knowledge management and south-south and triangular cooperation .....	40

3.5.1	Objective .....	40
3.5.2	Strategic orientation and methodology.....	40
3.5.3	Execution arrangement .....	42
3.5.4	Costs.....	42
3.5.5	Results.....	42
3.5.6	Implementation schedule .....	42

## 1 Justification

The Project region faces a number of limiting factors which were considered when elaborating the proposal for this component.

### Family farming organizations and their weaknesses

Often, tackling the problems posed by Paraíba's rural population's vulnerability is difficult at the individual or family levels. Generally, activities of this kind require a capacity for joint or collective action. One of the issues that reinforces the processes of unsustainability, which accentuate vulnerabilities, concerns local organizations<sup>1</sup>.

Traditional rural communities are characterized by the existence of a system of social institutions that organize local social life. These mechanisms - such as kinship networks and traditional mechanisms of reciprocity - enabled various types of collective action to take place, covering issues such as the management of common resources, holding community festivals, organizing religious events, etc.<sup>2</sup> However, nowadays these structures do not work well in all communities, and in many cases, there is an 'erosion' of traditions<sup>3</sup>. This has led to a weakening of traditional social structures. On the other hand, reality has presented new demands for community organization, mainly related to the actions of other social actors with whom families/communities establish relations. This situation has stimulated the creation of new forms of organization, generally more formalized, which may take on responsibility for old practices, but are essentially created to take on new functions. Among these new forms of organization, community associations stand out first and foremost.

There are currently many community associations in rural Paraíba. However, it must be acknowledged that they have shortcomings. One of the barriers that reinforce the *status quo* of unsustainability involves the role of the 'community association' as an effective means of representation and, above all, of organizing collective action at local level. But, as various studies have shown, the creation of associations alone is not enough. It has been found that it is very difficult for these associations to play their potential positive role in the processes of promoting more resilient development spontaneously<sup>4</sup>.

Previous experience of various rural development projects supported by different donors, including IFAD, has shown that the role of representing the group of families vis-à-vis government agencies has posed major challenges for community associations, as far as these new relationships require them to carry out tasks that are entirely unknown to them. In the case of associations assisted by development projects, one such task is that of managing community 'projects'.

On the other hand, rural organizations (usually in the form of cooperatives) created for the purpose of carrying out activities that seek to promote access to markets (such as packaging, processing, and marketing local products), encountered many difficulties in establishing themselves in this role. These organizations have significant shortcomings in terms of capacity on issues such as i) administration and finance (including access to sources of financing for working capital), ii) the ability to design and implement innovative and diversified marketing strategies, iii) the composition of teams with little representation of women and young people, among other weaknesses.

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1 Source: SIDERSKY, P.; JALFIM, F.; RUFINO, E.; SANTIAGO, F. et al. The Dom Hélder Câmara Project and the strengthening of an organizational fabric for sustainable development. In: CARDOSO, L. and KAURIC, A. (Ed.). Development practices in the Northeast of Brazil: experiences from IFAD-supported projects. Brasília, DF: IFAD and IICA, 2013. p. 75-156.

2 SABOURIN, E. Camponeses do Brasil: entre a troca mercantil e a reciprocidade. Rio de Janeiro: Garamond, 2009. 336 p.

3 For example, it is not uncommon to hear from farmers in various regions of the northeast that collective action instruments, such as *mutirões*, worked much better before than they do today. Sabourin mentions other symptoms of this "erosion": some farmers go as far as to pay a day laborer "instead of guaranteeing the service directly. They thus assume their material duty, but, according to the community, they do not respect their social duty". (SABOURIN, E. Mudanças sociais, organização dos produtores e intervenção externa. In: CARON, P. and SABOURIN, E. (Ed.). Peasants of the Sertão. Changes in family farming in the Northeast of Brazil. Brasília: EMBRAPA Informação Tecnológica, 2003. p. 145 - 178).

4 UPHOFF, N. Grassroots organizations and NGOs in rural development: opportunities with diminishing states and expanding markets. World Development, v. 21, n. 4, p. 607-622, 1993; UPHOFF, N. T.; ESMAN, M. J.; KRISHNA, A. Reasons for success: learning from instructive experiences in rural development. West Hartford, Conn: Kumarian Press, 1998. 232 p.



Often, they also have significant limitations in their production infrastructures, which do not always allow them to diversify their products, comply with health and environmental legislation, use renewable energy sources in their processes or treat their waste properly. This set of factors limit the ability of these organizations to function and their own sustainability, including economic sustainability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, intermediaries predominate.

In Paraíba, enterprises for packaging, processing, and marketing products have encountered many difficulties. There are around 8,700 processing units in the Project area<sup>5</sup>. According to the MDS, there were 77 enterprises in the northeast region registered and able to offer their products to government buyers. Of these, only 7 are from Paraíba (9%)<sup>6</sup>.

The situation outlined here indicates that most of the existing local organizations - especially community associations and family farmers' cooperatives - will need support, especially in terms of training, so that they can address various types of shortcomings (for example, in organizational processes and associative/cooperative management) and come to play an active and effective role in implementing the various sustainable development initiatives they are called upon to carry out.

On the other hand, the organizations mentioned above only group together and represent a fraction of Paraíba's Family Farmers, and there is still a significant part of this population that is not yet organized. Data from the 2017 Agricultural Census indicates that only 48% of farmers are members of some kind of organization (association, union, movement, etc.) Considering only the members of cooperatives, this proportion drops to just 3.7%<sup>7</sup>.

#### **Limited access to technical assistance (TA) and credit**

Family farmers in Paraíba also face difficulties in minimally structuring their agricultural activities, as well as incorporating innovations that intensify their production in a sustainable way, due to limited access to technical assistance and credit.

#### **Technical Assistance**

After millennia in which knowledge of agricultural and livestock practices was only passed down between generations of the population dedicated to farming, modern rural education and extension services emerged in Europe and the United States in the 19th century to work on new agricultural technologies and practices<sup>8</sup>. In Brazil, TA services began to be implemented after the Second World War, expanding nationally as a public service over several decades. Despite the crises experienced by this TA, the expectation remains that a quality TA service can play a fundamental role in Brazilian rural development, with emphasis on strengthening family farming, access to public policies, the social organization of farmers, the management of properties and enterprises, the marketing and certification of products, production management, the transition to organic or agroecological systems, the training of farmers, among other issues<sup>9</sup>.

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5 IBGE. Agricultural Census 2017. Rio de Janeiro, IBGE, 2019. Available at: <https://bit.ly/3DE6hsY>. Accessed on: 18.05.2024.

6 BRAZIL-MDS. Catalog of products offered by family farming. Brasília, DF: National Secretariat for Food and Nutrition Security, 2018. 136 p. Available at: [https://www.mds.gov.br/webarquivos/arquivo/seguranca\\_alimentar/Simposio\\_PAA/SIMPOSIO\\_NACIONAL/Catalogo\\_Produtos\\_Agricultura\\_Familia\\_r.pdf](https://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/Simposio_PAA/SIMPOSIO_NACIONAL/Catalogo_Produtos_Agricultura_Familia_r.pdf). Accessed on 22.05.2024.

7 SANTOS, E. A. d.; FORTINI, R. M.; BRAGA, M. J. A new portrait of family farming in the state of Paraíba [electronic resource]: based on data from the 2017 agricultural census

Viçosa, MG: IPPDS, UFV, 2021. Available at: [www.aksaam.ufv.br](http://www.aksaam.ufv.br).

8 CASTRO, C. N. d. Challenges of family farming: the case of technical assistance and rural extension. *Urban and Environmental*, v. 12, p. 49 - 59, 2015.

9 DELGROSSI, M. E.; VIEIRA, L. C. G.; AVILA, M. L. d.; PERAFÁN, M. V. et al. The impact of technical assistance and rural extension for poor family farmers: the case of the Dom Hélder Câmara II Program. *Revista de Economia e Sociologia Rural - RESR*, v. 62, n. 2 e271282, 2024.

These positive expectations related to TA<sup>10</sup> were confirmed in a recent study, which proved the positive impact - mainly due to the increase in agricultural production and income - of the provision of TA services by the Dom Helder Câmara II Project in various territories of the Brazilian Northeast<sup>11</sup>.

However, despite this widely accepted positive outlook, and even though there was significant investment by the federal government in TA between 2003 and 2015, the 2017 Agricultural Census shows that in Brazil, only 19.9% of family establishments had access to some kind of TA<sup>12</sup>. In Paraíba, 16.8% of establishments had access to TA. Although this figure is higher than that of the Northeast region (which is 7.4%), this proportion is still small<sup>13</sup>.

As of 2017, federal funding for TA services has been severely cut again, leaving millions of Brazilian family farmers without any kind of assistance<sup>14</sup>. With this redirection of the national TA policy as of 2017-18, there was an even greater decrease in the resources made available to finance TA services between 2018 and 2022<sup>15</sup>. Given this situation, it is very likely that the proportion of family farms receiving TA services is now much lower than it was at the time of the 2017 Agricultural Census.

In addition to this low coverage rate, information gathered during field visits during the design mission indicates that there is a lack of preparation and qualification of technicians in agroecological practices allow production systems to adapt to climate change, among other aspects. Without qualified professionals, farmers cannot implement more intensive, sustainable, and efficient agricultural practices and adapt to climate change and the challenges of access to market and finance. Correlating this information with the profile of the producers, data from the 2017 Agricultural Census<sup>16</sup> shows that in 47.4% of the establishments that reported applying pesticides, the person responsible could not read and write and that in 80.4% of the cases, the pesticide applications were carried out without any technical guidance.

On the other hand, in recent years (especially since 2020), there have been important methodological innovations in the field of TA. Traditionally, TA activities took place face-to-face, in direct interaction between the TA agent and their audience (the farmers). With the advance and popularization of information technology and the Internet, and mainly stimulated and conditioned by the moment of mandatory social isolation imposed by the Covid-19 pandemic, forms of remote and digital interaction and communication have been gaining ground and importance in TA processes, driving a broad process of innovation and learning in the use of instruments for dialogue, interaction and exchange of knowledge at a distance or remotely<sup>17</sup>.

In this process, TA activities have combined the remote tools already in use (such as TV and especially radio) with a full range of digital tools such as instant messaging applications/platforms (WhatsApp, Telegram), social networks (Instagram, Facebook), institutional websites, YouTube channels (for broadcasting videos). There has also been an

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10 Internationally, there are also studies that attest to the added value of providing TA services. Here we cite a study carried out by the IDB's Office of Evaluation and Oversight: MARCANO, L.; RUPRAH, I. J. Does Technical Assistance Matter? An Impact Evaluation Approach to Estimate its Value Added. Washington, D.C.: Inter-American Development Bank. Office of Evaluation and Oversight (OVE). 13 p. + Appendixes, 2009.

11 DELGROSSI, M. E.; VIEIRA, L. C. G.; AVILA, M. L. d.; PERAFÁN, M. V. et al. The impact of technical assistance and rural extension for poor family farmers: the case of the Dom Helder Câmara II Program. *Revista de Economia e Sociologia Rural - RESR*, v. 62, n. 2 e271282, 2024.

12 SANTOS, E. A. d.; FORTINI, R. M.; BRAGA, M. J. A new portrait of family farming in the state of Paraíba [electronic resource]: based on data from the 2017 agricultural census. Viçosa, MG: IPPDS, UFV, 2021. Available at: [www.aksaam.ufv.br](http://www.aksaam.ufv.br)

13 Luiz, Alfredo José. 2017 Agricultural Census indicates low rates of technical assistance in the countryside. Available at: <https://ainfo.cnptia.embrapa.br/digital/bitstream/item/205823/1/LUIZ-Censo-Agropecuario-2019.pdf>.

14 VARGAS, D. L. D.; AQUINO, J. R. d.; CARVALHO, C. X. d. Technical assistance, rural extension, and family farming in the Northeast: panorama, recent performance and challenges. *Emancipação*, V. 22; e2220507, p. 1 - 19, 2022.

15 A) DIESEL, V.; NEUMANN, P. S.; DIAS, M. M.; FROELICH, J. M. Technical Assistance and Rural Extension Policy in Brazil: a case of dismantling? *Estudos Sociedade e Agricultura*, v. 19, n. 3, p. 597 - 634, 2022; B) VARGAS, D. L. D.; AQUINO, J. R. d.; CARVALHO, C. X. d. Technical assistance, rural extension and family farming in the Northeast: panorama, recent performance and challenges. *Emancipação*, V. 22; e2220507, p. 1 - 19, 2022

16 Cf. IBGE. Agricultural Census 2017. Rio de Janeiro, IBGE, 2019. Available at: <https://bit.ly/3DE6hsY>. Accessed on: 15.04.2024.

17 see (i) CARVALHO, P. P. d.; XENOFONTE, G.; ROCHA, O.; DIAS, R. Report: Remote TA Practices in the context of the COVID-19 Pandemic (IFAD/CAATINGA Partnership - March/2021). Ouricuri, PE: CAATINGA - IFAD, 2021. 47 p. + Annexes p.; (ii) ROCHA JR., A. B.; GARCÍA, A. M. A.; BARRETO, A. G. d. O. P.; CHAMMA, A. L. S. et al. Rural connectivity and digital inclusion as strategies for the democratization of TA: Opportunities for Brazil and Peru. SI: IFAD, 2021. 38 p. Disponível em: <https://lac-conocimientos-sstc.ifad.org/documents/262275/0102b72b-56e8-22c2-5916-03ed4bc439f7>.

increase in the use of meeting/live/videoconferencing applications such as Google Meet, Zoom, as well as tools such as platforms specially designed for training events, and themed 'chats' on institutional websites<sup>18</sup>.

Thus, the use and application of digital resources in the activities of the technical assistance and rural extension service, which has been called 'digital TA' in some institutional, political, and academic spheres, has enabled farmers to expand their ways of accessing information and technical guidance, making it an excellent complement to the face-to-face TA service<sup>19</sup>.

### **Access to credit**

According to the 2017 Agricultural Census, in the state of Paraíba, 21,151 family farming establishments (16.9% of all these establishments) had access to some form of financing<sup>20</sup>. According to Santos et al, "*better access to financing for family farmers means contributing to greater dynamism in the agricultural sector in the state of Paraíba. The existence of a significant percentage of family farmers without an efficient financing system, both in terms of the quantity of monetary resources and the technical quality of the projects, reflects how much (financing) public policies need to progress to get closer to universal access*"<sup>21</sup>.

It is worth noting that 76.5% of the families that received financing did so for investment purposes. In addition, only 46.8% of these establishments received funding from government credit programs, PRONAF being the main one<sup>22</sup>.

### **Deficit in access to other public policies to support Family Farming**

Brazil has developed a significant group of public policies to help Family Farming since the 1990s. This process was led by the federal government and many states followed suit with similar state policies. Worth mentioning here are the programs: PRONAF (funding and investment credit), Seguro Safra (agricultural insurance), PAA, PAA Leite and PNAE (public food purchases), P1MC and P1+2 (support for Social Technologies for water storage), PNCF (land credit) and the Rural Development Program. In Paraíba, we should mention the State Seed Distribution Program.

This set of policies expanded until 2015, when some of these programs saw a resource reduction. This process intensified significantly from 2017 onwards, with a significant reduction in federal funding for practically all these policies, leading some of them to be paralyzed (such as P1MC and P1+2). However, as of the beginning of 2023, this trend has been reversed and there is a prospect that family farming will once again be able to count on a wide range of incentive policies.

The existence of these policies, however, does not guarantee access for families. On the contrary, many families find themselves on the margins. Various sources show that few family establishments access them, as shown above in relation to the percentage of family farmers who regularly receive TA services or manage to access credit (especially via PRONAF lines). Access to the PNAE is also limited. According to data from the FNDE, in 2022 Paraíba received only 2% of the Program's total resources, while the number of family farming establishments in Paraíba represents just over 3% of the country's total.

Surveys carried out in the field and with policy managers indicate that there are several causes for this situation. The main one is a lack of more detailed and consistent information about the policies themselves, including aspects such as

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18 See: (i) EMATER-MG. MEXPAR 4.0: Digital TA Connecting People. Belo Horizonte - MG: EMATER - MG, 2020. 49 p. Available at: <https://www.emater.mg.gov.br/download.do?id=48445>; and (ii) LOPES, R. C.; ZUIN, L. F. S.; OLIVEIRA, M. L. R. Digital TA: possibilities, challenges and conceptual approaches. In: Diálogos em Ater Digital na Rede Aurora v.1; São Carlos: Pedro & João Editores, 2022. 96 p. Available at: [https://pedrojoaoeditores.com.br/2022/wp-content/uploads/2022/02/EBOOK\\_Ater-digital-1.pdf](https://pedrojoaoeditores.com.br/2022/wp-content/uploads/2022/02/EBOOK_Ater-digital-1.pdf).

19 See: (i) DE DEUS, C. C. N.; MACHADO, B. S.; FERRAZ, R. M.; LOPES, R. d. C. et al. Parameters of digital and remote TA in Brazil: Methodologies and costs. Unpublished document 2024; and (ii) LOPES, R. C.; ZUIN, L. F. S.; OLIVEIRA, M. L. R. Digital ATER: possibilities, challenges and conceptual approaches. In: Diálogos em Ater Digital na Rede Aurora v.1; São Carlos: Pedro & João Editores, 2022. 96 p. Available at: [https://pedrojoaoeditores.com.br/2022/wp-content/uploads/2022/02/EBOOK\\_Ater-digital-1.pdf](https://pedrojoaoeditores.com.br/2022/wp-content/uploads/2022/02/EBOOK_Ater-digital-1.pdf).

20 a) IBGE. Agricultural Census 2017. Rio de Janeiro, IBGE, 2019. Available at: <https://bit.ly/3DE6hsY>. Accessed on: 13.12.2023;

21 SANTOS, E. A. d.; FORTINI, R. M.; BRAGA, M. J. A new portrait of family farming in the state of Paraíba [electronic resource]: based on data from the 2017 agricultural census. Viçosa, MG: IPPDS, UFV, 2021. Available at: [www.aksam.ufv.br](http://www.aksam.ufv.br).

22 Idem.

eligibility criteria and access mechanisms. Weaknesses have also been identified in the technical teams of government agencies that are responsible for making the policies work in the field.

## Gender

In the state of Paraíba, the Gender Disparity Index is 0.68%, indicating that Paraíba women are 32% less likely to have the same opportunities as men, with the biggest gaps being in the dimensions of political empowerment and economic opportunity<sup>23</sup>. In rural areas, resistance to advances in women's autonomy and rights is even greater. Gender gaps are expressed in restrictions on control and access to natural, social, and monetary resources.

One of the fundamental obstacles is the concentration of land ownership in the hands of men, leaving women in a situation of economic dependence. According to the 2017 Agricultural Census in Paraíba, 71.0% of female heads of family farming establishments have land titles, compared to 73.1% of male heads - an inclusion gap of 2.1 percentage points. On the other hand, when it comes to the management of establishments, only 24% of family farming establishments in the Project area are run by women<sup>24</sup>. However, between 2006 and 2017, there was a 20.3% increase in the proportion of establishments run by women in the state<sup>25</sup>. There is no data available on joint titling.

In Paraíba, according to the same source, the total area of family farming establishments run by women is 214,500 ha (14.9%), while that of men totals 1,226,714 ha (85.1%). In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.1 hectares, those run by men have an average of 12.9 hectares. Among the multiple legal, cultural, and structural barriers that exclude women from land rights are patriarchal ideologies about the gender division of labor in the public and private spheres and the practice of transferring land rights only to one representative of the family - the man. For this reason, the Project will seek to prioritize women in the land regularization work it will promote.

One strategy for rural women to increase their autonomy has been education, with higher levels of education compared to men. According to data from the 2017 Agricultural Census, among female family farmers, illiteracy reached 35.8% of those responsible for establishments, while among men, illiteracy reached 48.1% - a gap in favor of women of 12.3 percentage points (equivalent to 34.4%)<sup>26</sup>. Among female family farmers, 19.5% have never been to school, while among men this proportion is 25.7%<sup>27</sup>. Despite better educational indicators, women's average income is lower. In Paraíba, women earn, on average, 10% less than men and account for 72.5% of people earning up to one minimum wage, according to data from the Inter-Union Department of Statistics and Socioeconomic Studies (DIEESE).<sup>28</sup>

Despite rural women's significant contribution to the family economy and community development, their work is often overlooked because they are not part of the formal labor market and do not generate monetary income from activities such as self-consumption. Among the establishments run by women, 80.8% produce for self-consumption, while for those run by men, the same proportion is 70.7%, a difference of 10.1 percentage points (equivalent to 14.3%).

To change this reality, the Project will promote the Agroecological Logbook Methodology, which makes it possible to measure, value and give visibility to women's fundamental contributions to the family economy and, consequently, to community development.

The main agricultural activities of women in the Project area differ from those of men, requiring any public support to take a differentiated approach to meet the specific demands of women. Proportionally, women are more involved than men in temporary crops (37.1% versus 32.9%) and the production of planted/native forests (4.3% versus 2.6%), while

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<sup>23</sup> BENIGNO, Gabriel Oliveira Loiola; VIEIRA, Diego Mota; OLIVEIRA, Jessica Eloísa de. The gender gap in Brazilian states and stakeholder analysis of the National Council for Women's Rights. *Revista de Administração Pública*, v. 55, p. 483-501, 2021. Available at: <https://www.scielo.br/j/rap/a/xkIn9DbJmFbXnMVvmcYdyFG/?format=pdf&lang=en>.

<sup>24</sup> IBGE. Agricultural Census, 2017.

<sup>25</sup> AKSAAM. A new portrait of family farming in the state of Paraíba: based on data from the 2017 Agricultural Census. Available at: <https://aksaam.ufv.br/ToolSys/Download/Publicacao/25/22>.

<sup>26</sup> IBGE (2017). Agricultural Census.

<sup>27</sup> Idem.

<sup>28</sup>Source :<https://g1.globo.com/pb/paraiba/noticia/2023/03/06/mulheres-recebem-cerca-de-10percent-a-menos-que-homens-na-paraiba-segundo-dieese.ghtml>

men are proportionally more involved in permanent crops, livestock production (56.2% versus 52.4%) and horticulture/fruit growing (3.9% versus 2.8%).

Rural women in the Project area also have less access to TA. Among female family farmers, 14.9% received TA, while 17.4% of male family farmers received this service, which represents a gender gap of 2.5 percentage points (equivalent to 16.8%)<sup>29</sup>. In this context, the Project will offer continuous TA to beneficiaries, setting a specific target for women (50%), as well as other measures aimed at developing women's capacities in areas such as leadership, management, access to public policies, agricultural and non-agricultural activities.

Looking at the data on machinery, gender inequality is clearly evident. Throughout the country, including in the Northeast, women have less access to tractors, planters, and harvesters. In Family Farming, establishments run by men (80.3%) have 93.1% (511,727) of the tractors for this producer segment, while women have 6.9% (37,845) of the tractors nationwide<sup>30</sup>. These characteristics make women's daily lives tougher, thus impacting on various dimensions of their existence, and even on their willingness to migrate from rural areas to the cities.<sup>31</sup>

As far as associations are concerned, there is a higher proportion of women who are members of trade associations/trade unions and producer associations/movements. Among women family farmers, 37.2% were members of trade associations/unions and among men, 31.8% - a difference of 5.4 percentage points, equivalent to 17%, in favor of women. Regarding producer associations/movements, 15.8% of female family farmers were members in 2017, compared to just 13.6% of men. However, even with greater participation, women often do not have an equal voice because they are not equally represented in positions of power.

It is in this context that the Project will promote Gender Training to develop the capacities of rural women to play an active role, have a voice and decision-making power in Rural Organizations. In addition, the strengthening of Women's Networks will be supported, thus strengthening the self-organization of rural women and their groups and organizations.

Rural women in the Project area also suffer from double working hours. They have a workload that exceeds that of men, including a higher proportion of unpaid domestic responsibilities related to preparing food, caring for family members, and collecting firewood and water<sup>32</sup>. In the Northeast, women devote more hours to these activities (23.5 hours), and it is also the region with the greatest inequality in relation to men. The greater dedication to caring for people and/or household chores ends up restricting women's wider participation in the labor market. In Paraíba, women devote an average of 23.9 hours a week to domestic work; 11.5 more than men - above the average difference in the rest of the country<sup>33</sup>.

The activity to be promoted by the Project to provide early childhood education services (*Ciranda das Crianças*) will help to reduce women's work overload due to childcare and ensure their participation in the training activities promoted by PROCASE II. The fair division of domestic labor will also be the subject of gender training for beneficiaries. In addition, rural women are more vulnerable than men to environmental and climate challenges because of their social roles, for example, as the foremost collectors of water, food, and firewood in a context where increasing pressure on natural resources and environmental degradation are negatively affecting water and food supplies.<sup>34</sup>. In this context, the

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29 IBGE (2017). Agricultural Census.

30 Karla Hora, Miriam Nobre and Andrea Butto. Women in the 2017 Agricultural Census. Disponível em: <https://www.embrapa.br/documents/1355154/69822227/HORA%2C+NOBRE+E+BUTTO+CENSO+2017.pdf/f391dda1-c8f8-6e51-117f-f221042e5a0e>.

31 IBGE. Regional dimensions of the modernization of the Brazilian countryside. Available at: [https://www.ibge.gov.br/apps/atlasrural/pdfs/06\\_00\\_Texto.pdf](https://www.ibge.gov.br/apps/atlasrural/pdfs/06_00_Texto.pdf).

32 FAO. The role of women in Agriculture. ESA Working Paper No. 11-02, March 2021. <https://www.fao.org/3/am307e/am307e00.pdf>.

33 IBGE (2022). Continuous PNAD. <https://g1.globo.com/pb/paraiba/noticia/2023/08/11/mulheres-dedicam-239-horas-semanais-aos-afazeres-domesticos-115-a-mais-que-os-homens.ghtml>

34 UN Women Watch. Rural Women. Overview: Climate Change. <https://www.un.org/womenwatch/feature/ruralwomen/overview-climate-change.html#:~:text=Rural%20women%20are%20disproportionately%20impacted%20by%20climate%20change,sustainable%20development%20and%20effective%20responses%20to%20climate%20change>.

Project's investments in social technologies for access to water will help to reduce the time women spend collecting water.

Violence in rural areas is increasing every year, as shown by the growing number of murders of rural workers<sup>35</sup>. Domestic violence is also dramatic in rural areas and the number of femicides has increased. IPEA data for Paraíba indicates a death rate by femicide of 3.9 women per 100,000 in 2018<sup>36</sup>. In 2023, 4,630 police inquiries were opened in Paraíba to investigate cases of domestic and sexual violence against women, according to the Coordination of Women's Police Stations in Paraíba (Coordeam)<sup>37</sup>. Violence indices show that black women suffer much more physical and psychological violence and have the highest risk of being victims of female murder (femicide)<sup>38</sup>. The lack of facilities of the Network to Combat Violence against Women makes rural women more vulnerable to violence and restricts their access to protection. The prevention of violence against women will be addressed in all the gender training offered by the Project.

## Youth

Brazil's Youth Statute (2013)<sup>39</sup> defines young people as those between 15 and 29 years of age. In the Project area, there are 893,666 young people<sup>40</sup>. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

In Paraíba, among young people aged 15 to 29, approximately 35.1% were neither studying nor working in 2021, according to the Synthesis of Social Indicators 2022. Young women of African descent have a higher percentage out of school and out of the labor market<sup>41</sup>. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, and young women are the majority in this situation. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department<sup>42</sup>.

As a consequence of the lack of sustainable opportunities for study and formal work for young rural people, there is a process of migration to urban centers, mainly of young women with more schooling, which causes the aging of the rural population (the largest group of migrants is between 16 and 35 years old) and a decrease in the proportion and number of women<sup>43</sup>. The phenomenon of young women being the ones who leave rural areas the most is related not only to the lack of opportunities, but also to their refusal to take on the same roles played by their mothers and grandmothers in the family production unit<sup>44</sup>. In the case of young women, the invisibility and devaluation of the workforce, in caring for children and household chores, and in family farming, are also among the factors that encourage the desire of younger women to leave rural areas and will therefore be addressed during the Project's Gender Training sessions.

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35 The Report "Conflicts in the Countryside Brazil 2022" by the Pastoral Land Commission (CPT) shows that the number of conflicts in the countryside has increased from 804 cases in 2013 to 1500 in 2022; in 2022 alone 47 murders were recorded compared to 35 in 2013. Source: CPT. Conflicts in the Countryside Brazil 2022. <https://cptnacional.org.br/publicacoes-2/destaque/6354-conflitos-no-campo-brasil-2022>.

36 IPEA (2020). Atlas of Violence. Available at: <https://forumseguranca.org.br/wp-content/uploads/2020/08/atlas-da-violencia-2020.pdf>.

37 <https://g1.globo.com/pb/paraiba/noticia/2024/03/09/violencia-contra-a-mulher-na-pb-acontece-principalmente-em-casa-por-pessoas-conhecidas.ghtml>.

38 It should also be borne in mind that there is an underreporting of female homicide rates. Source: <https://portal.fiocruz.br/noticia/homicidios-de-mulheres-no-brasil-aumentam-3146-em-quase-quatro-decadas>.

39 Available at: [https://www.gov.br/mdh/pt-br/navegue-por-temas/juventude/publicacoes/estatuto\\_da\\_juventude\\_2022-defeso.pdf](https://www.gov.br/mdh/pt-br/navegue-por-temas/juventude/publicacoes/estatuto_da_juventude_2022-defeso.pdf).

40 IBGE, 2022. Demographic Census.

41 IBGE, 2022. Summary of Social Indicators. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102052.pdf>.

42 Available at: <https://g1.globo.com/pb/paraiba/noticia/2022/02/01/paraiba-registra-mais-de-125-mil-casos-de-gravidez-em-criancas-e-adolescentes-entre-2020-e-2022.ghtml>.

43 CAMARANO, A. A.; ABRAMOVAY, R. Rural exodus, ageing and masculinization in Brazil: an overview of the last 50 years. Rio de Janeiro: IPEA, 1999. 28 p. (Text for discussion n.621).

44 SILVA, Luciana Porto da. "Female youth in the rural Northeast: an analysis of the process of permanence based on the Census (1980-2010) and Pnad (1992-2015)." (2018). Available at: [https://repositorio.unb.br/bitstream/10482/32747/1/2018\\_LucianaPortodaSilva.pdf](https://repositorio.unb.br/bitstream/10482/32747/1/2018_LucianaPortodaSilva.pdf).

Comparing the 2006 Agricultural Census and the 2017 Census, the young rural population under the age of 25 fell by 49.7%<sup>45</sup>.

Among the factors that influence staying in rural areas are access to financial resources, education/training suited to the characteristics of rural areas, appreciation of rural lifestyles, and the availability of services and conditions that can offer the possibility of success in agricultural production<sup>46</sup>. However, in rural Paraíba, young people who decide to stay in rural areas have limited access to and control over resources, inputs, goods, and technologies. The indicators for access to land and credit confirm this.

In the Project area, only 9.9% of family farms are run by young people under the age of 35<sup>47</sup>, indicating low access to land. When they marry, few acquire a new property and it often happens that the family property is divided into smaller plots for the children, which further reduces the productive potential and profitability of agricultural activities. It should be noted that there are gender tensions in inheritance patterns, which disadvantage young rural women.

Access to credit is very limited in the Project area (see paragraph on the subject above). Although data on access to credit is not available disaggregated by generation, it can be inferred that access to credit by young people is even more limited, as this is the reality throughout the country. The PRONAF Youth program, which was created to facilitate rural youth access to credit, creating conditions to enable rural succession processes in agriculture, still has a very limited number of contracts signed in relation to the proportion of the rural youth population. In 2015-16, a total of only 2,889 contracts were signed across the country<sup>48</sup>. Among the reasons for this lack of access is misinformation, the lack of institutions for training young farmers, the difficult bureaucratic requirements that restrict the signing of credit agreements, and the fact that bank agents often assume that young people's inexperience in managing resources will lead them to default<sup>49</sup>.

However, access to technical knowledge is higher among young people under 35 than the average among family farmers in the Project area. The quantitative evidence available from the 2017 Agricultural Census indicates that, among young heads of family farmers (under 35), 18.5% received TA compared to 16.8% of all adult heads of family farmers. Despite the higher percentage of access, it can still be said that access to TA among young people is limited. Disaggregating by gender, access to TA was 18.1% among young women and 18.6% among young men, so there is a small gap of 0.5 percentage points, equivalent to 2.8%, between young male and female managers.

During the field visits carried out during the PROCASE II design mission, an additional growing problem faced by rural youth was identified - vulnerability to violence associated with drug trafficking.

## **Diversity**

### **Afro-descendants and Traditional Peoples and Communities (PCTs):**

Indigenous peoples and quilombola communities<sup>50</sup> are particularly vulnerable due to the historical dynamics of exclusion, high dependence on natural resources, marginalization of their ways of life, exclusion from formulating and accessing public policies and poor access to services, including health, education, sanitation, infrastructure, and technical assistance services. In Paraíba, the Indigenous Lands are in the coastal region. The Potiguara, with a population

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45 IBGE (2006). Agricultural Census; IBGE (2017). Agricultural Census.

46 LIMA, S.M.V. Juventude Rural e as Políticas e Programas de Acesso à Terra no Brasil: Recomendações para Políticas de Desenvolvimento para o Jovem Rural. Brasília: MDA, 2013.

47 Although the Youth Statute defines young people as those aged between 15 and 29, the data from the 2017 Agricultural Census is not broken down by age group. In this context, it was decided to use the information available for those under 35 as an approximation.

48 MARIN, J. O. B. Pronaf Jovem: the disjunctions between the ideal and the real. Revista de Economia e Sociologia Rural - RESR, v. 58, p. e187438, 2020.

49 CMAP. Evaluation Report: National Program to Strengthen Family Farming - 2020 cycle. Available at: [https://www.gov.br/economia/pt-br/acesso-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio\\_avaliacao-cmas-2020-pronaf.pdf](https://www.gov.br/economia/pt-br/acesso-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio_avaliacao-cmas-2020-pronaf.pdf).

MARIN, Joel Orlando Bevilacqua. Pronaf Jovem: the disjunctions between the ideal and the real. Revista de Economia e Sociologia Rural, 2020, 58: e187438. Available at: <https://www.scielo.br/j/resr/a/PTkqtrfFmF3Pq4cWvwmBhxR/>.

50 Quilombolas are descendants of slaves who resisted the slave regime and have their own cultural identity and values, religious beliefs and means of subsistence.

of approximately 19,000, are concentrated in three Indigenous Lands<sup>51</sup> (CARDOSO; GUIMARÃES, 2012) located in 3 municipalities in the Northern Atlantic Forest region<sup>52</sup>. In the Southern Atlantic Forest region, there is a population of approximately 750 Tabajara indigenous people, but there are still no Indigenous Lands in this region. On the other hand, the 2022 Demographic Census recorded a population of 16,584 quilombola inhabitants in 6,127 households in the entire state of Paraíba. These population figures include all the inhabitants recognized as quilombolas - both those who live and those who do not live in officially delimited Quilombola Territories<sup>53</sup>.

According to data provided by INCRA's state superintendence, there are 47 quilombola communities in Paraíba with recognized certificates of self-definition. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have officially delimited territory and none have land titles<sup>54</sup>. There are also traditional gypsy populations, artisanal fishers and shellfish gatherers in the state.

The population afro-descendants and PCTs is impacted by the combined effects of various forms of discrimination, including gender, race, and socioeconomic conditions. Root causes of this exclusion are the marginalization of traditional ways of life and structural racism. Afro-descendant and PCT populations face even greater obstacles than family farmers in participating in decisions that affect their territories and in fully realizing their rights, with significant gaps in inclusion in terms of poverty, food insecurity, access to education, TA, and land<sup>55</sup>.

In 2023, 67.9% of quilombolas and 73.1% of indigenous people were in poverty or extreme poverty<sup>56</sup>, an average higher than the average percentage of poverty in Paraíba (53.9%). In 2022, 33 million Brazilians were hungry (severe food insecurity) and food insecurity was more prevalent among afro-descendant (reaching 6 out of every 10 households whose heads of household identify themselves as black or brown), with women of African descent being the most vulnerable<sup>57</sup>.

In terms of education, among the population of white family farmers in the Project area, illiteracy reached 39.9% of those responsible for family farm establishments, while among those of African descent, it reached 48.1%<sup>58</sup>. Regarding access to TA, among white family farmers, 7,694 accessed TA (17.7%), and among Afro-descendants, 12,961 or 16.1% of the total. The gap between white and Afro-descendant family farmers in access to TA is 1.6 percentage points, equivalent to 9.9%. Furthermore, among white family farmers, 77.7% have land titles, among indigenous farmers, only 44.6% and among Afro-descendants, 70.3%<sup>59</sup>.

To help close the various gaps in the inclusion of Afro-descendants and PCTs identified, the project will have specific activities dealing with diversity issues and will prioritize the Afro-descendant and PCT population in the activities of all its components, such as access to TA, land regularization<sup>60</sup> and the environment, access to water and sanitation infrastructure and productive investments. In addition, through Diversity training meetings, as well as cultural recovery activities in the communities benefiting from the Project, the valorization and dissemination of traditional knowledge,

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51 Source: CARDOSO, T. M.; GUIMARÃES, G. C. (ed.). Etnomapeamento dos Potiguara da Paraíba. Brasília: FUNAI/CGMT/CGETNO/CGGAM, 2012. 107 p.

52 The Potiguara villages make up three contiguous Indigenous Lands (TI), which total 33,757 hectares: i) TI Potiguara (population 8,109), ii) TI Jacaré de São Domingos (population 449) and iii) TI Potiguara de Monte Mór (population 4,447). These TIs are located in the municipalities of Baía da Traição, Rio Tinto and Marcação. [Ref. CARDOSO, T. M.; GUIMARÃES, G. C. (ed.). Etnomapeamento dos Potiguara da Paraíba. Brasília: FUNAI/CGMT/CGETNO/CGGAM, 2012. 107 p.

53 Source: IBGE. Demographic Census 2022. Quilombolas. First results of the universe. Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf>.

54 Sources: (i) : IBGE. Demographic Census 2022. Quilombolas. First results of the universe. Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (ii) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

55 Conclusions from the analysis of data from the Diversity Diagnosis prepared during the design of PROCASE II.

56 Single Registry, November 2023.

57 II National Survey on Food Insecurity in the Context of the COVID-19 Pandemic in Brazil [II VIGISAN: final report]. Brazilian Research Network on Food Sovereignty and Security - PENSSAN. São Paulo, SP: Friedrich Ebert Foundation. PENSSAN Network, 2022.

58 IBGE (2017). Agricultural Census.

59 Idem.

60 To close the gap in access to land, the Project will promote land regularization, prioritizing quilombola communities.



practices, and ways of life in production, food and natural resource management will be promoted, as well as issues related to racism.

### **Persons with disabilities**

The Northeast is the region with the highest percentage of persons with disabilities Brazil: 10.3% of the population or around 5.8 million people<sup>61</sup>. The highest percentages of persons with disabilities are women and afro-descendant. According to data from the Single Registry (Cadastro Único, November 2023), there are 144,655 persons with disabilities in the Project area, or around 5.6% of those registered.

Disability and poverty are intricately linked in Paraíba, with persons with disabilities facing significant stigma and discrimination. For example, this group has lower success rates at school and more limited access to economic activities, both of which are major factors contributing to family poverty. In the state, 88.7% of persons with disabilities do not work and 74.4% earn less than the minimum wage<sup>62</sup>.

Persons with disabilities face a number of challenges throughout their lives. Children with disabilities dropping out of school is a serious problem across the country. There is a relatively high number of single-parent families headed by women who receive the main tax-funded disability benefit in Brazil, the Continuous Social Assistance Benefit, and this may be related to the high rate of family abandonment by parents who have a child with a disability. The data highlights that persons with disabilities do not achieve parity with their non-disabled peers at any level of education. This puts them at a significant disadvantage in a competitive job market. In Paraíba, 24.92% of persons with disabilities are not literate, 37.48% have only primary education and only 4.07% have higher education<sup>63</sup>.

There are some additional gender dimensions that have an impact on the challenges that persons with disabilities face. For example, women and girls with some form of disability are at high risk of abuse, and this is especially the case for those with cognitive disabilities. Furthermore, until the Brazilian Inclusion Law (2015) was enacted, it was still routine for women with cognitive disabilities to be sterilized without consent.

Caring for persons with disabilities also has a significant gender dimension. In general, women face the double burden of needing to both earn money and provide care, but this burden is only exacerbated when family members are also disabled. It should also be noted that disabled women can have a disproportionate burden of care placed on them, as they can still be expected to care for other members of their family.

### **LGBTQIAPN+ population<sup>64</sup>:**

The lack of government data on the socioeconomic and political challenges faced by the LGBTQIAPN+ community is indicative of the statistical 'invisibilization' and marginalization of this group. The lack of a social assistance policy, the rural exodus of the LGBTQIAPN+ population to urban centers, the lack of family support, limited access to income and low employability in the countryside, the difficulty of staying in the school environment due to prejudice, especially from the trans population, are some of the factors that favor maintaining the invisibility of data on the LGBTQIAPN+ population in rural areas.

Throughout Brazil, the LGBTQIAPN+ population has been victimized by different forms of LGBTIphobia, placing this group in a situation of vulnerability because they do not fit into a socially referenced heteronormative pattern. Brazil is an extremely unsafe country for this population, as indicated by the upward trend in the number of violent deaths of LGBTQIAPN+ people over the last two decades. Between 2000 and 2022, 5,635 people died because of gender prejudice

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61 IBGE (2022). Continuous National Household Sample Survey.

62 PwD CENSUS (2023). Available at: <https://wemp.com.br/censo/#>.

63 Idem.

64 Meaning of LGBTQIAPN+: Lesbian; Gay; Bisexual; Transgender; Queer; Intersex; Asexual; Pansexual; non-Binary, + other identities/orientations.

and intolerance. In 2022, there were a total of 273 deaths of LGBTQIAPN+ people, a national average of 1,31 deaths per million people<sup>65</sup>.

Most deaths occurred among young people aged between 20 and 29 and the Northeast region had the highest absolute number of violent deaths. It is possible to relate the number of LGBTQIAPN+ deaths in each Brazilian macro-region to the social, economic, and cultural conditions of these spatial units. The Northeast, for example, has historically had lower socioeconomic indicators, such as income, schooling, access to public services and life expectancy, than the rest of the country, and has a significantly vulnerable population. Among the states, those with the highest number of deaths were Ceará (34), São Paulo (28) and Pernambuco (19). According to the Observatory of LGBTI Deaths and Violence in Brazil, 8 violent deaths of LGBTQIAPN+ people were recorded in Paraíba in 2022.

Paraíba recorded a total of 68 cases of violent deaths of the LGBTQIAPN+ population between 2017 and 2022, according to data released in a report by the Secretariat for Women and Human Diversity. In total, 24 municipalities in Paraíba recorded cases. João Pessoa has the highest number of cases, with 29 crimes, followed by Campina Grande and Bayeux, with five cases each, and Patos was in third place, recording four crimes. Gay men represent the largest number of murders in Paraíba, leading with 17 of the 29 cases between 2020 and 2022, followed by transvestites who represent six cases in the same period, and in third place are transgender women, with 4 crimes.

Partial data for 2023 from the Observatory of LGBT Deaths and Violence in Brazil, from January to April, totaled 80 deaths. To date, transvestites and trans women account for 62.50% of the total deaths (50); gay men account for 32.50% of the cases (26 deaths); trans men and transmasculine people, 2.50% of the cases (2 deaths); lesbian women account for 2.50% of the deaths (2 deaths); no cases against bisexual people and people identified as other segments have been identified<sup>66</sup>.

PROCASE II includes the LGBTQIAPN+ community as one of its target audiences. The Project will consider LGBTQIAPN+ diversity, support their inclusion and respect for their rights in the context of its interventions. Initially, the Project will map LGBTQIAPN+ communities and their social movements and carry out consultations to listen to their needs and research to understand the socioeconomic and political challenges they face.

Based on this diagnosis and consultations, the Project will seek to define a social inclusion strategy for this group. The proposed activities could include: (i) Awareness campaigns on the rights of the LGBTQIAPN+ community and against LGBTphobia; (ii) Preparation, in partnership with the LGBTQIAPN+ movements, of didactic dissemination materials that can support awareness campaigns in schools and rural communities regarding LGBTQIAPN+ rights; (iii) Promoting consultations and collaboration with rural LGBTQIAPN+ movements, such as the LGBT Working Group of the MST; (iv) Diagnosing the socioeconomic and political barriers to inclusion of this group in the state of Paraíba, especially in rural areas; (v) Supporting rural LGBTQIAPN+ movements.

### **Food Security and Nutrition**

*Food Security:* According to the II VIGISAN<sup>67</sup>, in 2021/2022 food insecurity affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it affects 68% of households, where 12.1 million people are going hungry, i.e., at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly hard hit. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of food insecurity were observed in the families of family farmers who were still unable to return to pre-pandemic conditions, especially those who were unable to fully re-establish their production and marketed quantities. The most recent survey by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger).

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65 Observatory of LGBTI+ deaths and violence in Brazil. Dossier 2022: Deaths and violence against LGBTI+ people in Brazil. Available at: [Dossie-de-Mortes-e-Violencias-Contra-LGBTI-no-Brasil-2022-ACONTECE-ANTRA-ABGLT.pdf](#).

66 <https://observatoriomorteseviolenciaslgbtibrasil.org/dossie/mortes-lgbt-2022/>.

67 II National Survey on Food Insecurity in the Context of the COVID-19 Pandemic in Brazil [II VIGISAN: final report]. Brazilian Research Network on Food Sovereignty and Security - PENSSAN. São Paulo, SP : Friedrich Ebert Foundation. PENSSAN Network, 2022.

*Nutrition.* Despite the process of nutritional transition, with increased access to food, the state of Paraíba follows the national trend and the rest of the Northeast region and faces a double burden of malnutrition, marked by both malnutrition and an increase in the prevalence of overweight. Among adults in Paraíba, 62.5% are overweight (35.5% overweight and 27.0% obese)<sup>68</sup>. Growth retardation affects 4.9% of children under 5 in the state, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8%.

The situation in Paraíba is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to have socioeconomic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% for the rest of Brazil<sup>69</sup>.

The main root causes of food insecurity and malnutrition in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and the low levels of food and nutritional education. It is worth highlighting the direct correlation between food insecurity and malnutrition and poverty rates (69.9% of family farmers registered in the Single Registry (Cadastro Único) in the Project area live in poverty or extreme poverty)<sup>70</sup> and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality of water sources).

Access to quality water and sanitation play a fundamental role in combating different forms of malnutrition. According to data from the Water and Sanitation Institute in 2019, the rural water service rate in Paraíba is 24.2% compared to 92.2% in the state's urban areas. In relation to sanitation, the rural sewage collection service rate is 2.7% in Paraíba compared to 50.1% in urban areas<sup>71</sup>.

To tackle the causes of malnutrition and food insecurity, PROCASE II will support agroecological backyard gardens, the valorization of underutilized and neglected species (NUS) and support access to water. Among the most common NUS in the state are the cactaceae, which include species such as Mandacaru, Quipá, Xique-xique, Palmatória, Facheiro and Coroa-de-frade. These plants are characterized by the presence of thorns and succulent stems, which allow them to survive dry climates and high temperatures. These activities aim to increase the availability of food for the most vulnerable families, increase the availability of water for human consumption and thus improve their food security and nutrition, while limiting the diseases responsible for the malabsorption of micronutrients.

In addition, the Project will have a cross-cutting sub-component, in which a Nutrition and Food Security Plan will be drawn up and implemented, focusing on exchanges and training. These activities will enable adults and young people to learn about healthy food practices, culinary practices, and gastronomic culture, and will respond to the needs of families and target groups in terms of processing and promoting their products, particularly those from family farming. All these practices will be integrated into the design and implementation of the Resilient Investment Plans (PIR), thus seeking effective implementation and results in terms of food security and nutrition.

### **The problems of land and environmental regularization**

Land and environmental regularization of rural properties is a significant challenge faced by family farmers, especially regarding properties of the Project's target groups. Since the 19<sup>th</sup> century, the instrument that attested to the regularization of a rural property is the title registered at a notary's office. Many of Paraíba's peasant communities have occupied land for generations, however, only few families own an official land title. In some cases, the properties may

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68 Ministry of Health. Food and nutrition situation in Brazil: overweight and obesity in the adult population in Primary Health Care. [https://bvsms.saude.gov.br/bvs/publicacoes/atlas\\_situacao\\_alimentar\\_nutricional\\_populacao\\_adulta.pdf](https://bvsms.saude.gov.br/bvs/publicacoes/atlas_situacao_alimentar_nutricional_populacao_adulta.pdf).

69 MELO, Maria Inês Bezerra de et al (2011). "Nutritional status of pregnant women assessed by three different anthropometric classification methods." *Revista de Nutrição* 24 (2011): 585-592.

70 Single Registry, November 2023. Available at: <https://aplicacoes.cidadania.gov.br/vis/data3/data-explorer.php>.

71 Water and Sanitation Institute. Sanitation Legal Framework Panel. Available at: <https://aguasaneamento.shinyapps.io/painel-marco-legal/#section-cobertura>. 2019.

have had a registered title in the past, but the inheritance or inventory processes did not go through the notary's office. In countless other cases, purchase-sale transactions and other forms of access to land, have never gone through the regularization process. There are also other cases, such as federal and state settlements of families who are in the process of accessing the land, but who have not completed the regularization process.

In this same context, the case of land owned by quilombola communities - which formally would be vacant land awaiting state action to be regularized - deserves special mention, as does the case of Agrarian Reform settlers. As mentioned in the previous section, in Paraíba there are 47 quilombola communities with recognized certificates of self-definition, with approximately 16,000 people. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have their territory officially delimited. Information provided by INCRA's Superintendence in Paraíba confirms that none of the quilombola communities in the state have land titles<sup>72</sup>. In the case of the Agrarian Reform settlers, there are 280 federal settlements in the state, according to data collected from the INCRA Superintendence in Paraíba, with 13,535 settled families. Of these, only 1,835 (13.5%) have land titles.

In addition, a recent law - the Georeferencing Law (Law 10.267/01) in force since 2001 - changed the formal requirements for land regularization, requiring the owner of rural property to inform the National Institute for Colonization and Agrarian Reform (INCRA) of its exact position, characteristics, and extension, as well as its adjoining landowners. Only with this information can the property be registered in the National Rural Registration System (SNCR) and included in the Land Management System (SIGEF), which is a requirement for full land regularization. This created, for the first time in Brazil, a comprehensive and unified land ownership registry, aiming to better organize a complex aspect of the rural sector that faces significant challenges.

Today, many family units in Paraíba do not have full legal documentation and do not have formal recognition of their properties. In many cases, not even the owners themselves are fully aware of this situation. The lack of land regularization weakens the situation of farming families and communities in the event of land disputes and conflicts. It also prevents the issuance of permits and licenses of various kinds (such as licenses issued by environmental agencies or water permits necessary for the exploitation of wells or the use of springs) and can hinder access to credit and pensions. The lack of land regularization can lead to legal insecurity, social vulnerability, and limitations on access to rights and benefits. This situation directly harms the quality of life of these communities, hindering their sustainable socioeconomic development.

On the other hand, there are also problems in the environmental regulatory dimension. The Rural Environmental Registry (CAR), established by the Brazilian Forest Code of 2012 (Law 12.651/2012), is an important instrument for monitoring and environmentally regularizing rural properties. In Paraíba, the CAR has been widely implemented since it was made compulsory in 2012. However, this instrument still faces important challenges, mainly related to the lack of precision in the delimitation of rural properties, compromising the reliability of the recorded information.

Thus, in Paraíba there are just over 181,000 establishments registered with the CAR<sup>73</sup>, which is 11% more than the total number of establishments (163,000) in the state. This results in overlapping areas between properties, generating land use conflicts, legal uncertainties and even difficulties in the analysis that must be carried out by the relevant environmental agencies and in defining responsibilities and environmental preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of the CAR.

### **The shortcomings and potential of Knowledge Management, South-South and Triangular Cooperation activities**

When it comes to designing policies, programs or projects aimed at tackling the challenges of poverty, environmental sustainability and resilience to climate change, there is a lack of relevant information available on experiences of

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72 Sources: (i) : IBGE. Demographic Census 2022. Quilombolas. First results of the universe. Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (ii) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

73 BRAZIL-MMA. Environmental Regularization. Newsletter. Data declared up to October 3, 2023. Brasília, DF: Brazilian Forest Service - Ministry of the Environment, 2023. 37 p. Available at: [https://www.gov.br/mma/pt-br/composicao/servico-florestal-brasileiro/regularizacao-ambiental/boletins-informativos-car/BoletimCAR\\_OUT03\\_2023.pdf](https://www.gov.br/mma/pt-br/composicao/servico-florestal-brasileiro/regularizacao-ambiental/boletins-informativos-car/BoletimCAR_OUT03_2023.pdf)

promoting and supporting inclusive sustainable rural development. In recent years in Paraíba, PROCASE I began systematizing experiences to make up for this lack, with the production and subsequent circulation of a set of products (documents, audio pieces, etc.) which recorded and disseminated relevant knowledge about the work carried out in the Cariri, Curimataú, Seridó and Médio Sertão territories in the semiarid region of Paraíba. In parallel, other IFAD-supported projects in the Brazilian Northeast have also begun to work in the same direction.

South-South cooperation<sup>74</sup> and triangular cooperation<sup>75</sup> is part of this set of initiatives related to the circulation of knowledge between countries in the South, including the funding bodies themselves.

In this context, a Knowledge Management initiative transversally strengthens the implementation of all project components, ensures that knowledge gaps are closed and that good practices, lessons learned, and innovations are disseminated and scaled up, as well as facilitating the impact on public policies. To be effective, PROCASE II must make use of the best and most relevant knowledge available on strategic topics for the implementation and achievement of its objectives, based on evidence and practical experience from sources both internal and external to the project.

Thus, Knowledge Management (KM) should play an important role in building individual and institutional capacities so that the actors learn and can adapt their interventions when necessary. It is also a key tool for measuring and demonstrating the relationship between learning and better development results. KM is also justified as a means of ensuring that beneficiaries, technicians, project staff and other actors involved in implementation access, use, and share the knowledge, good practices and innovations needed for greater impact in promoting sustainable and inclusive rural development.

### **Lessons learned from previous projects**

In the experience of previous sustainable rural development projects, including PROCASE I, the development of new capacities was key to the success and sustainability of the activities. It has made it possible to strengthen social and productive organizations, increase the visibility and inclusion of young people, women, PCTs and indigenous people, incorporate technological innovations, better manage environmental resources, start new activities, manage family production units more efficiently and reach markets in better conditions, and increase interaction with the state through greater access to public policies or political advocacy, using new capacities that remain after the projects end.

We will cite here the example of the Dom Hélder Câmara II Project (PDHC), implemented by the Federal Government, with the financial participation of IFAD, from 2014 to 2022. This project served people living in extreme poverty in several states in the Northeast region. The PDHC succeeded in bringing technical assistance to these farmers, generating a positive and significant impact on their production, both in terms of self-sufficiency and marketed surplus.

PROCASE II takes this accumulated experience into account, which is why Component 2 focuses on capacity building.

## **2 Objectives**

Given the context of vulnerabilities and challenges described above, the aim of this Component is to strengthen the individual and collective capacities of family farmers and their organizations, necessary to increase the adoption of agricultural technologies that promote greater resilience in their systems, to improve productive and social inclusion, as well as the environmental and land conditions of rural communities and their surroundings.

The capacities strengthened through the component will be an essential tool for implementing the investments and innovative practices promoted by Component 1.

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<sup>74</sup> The United Nations defines South-South Cooperation (SSC) as "a process by which two or more developing countries pursue their individual and/or shared capacity development objectives through the exchange of knowledge, skills, resources and technical expertise, and through collective regional and inter-regional actions, including partnerships involving governments, regional organizations, civil society, academia and the private sector, for their individual and/or mutual benefit within and between regions". Cf. Link: <https://www.ilo.org/brasil/temas/south-south/lang--pt/index.htm>.

<sup>75</sup> Triangular South-South Cooperation (TSSC) is defined in the same document by the United Nations as South-South cooperation supported by a developed country or a multilateral organization. Today, TSSC is an important form of development cooperation. See same link above.

To help achieve the project's general objectives, the component will develop a set of activities with the following **specific objectives**:

- Strengthen the capacities of families and community organizations to implement more resilient and productive production systems, to better manage organizations and to access public policies;
- Strengthening the capacities of rural organizations so that they can develop their production and access markets;
- Strengthen the specific capacities of target groups in the topics gender, youth, PCTs, persons with disabilities, and LGBTQIAPN+ population, to promote their empowerment;
- Promote land and environmental regularization of family farming establishments, agrarian reform settlements and quilombola communities;
- Implementing a knowledge management (KM) and South-South and Triangular Cooperation (SSTC) process to generate, record, share and use relevant knowledge.

### **3 Subcomponents**

Component 2 is organized into five sub-components: Subcomponent 2.1: Strengthening family farmers' capacities; Subcomponent 2.2: Strengthening organizations' commercialization capacities 2.3: Diversity, gender, youth, nutrition and food security; Subcomponent 2.4: Land and environmental regularization; and Subcomponent 2.5: Knowledge management and south-south and triangular cooperation.

#### **3.1 Subcomponent 2.1 - Strengthening family farmers' capacities**

##### **3.1.1 Objective**

The subcomponent will focus on strengthening the capacities of beneficiary families and community organizations with adequate knowledge to implement production systems that are more resilient to climate change and more productive, as well as to improve the management of community organizations, considering the weaknesses and challenges identified in various areas.

It will finance the contracting of Agroecological Technical Assistance (TA) to carry out activities aimed at increasing the beneficiary families' access to adequate and quality information. The main themes to be addressed by TA will be the development of more profitable, diversified, and resilient agricultural production, the protection and recovery of environmental resources and the improvement of organizational management. It will also seek to integrate them more closely into different value chains in the region, with initiatives to support processing and marketing. And finally, the subcomponent will seek to strengthen the contracted TA teams to ensure the good quality of this service.

##### **3.1.2 Strategic orientation and methodology**

There are several barriers in the project area that reinforce the unsustainable *status quo*. Of relevance is the lack of knowledge about resilient and better performing production systems, for various reasons, including the lack of access to agroecological TA services. Also noteworthy is the limited capacity for collective action found in the communities, mainly due to the fragility of the local population's organizations. This situation needs to be overcome to pave the way for transformations that will help overcome the vulnerabilities that characterize this unsustainability.

To carry out this task satisfactorily, the contracted TA entities will follow a training program on topics related to building resilient production systems and associative management. The first task of the contracted TA teams will be to assist on the participatory design process of the Resilient Investment Plans (PIR) and then on their implementation.

There are also significant shortcomings in terms of access to public policies to support Family Farming, whether due to a lack of information about the rules governing access to and operation of government programs, or the lack of or outdated documentation, which diminishes the potential and benefits of the investments made directly by the Project. For this reason, the subcomponent will also aim to develop the skills of the Family Farming public about these public policies.

This subcomponent will also use other instruments to develop the capacities of the target groups. It will be able to hire specialized consultants, hold training events designed to work on topics of particular importance (such as associative

management, for example) and will support the exchange of knowledge between farmers, as an important tool for strengthening their capacities. This activity will make it possible to make the most of the experience and knowledge accumulated by PROCASE I beneficiary families.

### **3.1.3 Planned Activities**

#### ***Activity: Provision of agroecological TA services in communities***

The work to strengthen family units and communities will be carried out through the provision of agroecological TA services in the communities selected to benefit from the Project. All PIR beneficiary families and the corresponding organizations will receive TA services.

This activity to provide TA in the communities will be primarily responsible for conducting the participatory planning process that will enable the PIR to be drawn up and implemented.

These PIR, which are main instrument of activity of Component 1, will contain the investment activities and the introduction of practical innovations in the productive and environmental dimensions, as well as activities to develop the human and organizational capital needed to drive the desired sustainable transformation. The Project's support for this transformation process materializes through the investments, actions, and activities contained in these PIRs.

Once drawn up, each PIR is assessed by the Project's Project Management Unit (PMU) and adjusted for subsequent approval. The approved PIR will be transformed into an agreement, which will be the instrument that allows the transfer of Project resources to local organizations. It will then be up to the hired TA teams under this subcomponent to guide, assist, and monitor the execution of the activities and acquisitions contained in these PIR and the agreement.

In this context, the TA teams will have to provide technical support for the families' various productive activities, especially those directly covered by the PIR. They will also work to encourage the inclusion and effective participation of women and young people in the productive and environmental activities supported by the Project.

The TA provided by these teams will play a crucial role in implementing the agroecological approach of the various production initiatives and environmental preservation and recovery initiatives to be carried out in the communities.

At the same time, the TA teams will have to assist families on access to public policies, starting with access to the CAF (National Family Farming Register)<sup>76</sup>, which is the basic instrument without which farming families cannot access any public policy aimed at them, and access to or regularization of the Single Registry (Cadastro Único), which is also the gateway to other complementary public policies. They should also support the registration needed to access other programs such as PNAE and PAA. The communities and families will be encouraged to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the work plans and business plans it supports. The described process will also seek to create opportunities for cooperation with the private sector, the S System<sup>77</sup>, the third sector and municipalities.

The TA teams will also have the task of strengthening community associations. In this respect, they will be responsible for training and accompanying the teams of these associations to make them capable of managing the defined terms, involving aspects such as acquisitions, recording and accounting of operations, use of financial resources and accountability<sup>78</sup>. This work will be linked to the training on management issues that will be offered to the associations' management teams (see 'Action: Complementary training events for farmers and association managers' below). The PMU team will have to provide ongoing support to the TA teams and the associations to ensure that this process runs smoothly.

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<sup>76</sup> The CAF replaces the previous equivalent document, the old DAP (Declaration of Aptitude to PRONAF).

<sup>77</sup> The S System is a group of 9 Brazilian private companies (all of which start with S) that provide services in the public interest related to the main sectors of the economy.

<sup>78</sup> As the proper management of an agreement of this type will require the association to have some equipment (such as a computer, a filing cabinet, etc.), it will be important to include these 'association strengthening kits' in the preparation of the PIRs.

It should be emphasized that this TA work on the design and implementation of PIRs should pay special attention to the specific needs and aspirations of women, young people and Traditional Peoples and Communities. To this end, the working methods of these TA teams must be able to take these specificities into account.

The TA must have a regular and continuous local presence with the Project's target group throughout the duration of the service. This will require setting up permanent teams to work with the families and communities to be assisted. These teams will have to dedicate themselves exclusively to serving this public, with an approximate ratio of one technician for between 90 and 120 families. It is estimated that around 600 communities (approximately 18,000 families) will be assisted, for a minimum period of three and a half years, during the lifetime of the Project.

The teams providing these TA services will be multidisciplinary, consisting of technicians with different skills (agricultural and environmental sciences, management, etc.). Whenever possible, the incorporation of experimenting farmers and multipliers, including young people, into these teams will be sought. When selecting the entities that will provide the TA service, criteria will be considered to guarantee the presence of women technicians on the teams, to be as adherent as possible to the specific needs of women and to propose more appropriate solutions for the women beneficiaries of the Project's activities.

The TA will adopt a participatory approach in all the planning and execution of the Project's activity. To this end, it will use a set of appropriate pedagogical tools, such as meetings, field visits and transects, working groups, exchange visits. When necessary, the TA teams will be able to make use of pedagogical tools that allow them to seek out new and relevant information outside the same communities, for example through exchange visits.

In the case of monitoring the implementation of Social Technologies, a specific TA will be contracted which complies with the legal framework for contracting services for this modality. The entities contracted in this way will be responsible for acquiring materials, providing specialized services for the construction of the Social Technologies and training beneficiaries to apply good usage and maintenance practices.

Considering the methodological innovations taking place in TA services (see section on 'Limited access to technical assistance and credit' in chapter 1 Justification), PROCASE II will offer hybrid TA, combining face-to-face and remote modalities, incorporating the use of digital tools.

Capacity-building and support activities on issues that require a more specific and/or technically complex approach will have to be carried out by contracting specialized technical assistance (STA), in addition to ongoing TA. The Project will hire people or institutions with the appropriate skills to assist families, community organizations, and groups of women and young people with whom the Project will work.

Unlike ongoing assistance, STA should generally be contracted for shorter periods (a few weeks or months). In this context, partnerships can be established with entities such as EMBRAPA, SEBRAE, universities and other educational institutions, NGOs, cooperatives and farmers' organizations, private sector companies and others. Individual professionals with the necessary skills can also be contracted to provide STA.

***Activity: Complementary training/exchange events for farmers, including association leaders***

The sub-component provides for the organization of training events that are complementary to the capacity-building work carried out by the TA entities with the communities. It will be essential to hold a series of training events dedicated to management, with an emphasis on managing the agreements connected to the PIR, for the management teams of community associations. Such trainings are important to ensure that these agreements are properly executed and that the respective accounts are properly rendered.

This training work will have to rely on the constant support of the Regional Project Management Unites (RPMU), which will monitor the management processes of the agreements. In the specific case of quilombola communities that may be interested in official recognition, specific events linked to this process can be organized, such as homologation / certification workshops. Training events in environmental education will also be held, focusing on strengthening agroecological practices, climate resilience, community management of natural resources and sustainable use of conservation areas. If other important topics emerge in which there is a significant lack of knowledge, training events dedicated to these topics could be organized for farmers and/or association leaders.



This subcomponent will also support knowledge-sharing events between farmers from the Project's beneficiary communities, as an instrument to strengthen their capacities. This activity will make it possible to value the experience and knowledge accumulated by PROCASE I beneficiary families.

**Activity: Events to improve TA teams' capacities**

The experience of other sustainable rural development projects, including PROCASE I, shows that it will be necessary for the Project to ensure that the TA services offered to the beneficiaries are adequate and effective. It is crucial that the TA teams are fully aligned with the Project's priority focuses.

The experience gained from previous projects in this dimension indicates that there are important shortcomings in the teams of existing TA providers that will need to be addressed<sup>79</sup>. Thus, all the T teams hired under PROCASE II will have to undergo training throughout the implementation of the Project to ensure that they have the necessary knowledge to achieve the desired objectives. The goal is to train 300 technicians.

The PMU is responsible for putting together a training program for the TA teams that includes the themes of participatory planning (which will be materialized in the PIR and PN), agroecology, climate resilience, gender and diversity (including PwD and PCT, as provided for in subcomponent 2.3), nutrition and food security, and access to markets (short value chains, certification).<sup>80</sup> Targeted training will also be provided for more specific activities of the Project, such as restoration of degraded areas, water and sanitation and animal health. The training may take place in a mixed format, with face-to-face and virtual activities, using already produced knowledge management materials, and on an ongoing basis throughout the Project.

The PMU will monitor the TA teams and trained technicians, ensuring that the quality of the services provided to the public is adequate.

**Activity: Training family farmers in public policies**

Chapter 1, Justification, mentions that public policies to support Family Farming are poorly accessed. In other cases, there are policies and regulations in force that are not fully adopted or applied, such as various environmental regulations relating to pesticides and deforestation. The beneficiaries of PROCASE II should be able to get to know these policies better and, when necessary, make use of them.

That is why the Project will seek to facilitate this access, reinforcing an approach of dialog and advocacy on public policies. To this end, it will carry out a broad awareness-raising and training campaign on existing public policies and the mechanisms for accessing them. It will also be necessary to train families so that they can, where appropriate, account for and monitor the development of activities.

This activity of the Project's work will potentially reach a very wide range of the rural population (approximately 32,000 families) in the priority territories of the Project, with an emphasis on women, young people, PCTs, indigenous people, LGBTQIAP+ and persons with disabilities. In this activity, preference will be given to families who have not benefited from other Project activities.

The main instrument of this line of work will be 400 training events in the state's different territories. These events will deal with the main existing public policies for family farming, including PRONAF, Low Carbon Agriculture and Crop Insurance, rural worker documentation and civil birth registration programs, public procurement programs such as

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<sup>79</sup> We will highlight the shortcomings identified in the following areas: i) in the methodological dimension, it will be necessary to improve the participatory approach in the planning and implementation of investment plans and in the processes of acquiring new knowledge on the part of the families served; ii) in the technical dimension, improving the knowledge of TA entities and teams about innovations designed under the agroecological approach to improve production performance, environmental sustainability and adaptability to climate change of the production systems of families in the different regions of the state; iii) in the economic sphere, expanding knowledge about markets and the processes for accessing them; iv) in operational terms, in general the teams need to develop greater mastery of and use of digital tools in the practice of TA, with an emphasis on carrying out the tasks of monitoring and evaluating the work carried out.

<sup>80</sup> For example, Castro and Pereira point out that the introduction of the "principles of promoting sustainable rural development based on the principles of agroecology, managed democratically and with social control, constitutes a radical change in relation to the previous paradigm of Brazilian TA" (p.23). CASTRO, C. N. d.; PEREIRA, C. N. Agricultura Familiar, Assistência Técnica e Extensão Rural e a Política Nacional de ATER. Brasília / Rio de Janeiro: IPEA, 2017. 41 p. Available at: [https://portalantigo.ipea.gov.br/agencia/images/stories/PDFs/TDs/td\\_2343.pdf](https://portalantigo.ipea.gov.br/agencia/images/stories/PDFs/TDs/td_2343.pdf).

PNAE, PAA, PAA Milk, land access programs for young people (PNCF), access to water (P1MC and P1+2), the Rural Development program and state programs, such as the State Seed Distribution Program. These events will provide more detailed information on the characteristics of each of these policies, including aspects such as eligibility criteria and access mechanisms and, where relevant, the accountability process.

Environmental training and education events will also be held, dealing with the environmental regulations that concern the rural environment and agricultural activities (such as the use of pesticides and deforestation) and also 'good practices' that restore and preserve environmental resources.

Specific events will also be held to facilitate access to public policies, such as initiatives to provide access to basic documentation (e.g., birth certificates and ID cards), updating the Single Registry (Cadastro Único), etc. In addition, local teams from town halls, NGOs, public rural extension agencies, rural workers' unions, and other social movements will be trained.

To implement this activity, it will be necessary to hire advisory bodies with experience in the subject, with capacity and experience in organizing content in a didactic, dynamic way and in accessible language, as well as community mobilization. The first activity to be carried out will be the implementation of a process to identify and mobilize the groups, organizations and communities to be trained. The second activity will be to prepare the courses, defining the content, methodologies and preparing the necessary support materials, according to the demands and profile of the identified beneficiaries. The third activity will be to hold the 400 training events, with broad mobilization of the communities and Project partners.

The contracted entity(ies) should not only produce content and organize and mobilize training sessions but also collaborate with the PMU to involve other project partners engaged in relevant public policies at regional or local levels. This collaboration aims to provide services for issuing and updating documents and registrations necessary for accessing programs (e.g., birth certificates, ID cards, CAF, Single Registry, and other state registrations). By doing so, the contracted entity(ies) can become a focal point for future referrals and guidance, ensuring that the training sessions have tangible impacts and increase access to policies for rural populations.

Although there are converging themes, it should be noted that while the TA and STA services for families and communities are focused on drawing up and monitoring the PIRs (therefore more focused and specific), this activity has a broader focus, accessing families and communities not served by the component 1 plans or those already served by phase I.

#### **3.1.4 Execution arrangements**

*TA and STA activities.* All TA activities will be carried out by TA bodies to be contracted by the Project. Taking the previous experience of PROCASE and other projects as a reference, in its first year of implementation the Project will select TA entities to carry out this work.

The Project will select and contract public or private entities (including third sector organizations, technical cooperatives, etc.) that have proven experience in providing TA services in the biomes present in Paraíba (Caatinga and Atlantic Forest), to provide these services to the beneficiaries. The selection criteria for these entities to be contracted will include: i) having at least 5 years' experience working with sustainable, agroecological agricultural production systems, geared towards adapting to climate change and living in the semiarid region; ii) depending on the region to be served, having experience working with TA in the semiarid region or in the Atlantic Forest region; iii) a technical team with experience working with women, young people, traditional and/or indigenous communities; iv) the ability to work with the theme of protecting and regenerating environmental resources; v) the ability to use digital remote TA tools as a complementary strategy to face-to-face TA; vi) experience working with public programs and policies. As mentioned above, the selection of the entities that will provide the TA service will consider criteria that guarantee the presence of women technicians on the teams.

To provide TA services with a territorial approach, the contracted entities will work by lot, which will be made up of groups of neighboring communities, close to each other, to be defined by the Project after the communities to be covered have been chosen. To avoid excessive concentration, each entity may be selected for a maximum of two lots.

In cases where there is a need to implement social technologies, entities with experience in this area will be contracted, in accordance with the rules of the Federal Government's Cistern Program.

In the case of STA, natural or legal persons should be selected who have proven experience with 'specialized' topics, such as drawing up plans for groups of shellfish gatherers, or specific topics such as sustainable irrigation systems, renewable energies.

*Public Policy Training Activity.* At the beginning of the policy training work, it will be necessary to hire a STA to define the content to be worked on in the communities and to prepare teaching material on the subject. The actual training events will have to be carried out by entity(ies) contracted for this purpose, through an appropriate selection process in addition to the previous ones. The PMU will be responsible for organizing the training events and supervising the work of these contractors.

For other capacity-building activities (training events for TA teams, exchanges, etc.), the PMU will be responsible for organizing the activities and contracting the services and materials needed to carry them out.

### 3.1.5 Costs

Table 1 - Costs of Subcomponent 2.1 - Strengthening family farmers' capacities (values in US\$).

Activities	Amount	Unit Cost	Estimated value (US\$)
<b>Activity: Provision of agroecological TA services in communities</b>			<b>18 900 000</b>
Provision of agroecological TA for families	18 000 families	900	16 200 000
Specialized TA	18 000 families	150	2 700 000
<b>Activity: Complementary training/exchange events for farmers, including association leaders</b>			<b>52 800</b>
Association training courses	92 events	400	36 800
Exchange events between farmers			
Training courses and exchange events on environmental education, agroecological practices, climate resilience, community management of natural resources and sustainable use of conservation areas	40 events	400	16 000
<b>Activity: Events to improve TA teams capacities</b>			<b>300 000</b>
Training events for TA teams	20 events	15 000	300 000
<b>Activity: Training family farmers in public policies</b>			<b>1 000 000</b>
Course preparation, including content and teaching material	1		80 000
Organization of training events for access to public policies	280	2 300	644 000
Training events for access to public policies on current environmental regulations (pesticides, deforestation) and 'good practices' that restore and preserve environmental resources	120	2 300	276 000
<b>TOTAL for subcomponent 2.1</b>			<b>20 252 800</b>

### 3.1.6 Results

Approximately 18,000 families will benefit from TA services, of which 50% should be represented by women, 30% by young people and at least 20% by PCT. Part of this same public (approximately 2,600 people) will be served with complementary training events. Approximately 150 technical TA agents will also be trained.

The Public Policy courses should benefit a total of 32,000 families, of which 50% should be represented by women, 30% by young people and at least 5% by PCT.

### 3.1.7 Implementation schedule

Table 2 - Implementation schedule for Subcomponent 2.1

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1 - Provision of Agroecological TA			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
2 - Specialized TA					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
3- Association training courses									■	■	■	■	■	■	■	■	■	■	■	■				
4 - Exchanges between farmers									■	■	■	■	■	■	■	■								
5 - Capacity building / training of TA teams			■	■	■	■			■	■			■	■										
6 - Preparing a course on Public Policy			■	■																				
7 - Public Policy Training Events					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				

### 3.2 Subcomponent 2.2 - Strengthening organizations' commercialization capacities

#### 3.2.1 Objective

The focus of this subcomponent is to strengthen the capacities of the teams of the economic organizations (mainly cooperatives) served by the Project. The Project will also work with farmer’s groups and organizations to create or strengthen local fairs and small marketing centers. In the context of improving marketing conditions, the Project could also support the creation and/or strengthening of health inspection services at municipal level or for groups of municipalities organized into territories or 'consortia of municipalities'.

The aim is to help family farming organizations and their products enter diversified marketing channels, generating more income for the benefiting families.

#### 3.2.2 Strategic orientation and methodology

In the previous section, it was seen that all the existing local organizations - with a special focus on family farmers' cooperatives - have significant capacity gaps on several key issues. It will be necessary to strengthen the capacities of the cooperatives' teams to make it possible to draw up and then implement Business Plans (PNs). Once the implementation of the PNs is underway, it will be necessary to ensure that the cooperatives' capacities are strengthened on specific topics, such as financial and project management, good production practices, marketing and commercialization and environmental compliance. They will need support, in the form of training, if they are to play an active and effective role in implementing the various sustainable development initiatives they are called upon to carry out.

To achieve these objectives, the subcomponent will use the following main instruments: (i) the provision of Specialized Technical Assistance (STA), focused mainly on preparing and monitoring the implementation of PNs; (ii) various types of training events will be organized (workshops, training courses, technical visits, exchanges, etc.) which will strengthen the capacities of the organizations in areas such as management (including project management), good production, marketing and commercialization practices, environmental compliance and other topics. Work will also be organized to encourage access to short marketing chains (street markets, Solidarity Economy Centres) and to strengthen organizations about creating and/or strengthening health inspection services.

#### 3.2.3 Planned activities

##### Activity: Provision of Specialized Technical Assistance (STA)

As seen above, it will be necessary to strengthen the economic organizations (cooperatives and similar organizations) that will benefit from the Project. This will be achieved through STA services, which are expected to reach 60 of these organizations.

This activity to provide STA to the beneficiary economic organizations will be primarily responsible for conducting the participatory planning process that will enable the PNs to be drawn up and then monitoring their implementation. It will be up to the STA to organize the provision of training on specific topics that are necessary for the success of the organization in the businesses it intends to carry out (and which will be supported by PROCASE II).

In the end, it is hoped that by strengthening the production and management processes provided by STA, the organizations will be able to better structure their production processes, thus adding more value to primary products and accessing new marketing channels.

Individuals or legal entities may be contracted to provide these STA services. The criteria for selecting providers will include: i) experience in providing assistance services to family farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, including issues such as improving processing processes, developing a business strategy and identifying new marketing channels, strengthening management in the accounting, financial and administrative spheres, etc., iii) institutional capacity for coordination to mobilize the specific skills required by the supported organizations; iv) technical capacity to deal with environmental and/or climate issues related to the activities carried out by the supported cooperatives; iv) capacity to work remotely (using digital tools); v) experience with access to complementary public policies to support family farming (such as credit, public procurement).

STA services should encourage supported organizations to look for other sources of funding and service providers to complement the resources allocated by PROCASE II and to meet demands not included in the PNs it supports. As market access-oriented organizations will also have to look for possibilities for cooperation with the private sector, STA should support them in this search.

#### **Activity: Initiatives to strengthen fairs and marketing centers**

By supporting family farming organizations with PNs, the Project is encouraging greater access to markets for family farming products. Another way of improving access to markets is to strengthen short marketing chains, creating new short circuits or strengthening those that already exist, so that farmers have greater predictability for the distribution and sale of their produce.

To this end, support will be given to farmer groups and associations who are interested in setting up or strengthening or expanding open-air markets and points of direct sale to consumers in the urban areas of the various municipalities. Groups of family producers can also be supported so that they can be present at local or wider fairs. The Project will also seek to strengthen, in partnership with the State Secretariat for Human Development (SEDH), the Marketing Centers and Solidarity Economy Houses, following the example of the initiative implemented with the same Secretariat by PROCASE I, which made it possible to strengthen the Solidarity Economy Centers that served family farmers in the municipalities of Soledade (in the Western Curimataú micro-region) and Sumé (in Western Cariri).

The Project is expected to support 50 groups and associations, including groups of market traders and Marketing Centers and Solidarity Economy Houses.

#### **Activity: Pilot implementation of Participatory Guarantee Systems (PGS)**

There are already several organizations in Paraíba working on participatory certification. It is possible that another farmers' organization that is working on production with a focus on agroecology and sustainability may wish to become a participatory certification organization. In another plausible scenario, an existing participatory certification organization may wish to expand the scope of its certification processes, for example by adding the certification of animal products to the certification of plant products that it already operates.

In this circumstance, the Project will be able to provide support to carry out the intense process of mobilization (various meetings), training and the acquisition of basic equipment (files, computer, etc.) that is necessary to be able to set up or extend the scope of a Participatory Guarantee System (PGS).

The very creation, expansion, and operation of new PGSs in the regions served by the Project is a strong incentive for family farmers to advance in the sustainable production and marketing of agroecologically-based products, being able to access new markets, sell their products for better prices and contribute to strengthening healthier local food systems.

Fifteen pilot experiments of this type are planned.

#### **Activity: Structuring Municipal Health Inspection Services**

Brazilian legislation requires enterprises that process animal products to obtain a Health Inspection Seal to be able to sell them. In Paraíba, there are very few family establishments whose products have this seal. It is formally the

responsibility of the municipalities to provide the municipal health inspection service, but they rarely do so, citing a lack of financial and human resources. Several states in the country have launched initiatives to form Municipal Consortia<sup>81</sup> with the aim of providing this type of service to the population (and especially to family farmers), and the Federal Government, through the Ministry of Agriculture (MAPA), has supported this initiative<sup>82</sup>. The government of Paraíba has embraced this idea and has set a target in the next Pluriannual Plan (PPA) under the activity 'articulating Municipal Agricultural Inspection Consortia'.

In line with this state guideline and the initiatives taking place in other states, PROCASE II proposes to stimulate the emergence and strengthening of initiatives of this kind by supporting the establishment of municipal Health Inspection Services. A support initiative of this kind will include at least the following phases or stages: i) identification of municipalities that have already formed or wish to form consortia and are interested in setting up a Sanitary Inspection Service of this type; ii) creation or updating of Municipal Inspection Service (SIM) laws by the City Councils and approval of corresponding decrees<sup>83</sup>; iii) Strengthening operational capacity by acquiring the necessary equipment; iv) Strengthening technical capacity by carrying out a series of training courses for the municipal team responsible for the Service, thus enabling them to start operating in practice; v) Monitoring the first six months of operation of the SIM thus created.

By expanding the supply of these services, family farmers and their organizations will be better able to adapt their production processes to obtain certification and increase the sales range of their animal products.

The Project will support, with some investment and training resources, the establishment of the Sanitary Inspection Services of two Consortia during its time of operation.

#### **3.2.4 Execution arrangement**

STA services will be contracted by the PMU, through a selection process that meets IDB standards, with resources provided for in the subcomponent's budget.

Individuals or legal entities may be contracted to provide STA. Criteria for selecting providers will include: i) experience in providing STA services to Family Farming cooperatives; ii) technical capacity related to the specific problem(s) identified by the cooperative, such as improving processing processes, developing a strategy and identifying new marketing channels, developing a certification system, etc.; iii) technical capacity to deal with and integrate environmental issues related to the activities carried out by the cooperatives being assisted; iv) capacity to work remotely (using digital tools); v) experience with access to public policies.

The implementation of the investments defined in the Support Plan for Solidarity Economy Fairs/Centers will be carried out through agreements, Terms of Collaboration, or Cooperation Agreements signed by the PMU with the market associations or Solidarity Economy Centers. The regional teams will play an important role in coordinating the various players involved in these initiatives. If it is not possible to use the terms of collaboration in this way, it will be up to the PMU to organize and deliver the training and purchases included in the Plans. The participation of other secretariats, such as SEDH, will be done through Technical Cooperation Agreements (TCAs) without transferring resources, and the partner secretariats will be able to mobilize human and financial resources from their own programs.

In the case of the implementation of PGS (Participatory Guarantee Systems) pilots and initiatives to support the structuring of Health Inspection Services, the PMU will be responsible for diagnosing the demands and contracting individuals and/or legal entities for consultancy services, the purchase of goods, equipment, and/or small works.

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81 In the Northeast, there are Municipal Consortia offering this service in Rio Grande do Norte and Bahia. There are also initiatives of this kind in other Brazilian states.

82 In 2021, MAPA published a booklet entitled "Municipal Inspection Services linked to Public Consortia of Municipalities", which details the process of "how to implement, operationalize, promote health security, reduce costs and create opportunities to expand the market for local products". Ref.: BRAZIL-MAPA; CONFEDERAÇÃO-NACIONAL-DE-MUNICÍPIOS; REDE-NACIONAL-DE-CONSÓRCIOS-PÚBLICOS; SEBRAE. Municipal Inspection Services linked to a Public Consortium of Municipalities. Brasília: MAPA, CNM, RNCP, SEBRAE, 2021. 46 p. Available at: [https://www.gov.br/agricultura/pt-br/arquivos/servicos-de-inspecao\\_v6.pdf](https://www.gov.br/agricultura/pt-br/arquivos/servicos-de-inspecao_v6.pdf).

83 Reference: PRÓ-SEMIÁRIDO. Project Completion Report (PCR). Main Report and Appendices. Salvador: Projeto Pró-semiárido; IFAD: 45 p. 2023.

### 3.2.5 Costs

Table 3 - Costs of Subcomponent 2.2 - Strengthening organizations' commercialization capacities (values in US\$).

Activities	Number	Unit Cost	Value (in US\$)
Provision of STA for Economic Organizations with PNs	60 PNs/ orgs.	20 000	1 200 000
Strengthening Local Fairs and Marketing Centers	50 pcs.	16 000	800 000
Establishing Health Inspection Services with Consortia of Municipalities	2 pcs.	150 000	300 000
Pilot of a Participatory Guarantee System	15 systems	2 000	30 000
<b>TOTAL for Subcomponent 2.2</b>			<b>2 330 000</b>

### 3.2.6 Results

The provision of STA services will work with 60 PNs from economic organizations, benefiting approximately 5,000 families, of which 50% must be represented by women, 30% by young people and at least 5% by PCTs.

The initiative to strengthen local fairs and marketing centers will work with 50 units (fairs and centers), benefiting approximately 800 families.

It is planned to set up 2 Health Inspection Services for Municipal Consortia, as well as 15 participatory guarantee systems - PGS.

### 3.2.7 Implementation schedule

Table 4 - Implementation schedule for Subcomponent 2.2

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1- Specialized TA																								
2 - Strengthening local fairs and marketing centers																								
3- Establish Health Inspection Services																								
4- PGS pilot experiment																								

## 3.3 Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security

### 3.3.1 Objective

This sub-component will aim to promote the empowerment of women, young people, PCTs, LGBTQIABP+ and persons with disabilities, as well as improving the nutrition and food security of beneficiary families. The activities will work with the Project's cross-cutting themes, strengthening and supporting the integration of these themes into all the components.

### 3.3.2 Strategic orientation and methodology

#### Gender and Diversity:

The Project will take a holistic approach to transforming gender relations, promoting the inclusion of Afro-descendants and PCTs, the LGBTQIAPN+ community and persons with disabilities, focusing on the environmental, economic, political, and cultural causes of the social vulnerability of these groups. To transform unequal power relations, shaped by patriarchal and exclusionary structures, norms and practices, as well as empower women, Afro-descendants and PCTs, the LGBTQIAPN+ community and persons with disabilities, the following transformation paths will be followed: i) promote economic empowerment and equality by valuing women's contributions to the family economy and community development, ii) address the issue of women's overload due to domestic and care work by promoting a fairer division of the workload between men and women, iii) empower target groups to have a greater voice and decision-making power in rural institutions and organizations, iv) promote advocacy in policies for women, youth and

PCTs, v) prevent gender-based violence, v) value traditional knowledge, practices and ways of life in production, food and natural resource management and vi) promote the inclusion of the LGBTQIAPN+ community and persons with disabilities, seeking to strengthen them, promote their leadership and respect for their rights.

Therefore, this sub-component aims to support the mainstreaming of the gender and diversity strategy throughout the Project, which will have an intersectional approach, considering the overlap of multiple discriminations of gender, race/ethnicity, sexual orientation, and disability. All the activities and products proposed for this component will be contained in and guided by the Gender and Diversity Strategy and Plan to be drawn up at the start of Project implementation.

#### **Youth:**

Among the factors that influence staying in rural areas is access to work and income opportunities, education and training that is suited to the characteristics of rural areas, appreciation of rural lifestyles, and the availability of services and conditions that can offer the possibility of success in agricultural production. To respond to these issues raised in the youth diagnosis, seeking to promote the permanence of young people in rural areas, as well as offering more opportunities for sustainable income and work for young people in general, the strategy of this subcomponent is based on three main lines of action:

- I. Promote a broad training program in agricultural and non-agricultural activities that generate greater employment and income opportunities,
- II. Implement a program to revalue life in rural areas through communication activities,
- III. Promote the formation of Youth Networks and debates on issues relevant to the development of rural youth.

#### **Nutrition and Food Security:**

To improve food security, nutritional status and increase the adoption of healthy eating practices by the Project beneficiaries, this PROCASE II subcomponent will implement a strategy centered mainly on food and nutrition education training. There will be 3 main lines of action:

- i) Raising awareness of good nutrition and health practices (reproductive health, maternal health, and child health), to improve the nutritional and health status of women and children.
- ii) Raising awareness of the food culture, healthy eating, which includes the Underutilized and Neglected Species (NUS) of the target territories, and
- iii) Training vulnerable communities in the processing of healthy local products to increase their daily consumption in a sustainable way and foster the empowerment of vulnerable communities, valuing local food culture.

The nutrition and food security activities in this subcomponent complement the activities to increase access to and availability of food by increasing production, productive diversification, and income as a result of the productive investments provided for in component 1.

#### **3.3.3 Planned activities**

##### **Activity: Gender and Diversity Plan**

The Gender and Diversity Plan will be drawn up in the first few months of Project implementation by the PMU's Gender and Diversity specialist with the support of a specific consultancy hired to detail the general strategy and implementation methodology for all activities related to gender equity and women's empowerment, as well as the inclusion of PCTs, persons with disabilities and LGBTQIAPN+. The activities set out in the Gender Plan should include:

##### Modular training in Gender and Diversity for the Project and TA teams:

All project teams, from the PMU and the decentralized units (RPMUs), will be trained in gender and diversity issues to ensure that these themes are integrated into all dimensions of PROCASE II's management and implementation and that all Project activities are adapted to the specific demands of women, Afro-descendants, PCTs, the LGBTQIAPN+



community and persons with disabilities. Training will take place in all the regional offices in the Project territories. The PMU's Gender and Diversity specialist will be responsible for training the Project team, as well as supporting colleagues in addressing issues of gender equality, women's empowerment, Afro-descendants, PCTs, LGBTQIAPN+ and persons with disabilities in their operations throughout implementation, including in knowledge management, M&E, and results measurement.

The sensitization and capacity-building of the RPMU teams will be key to ensuring that field activities integrate gender and diversity concerns, and focal points should be selected in the RPMUs to assist the PMU Gender and Diversity specialist in implementing the Gender and Diversity Plan at territorial level. The TA teams will have a regular and continuous presence with the target groups and, to promote a service that meets the specific demands of the Project's target groups (women, young people, PCTs, LGBTQIAPN+ and persons with disabilities), these teams must be trained in Gender and Diversity issues.

The PMU's Gender and Diversity specialist will play a crucial role in implementing an inclusive and transformative approach in terms of diversity and gender. Some of the themes proposed in the trainings are: women's rights, fair division of domestic labor, empowerment, agroecology, LGBTphobia, gender-based violence, public policies aimed at women and PCTs, as well as the ethnic and racial dimension of collective identities.

#### Gender and diversity training for the Project's direct beneficiaries:

PROCASE I consolidated a successful Gender methodology. However, it must strengthen its ethnic-racial and generational sections and be updated to include a broad diversity perspective that includes promoting the empowerment of Afro-descendants, PCTs and the LGBTQIAPN+ community.

The main objectives of the training are: i) To develop the capacities of the target groups so that they can play an active role and be socially recognized in the economic and productive spheres of the family and community; ii) To promote voice and influence in rural institutions and organizations, both of women and of PCTs and the LGBTQIAPN+ community; and iii) Promote debate on the sexual division of labor, with a view to fostering a fairer division of the workload between men and women; iv) Value and disseminate traditional knowledge, practices and ways of life and discuss issues related to racism, sexual orientation and gender identity.

During the training sessions, the issue of Violence against Women and Domestic Violence will be addressed, providing knowledge and information about the Maria da Penha Law, how to access the Network for Combating Violence against Women and how to file complaints, with the aim of preventing violence against girls and women and supporting victims of violence in navigating legal processes, accessing protective services, and finding resources for recovery and empowerment. The training sessions will be held in the beneficiary communities. The training program will take an intersectional approach, considering how racism, patriarchy, heteronormativity, and other exclusionary structures generate dynamics between multiple axes of subordination - gender, race/ethnicity, sexual orientation, and social class.

#### Implementation of the Agroecological Logbook Methodology:

The Agroecological Logbooks (ALs) are an innovative and successful political-pedagogical instrument for women's economic empowerment, which has already been widely tested within the framework of IFAD projects in Brazil. The ALs are implemented to measure, value, and give visibility to women's fundamental contributions to the family economy and, consequently, to community development. They also aim to promote greater self-esteem among women and demonstrate how they contribute, through production in agroecological backyards, to a healthy, diversified, and safe family diet. As a result of valuing women's contributions to the family economy, the aim is to change power relations in the domestic and community spheres.

The AL is a simple-to-use tool with four columns for organizing information about women's production. It records what is sold, donated, exchanged, and consumed daily, based on everything that is grown in the spaces where women live in family and peasant farming units, from agricultural production to handicrafts and processing. During the implementation of PROCASE I, the AL proved to be an efficient tool for monitoring women's production, even allowing for the valuation of production that does not involve monetary exchange and which was previously invisible, such as that for self-consumption, which plays a fundamental role in guaranteeing food security and nutrition. The role of the TA is to mobilize the beneficiaries, train them in the use of the ALs and follow up and monitor their completion.

Therefore, as well as promoting women's socioeconomic empowerment, the ALs also play a role in qualifying TA activities as an instrument for intervening, constituting new indicators for the Project's activities. The implementation of the complete AL Methodology includes training, implementation, and M&E costs.

#### Training of facilitators of childcare circles (cirandeira(o)s):

The communities will select people from their own communities to be trained as facilitators of childcare circles, developing skills to care for and teach children during the Project's activities, allowing mothers to take part in the training and other activities proposed by the Project. The educational training of the facilitators (cirandeiro(a)) will be carried out by a qualified team of professionals from various fields, such as Pedagogy, Arts, Social Work, Anthropology and Sociology, and will last around a year.

The municipalities will be organized into training centers where 48-hour workshops will take place over 12 months, in two phases of 24 hours each, totaling 336 hours of activity. Training for cirandeiros and cirandeiros should take a multidisciplinary approach to themes that are interrelated, such as "gender relations", "environmental education" and "child development", helping to prepare facilitators for carrying out their educational activities with children. Facilitators should also be trained in dynamic methods and tools, such as storytelling, games and toy-making. A set of educational materials should also be prepared, consisting of videos, CDs, books, and memory games to increase awareness of a range of issues during the sessions with the children. One of the important aspects of this methodology is the process of training men and women, many of whom are young, to develop their leadership qualities through pedagogical methods that seek to strengthen intergenerational links.

The Project will ensure that the selection process for cirandeiros includes a methodology and prioritization criteria that guarantee gender equity and diversity, by hiring a support foundation. PCTs, PwD and LGBTQIAPN+ will have priority. At least 50% of the cirandeiros must be from these priority target groups.

#### Childcare/education activities that allow women to participate in the Project's activities:

The Project will offer childcare/education services to ensure women's participation in PROCASE II activities, such as the Gender and Diversity Trainings. The activities are conducted with children by one or two educators/facilitators in a physical space provided by the community. The costs of the activity are as follows: i) training childcare workers; ii) reserving materials and resources for activities; and iii) paying for childcare services. The activity is built on a dynamic methodological approach that strengthens relationships between generations, promotes debate on gender equality in family and community networks and conveys positive messages about the semiarid region and sustainable practices that are developed by different organizations and communities within this ecosystem. In addition, this activity helps to reduce women's workload due to childcare and encourages many communities to play a role in collectively sharing the task of caring, normally associated with the private sphere. Another positive aspect is the promotion of gender-transformative education, which allows stereotypes, attitudes, norms, and practices to be transformed, generating critical awareness of gender inequalities in both children and their educators.

#### Thematic diversity meetings (aimed at persons with disabilities and LGBTQIAPN+<sup>84</sup>):

The thematic meetings will be aimed at the beneficiaries of two specific target groups: persons with disabilities and the LGBTQIAPN+ community, will have a community approach and will be demand-driven. They will complement the Gender and Diversity training aimed at beneficiaries, addressing specific topics of interest to the communities and strategic for closing the inclusion gaps identified in the Gender and Diversity diagnoses related to persons with disabilities and LGBTQIAPN+.

In particular, persons with disabilities and the LGBTQIAPN+ community in the Project area are impacted by the combined effects of numerous forms of discrimination, including gender, race, disability, sexual orientation, and socioeconomic conditions. As a result, they face even greater obstacles to participating in decisions that affect their

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<sup>84</sup> Give preference to trans people, when possible, because this is a group that is particularly marginalized among the LGBTQIAPN+ community, prioritizing self-recognition between the trainer and the participants in the meeting.

well-being and to the full realization of their rights. Five meetings will be held for persons with disabilities and five for the LGBTQIAPN+ community. Through these thematic meetings, guided by the demands of the target groups themselves, political mobilization will be promoted, awareness will be raised about rights, as well as issues related to sexuality, sexual orientation and the inclusion of persons with disabilities.

Whenever possible and deemed necessary, the potential for incorporating a cross-cutting and transdisciplinary agenda on food security and nutrition in these thematic training meetings should be considered. This should consider the social vulnerability, food insecurity, and malnutrition experienced by the mentioned groups, which are prioritized in Paraíba's food security and nutrition policies.

#### **Activity: Youth Plan**

A Youth Plan will be drawn up in the first few months of Project implementation by the PMU's Youth specialist to detail the general strategy and implementation methodology for all the activities in this subcomponent related to the socioeconomic and political empowerment of young people. At least the following cross-cutting activities will be developed for rural youth in the Project area:

##### Vocational training in agricultural and non-agricultural activities:

In the Project area, there is a process of exodus of young people in search of better job and income opportunities in the cities, challenging the process of rural succession. In this context, non-agricultural productive activities have become an important income-generating alternative for part of the rural population and could help young people stay in rural areas. In this sense, PROCASE II will promote vocational training for young people in activities such as: information technology, mechanics, rural tourism, maintenance of machinery and equipment, cutting and sewing, handicrafts, gastronomy, among others. For those who decide to take up agricultural activities, the Project will also offer vocational courses that will enable young people to diversify their sources of income and promote better conditions for success in agricultural production. Courses will be offered in agricultural subjects such as horticulture, beekeeping, poultry farming, and rural administration. To implement training in agricultural and non-agricultural activities, the Project will seek to build partnerships with institutions such as SENAI, SEBRAE, PRONATEC, SENAR, EMBRAPA, universities and teaching and research institutes.

##### Training Young Communicators:

PROCASE II will train young rural people to become Young Communicators. Training will be offered in subjects such as photography, audiovisual, interview techniques, *corde*<sup>85</sup>, digital marketing, project development and citizenship. With the skills developed, the Young Communicators will be able to help record and monitor Project activities, produce audiovisual and printed materials and act as social mobilizers in their communities. This initiative will also allow young people to develop their vocation and even start practicing a new profession. The activity will involve: (i) the selection process for the young people; (ii) the training course; (iii) an exchange event and a final meeting. During this process, the Young Communicators will be encouraged to produce communication materials about the Project's experiences, good practices, etc. and will be guided in their quest to have these "products" included in communication channels such as blogs, YouTube channels and community radio stations.

##### Thematic meetings with young people and the formation of Rural Youth Networks:

The Project will promote meetings on topics relevant to the full development of rural youth identified in the youth diagnosis (justification section), such as violence, the lack of public policies aimed at rural youth, limited access to specific lines of credit aimed at young people, education in rural areas, among other topics. The chosen themes will also be guided by the demands of the young people themselves. On this occasion, the formation of Rural Youth Networks will also be promoted, to strengthen the self-organization of young people and their groups and organizations, ensuring that they have greater capacity to access available public policies and advocate for new public policies aimed at rural youth.

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<sup>85</sup> Cordel is a local musicalized poetry genre that is very traditional and specific to the Northeast region of Brazil.

### **Activity: Plan to Strengthen Traditional Peoples and Communities (PCTs)**

A Plan to Strengthen Traditional Peoples and Communities will be drawn up in the first few months of the Project's implementation.

#### Strengthening PCT networks:

PROCASE II will invest in the formation of PCT groups and the strengthening of existing groups, promoting the strengthening of ties between PCTs from different territories in Paraíba, fostering the construction of networks. The PCT diagnosis showed that these groups still have inclusion gaps in various socioeconomic and political dimensions. The formation of PCT networks and the strengthening of existing ones could help to close the existing gaps. As a strategy for scaling up promotion to strengthen the self-organization of the PCTs and their constituent groups and organizations, at least three broad meetings will be promoted to encourage the formation of PCT Networks, in which the common challenges will be debated and good practices and lessons learned will be shared. This activity, together with the PCT Policy Integration Fairs, will help articulate the partnerships needed to access public policies for existing PCTs and influence new public policies. The main agendas defined as priorities in the PCT Networking meetings can be presented at the PCT Policy Integration Fair.

#### Policy Integration Fairs for PCTs:

The Project will seek to influence public policies aimed at traditional peoples and communities, consolidating, and expanding the human rights of this target group. Despite the existence of national, state, and local policies aimed at PCTs, there is a lack of greater integration between them and a specific approach to overcoming challenges and meeting the aspirations and demands of PCTs in the Project area. To this end, six PCT Policy Integration Fairs will be held with the participation of beneficiaries and various actors from the public sector and civil society at state and local level to debate public policy proposals that meet the challenges and demands of Paraíba's PCTs. The promoted cooperation, through the exchange of information and experiences, must consider the diversity of involved agents, to build intersectoral networks that can influence the definition of public policies for PCTs.

### **Activity: Nutrition and Food Security Plan**

A Nutrition and Food Security Plan will be drawn up in the first few months of the Project's implementation.

#### Nutrition education initiative to improve nutrition and maternal and child health in the Project's most vulnerable communities:

Initially, the communities with the greatest malnutrition problems in the Project area will be identified. This should be done with the support of partners such as the Secretariat for Human Development (SEDH), which has a central role in drawing up and coordinating the various actions included in the State Plan for Food and Nutrition Security, and the Paraíba School of Public Health or another potential partner with expertise in nutrition and food security. The Project's baseline study, which will measure the percentage of women with a minimum diversified diet, could also be used as an indicator to define the target groups and obtain information on the content of the diet. Once the communities with the greatest problems of malnutrition have been identified, nutritional education courses will be given there. The beneficiaries will mainly be community health workers, women, young people, and women from PCTs.

The training will take place in communities, with selected professionals teaching. The final part of the course will include the establishment of an action plan to be developed in the community to monitor changes in practices over the long term, together with the community agents. To ensure the commitment of the participants, it will be important to consult the beneficiaries about the time of year and the hours to be given priority so that the courses can be followed up regularly.

Likewise, the content of the course will be chosen jointly, prioritizing teaching on child nutrition to combat micronutrient deficiencies and provide a balanced and proportionate diet that meets the needs of each age. The topic of promoting exclusive breastfeeding during the first 6 months of children's lives will also be part of the course, as it persists as a health problem, in addition to the topics of mothers' health (in particular to combat anemia, overweight and obesity) and reproductive health, given the high rates of teenage pregnancy. Ideally, the partnerships, course content and activity methods will be defined in the first year of the Project by the PMU's Nutrition and Food Security Specialist (and

in collaboration with the service provider) for implementation in the communities from year 2 to year 5 of Project implementation. At the end of the course, it will be important to identify and document the results at community level.

Training events on food culture and food processing to enhance local products to improve nutrition and facilitating the empowerment of women and young people:

The content of the training will be defined by the Project's nutrition specialist (in conjunction with a partner with expertise in nutrition and food safety or a service provider specializing in this area), including priority topics such as the appreciation of neglected and underutilized species (NUS), influences on eating habits to improve health, technical support for food processing to foster economic autonomy and the appreciation of family farming products. The objectives will be to promote nutrition, strengthen and value traditions related to food practices, promote the consumption of local and healthy products by teaching tasty and easily reproducible recipes.

Raising awareness of nutrition, health, and food culture among students at the Integral Citizen Schools:

Students at the Integral Citizen Schools will be made aware of food culture, healthy eating practices and gastronomy. Considering that eating habits are still developing among young people, it is hoped that the impact of the training will be significant for these students. The training is planned for around 10 schools in the Project area, prioritizing schools in poorer municipalities. The students will be divided into groups of up to 30 students, spread over the four years of the Project's implementation. The course will last one day, divided into a theoretical part (adapted for students) and a practical part (cooking class). In the process of selecting the schools, it will be necessary to investigate whether there is already some kind of nutritional teaching in the school, to propose new content. It would also be important to include all the school staff, particularly the cooks, to influence, for example, the menus and practices linked to food in schools.

**Activity: Local Development Agents (ADLs)**

The Project will hire a foundation, which will be responsible for hiring Local Development Agents (ADLs), who are young people from the communities themselves, hired by PROCASE II to carry out tasks such as mobilizing communities and organizations to actively engage in the Project. In addition to mobilization, the ADLs will have to play an important role in managing the agreements made by the community associations, supporting the holding of tenders, updating financial information, monitoring the investments made, rendering accounts and keeping the associations fiscally regular. One young person will be hired per PIR, which in turn serves 3 communities. The young ADLs will receive a series of training courses to develop their skills. By taking the role of ADL, it is hoped that the young people will be able to gain experience in leadership and management, becoming references in the communities they represent and continuing to support them even after the end of the Project. The ADLs will also play a key role in supporting the implementation of cross-cutting activities, such as gender, diversity and youth, as well as in communication between the communities, the Project and the TA teams.

**3.3.4 Execution arrangement**

To draw up the plans for this subcomponent (Gender and Diversity, Youth, PCTs and Nutrition and Food Security), it will be necessary to hire individual consultants or consultancy firms to design them in full methodological and operational detail. The activities planned and included in the plans for this subcomponent will be implemented both through activities carried out directly by the Project's technical team (PMU and RPMU) and by holding events that will be included in the terms of collaboration or promotion with the producer organizations (associations). The terms will allow for the purchase of support materials, the hiring of instructors, as well as providing for exchanges between farmers. Regarding the ADLs and cirandeiros, a foundation will be selected which will be responsible for hiring these agents.

A Gender and Diversity specialist, a Youth specialist, a Traditional Peoples and Communities specialist and a Nutrition specialist, all with exclusive dedication, should be hired to make up the Project management team. They will be responsible for drawing up and supervising the implementation of the respective plans provided for in this subcomponent according to their area of expertise. All four specialists must be trained in differentiated approaches to the inclusion of persons with disabilities and LGBTQIAPN+.

In each RPMU, there should be a focal point for cross-cutting social issues, who should work closely with the PMU specialists and the TA teams at local and regional level.

### 3.3.5 Costs

Table 5 - Costs of Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security (values in US\$)

Activities	Amount	Unit Cost	Value (in US\$)
<b>Gender and Diversity line of work</b>			<b>1 025 000</b>
Drawing up a Gender and Diversity Plan	1	25 000	25 000
Gender training for Project and TA staff	18	9 000	162 000
Gender and Diversity training for beneficiaries	350	1 400	490 000
Implementation of Agroecological Logbooks	40	2 200	88 000
Training cirandeira(o)s	5	18 000	90 000
Childcare/education activities (Cirandas)	1 000	70	70 000
Thematic meetings on diversity (aimed at persons with disabilities and LGBTQIAPN+)	10	10 000	100 000
<b>Youth Work Line</b>			<b>525 000</b>
Drawing up a Youth Plan	1	25 000	25 000
Vocational training	35	7 000	245 000
Training for Young Communicators	20 events	5 500	110 000
Thematic meetings and youth networks	50	2 900	145 000
<b>Traditional Peoples and Communities Line</b>			<b>425 000</b>
Drawing up a PCT Strengthening Plan	1	25 000	25 000
Meetings to Strengthen PCT Networks	3 enc.	60 000	180 000
PCT Policy Integration Fairs	6 fairs	36 667	220 000
<b>Nutrition and Food Security Line</b>			<b>625 000</b>
Drawing up a Nutrition and Food Security Plan	1	25 000	25 000
Maternal and child nutrition education events for vulnerable communities	190	1 400	266 000
Training in food culture and NUS (Neglected and underutilized Species)	180	1 300	234 000
Raising awareness among students at the Integral Citizen Schools	40	2 500	100 000
<b>Line of Local Development Agents</b>			<b>2 000 000</b>
Hiring ADLs	200	10 000	2 000 000
<b>TOTAL for Subcomponent 2.3</b>			<b>4 600 000</b>

### 3.3.6 Implementation schedule

Table 6 - Implementation schedule for Subcomponent 2.3 - Diversity, gender, youth, nutrition and food security

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Drawing up Gender, Youth, PCT and Nutrition and Food Security Plans	■	■	■	■																				
2. Gender and Diversity Training for Project and TA teams			■	■	■	■	■	■	■	■	■	■												
3. Gender and Diversity training for beneficiaries									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4. Agroecological Logbooks									■	■	■	■	■	■	■	■	■	■	■	■				
5. Training cirandeira(o)s					■	■	■	■	■	■	■	■												
6. Childcare Activities					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
7. Thematic meetings (PWDs and LGBTQIAPN+)					■	■	■	■	■	■	■	■	■	■	■	■								
8. Vocational training for rural youth									■	■	■	■	■	■	■	■								



Project in this area will be to choose the communities and properties that will be assisted by this activity. As mentioned above, the priority will be given to quilombola communities, followed by federal and state land reform settlements.

Regarding these priority communities, it should be noted that only communities and settlements that are not in a situation of conflict or litigation can benefit from this activity. For this reason, when the Project comes into force, it will be up to the PMU, in partnership with the other relevant bodies and entities (INCRA, EMPAER<sup>87</sup> and the federal and state bodies promoting racial equality in the case of quilombola communities), to identify and validate the eligible settlements and quilombola communities based on this first criterion. Preliminarily, 33 quilombola communities (out of 47 in the state) were mapped in 21 municipalities, as well as 28 agrarian reform settlements in 27 municipalities. It is understood that there will also be the possibility of serving 'traditional' rural communities, albeit in limited numbers. The Project will have to define the prioritization criteria that will allow this choice to be made. The communities and settlements to be targeted should then be defined.

Preliminarily, it was agreed that 40% of the target would be focused on serving quilombola communities and federal agrarian reform settlers (preferably those already served with productive Projects in phase I of PROCASE, and which have already been previously mapped). The remaining 60% of the target will be focused on 9 municipalities in the state, on properties of around 25 hectares (an average of 8 ha per property) belonging to beneficiaries of the PNCF, the ECOPRODUCTIVE project, state agrarian reform settlements, the riverside population, and other groups of family farmers.

The municipalities preliminarily mapped by EMPAER are Barra de São Miguel, Boqueirão, Cabaceiras, Camalaú, Caraúbas, Congo, Monteiro, São Domingos do Cariri, and Sumé. These municipalities were worked on by PROCASE I through production projects, mechanized patrols and TA to riverside communities benefiting from the São Francisco River water transposition project. In these 9 municipalities, the plan is to work with up to 150 communities, which have already been mapped.

The municipalities are distributed in a strategic way (Figure 1), as they are contiguous territories with similar geomorphological and hydrographic characteristics, optimizing the viability of the Project from a logistical and population point of view, represented mostly by riverside communities, agrarian reform settlers, family farmers, as well as other PCTs located in the area covered by the Paraíba River in the region.

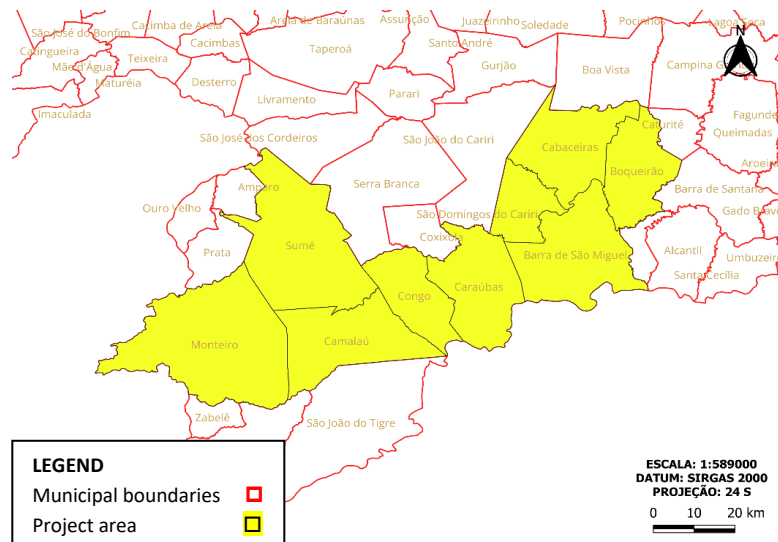


Figure 1: Municipalities to be benefited by land and environmental regularization

<sup>87</sup> In a recent administrative reform, the newly created EMPAER incorporated the function of the former EMATER-PB and INTERPA, which was the Paraíba Land Institute responsible for state settlements.



Another factor considered when choosing these municipalities is that, in general, we observed a low incidence of certification of rural properties, which corroborates the need for public policies to boost the implementation of the regularization process (Figure 2).

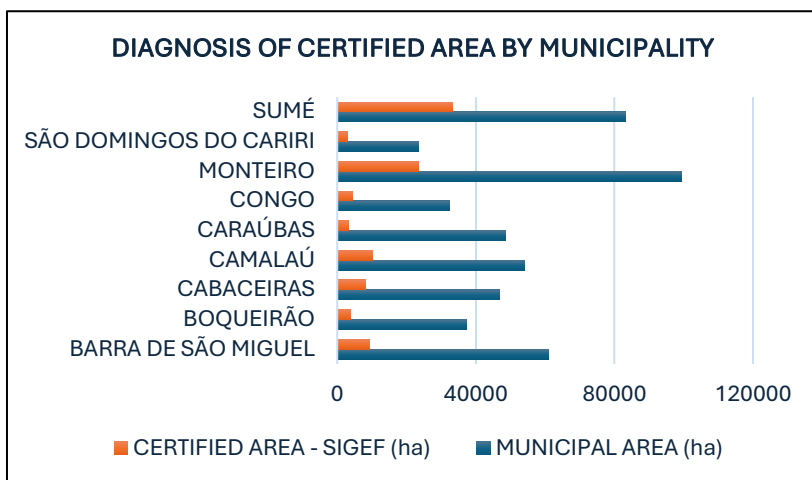


Figure 2: Diagnosis of certified area in the municipalities to be benefited by the project.

According to the database of the National Rural Environmental Registry System (SICAR), the 9 municipalities that are part of the project have 7,962 registered properties and represent an area of 54,376 hectares, reinforcing the hypothesis of the large presence of areas that fall under family farming.

Step 2: The implementation of the regularization roadmaps:

EMPAER's previous experience allowed it to define a roadmap or sequence of steps that must be taken for a rural property to be regularized. It is this roadmap, which covers both the land ownership dimension and that of environmental registration, that forms the methodological backbone of the Project's regularization initiative.

It should be noted that the procedure to be taken by each property to be regularized is slightly different depending on the starting situation of each property, in which case there are two possible initial scenarios: i) Properties with public deeds - areas of ownership and ii) Properties without public deeds - areas of possession. Both routes are similar, with the one for possession areas having a few additional steps. The roadmaps are presented in more detail below.

Action strategy: land regularization and environmental registration roadmaps

Initial moment: Mobilization and dissemination activity, in which the initiative is presented and explained to the beneficiary public, with the aim of identifying and confirming the family units or communities interested in participating and that meet the prioritization criteria (areas without litigation, quilombolas, settlers, family farms with less than 25 ha, etc).	
Once the potential participants have been identified, the following activity guides are applied.	
<b>Activity roadmap (i): Domain areas</b>	<b>Activity roadmap (ii) - Ownership areas</b>
1 - Diagnosis of the rural property. This aims to identify whether the property is in the ownership area (with a deed) or the possession area (without a deed).	
2 - Georeferencing rural property.	2 - Georeferencing rural property.
3 - Georeferencing inspection: 100% done by satellite image. For a selected sample, on-site inspection of properties. It checks that the landmarks are correctly	3 - Georeferencing inspection: done 100% by satellite image. For a selected sample, on-site inspection of properties. It checks that the landmarks are correctly

<p>implanted and if there are any discrepancies that need to be corrected.</p> <p>Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>	<p>implanted and if there are any discrepancies that need to be corrected.</p> <p>Any property that needs adjusting will be corrected by the contractor. The property that is suitable can be entered into the Land Management System (SIGEF).</p>
<p>4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages</p>	<p>4 - Evaluation of documentation by the Discriminatory Commission, to declare that the property is suitable for the next stages</p>
<p>5 - Creation or updating of the registration code in the National Rural Registration System (with issuance of the CCIR )<sup>88</sup></p>	<p>5 - Creation or updating of a registration code in the National Rural Registration System (with issuance of the CCIR)</p>
<p>6 -Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows technical documents (plans and descriptive memorials) of the property to be generated. The delivery of these technical documents certifies land-title regularization, which is geo-referencing (in script (i) for ownership areas).</p>	<p>6 - Approval by the agency (INCRA/EMPAER) of the georeferenced parcel/property in the Land Management System (SIGEF), which allows for the generation of technical documents (plans and descriptive memorials) for the property. As this is vacant land, the documentation is issued in the state's name at this stage. With the delivery of these documents, the first stage of land regularization is completed, which is georeferencing.</p>
	<p>6.1 - Delivery of the plan and memorial to the notary's office, for the creation of the registration and collection of the wasteland.</p>
	<p>6.2 - Analysis by Discriminatory Committee</p>
	<p>6.3 - Updating the technical documents, which will then be in the name of the beneficiary squatter, and drawing up a definitive property title in their name (or that of the community in the case of collective land).</p>
<p>6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).</p>	<p>6.4 - Sending the updated documentation to the Registry Office for the transfer of ownership (State to beneficiary).</p>
<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>	<p>7 - Creating or updating the CAR (Rural Environmental Registry) register, using the data registered in SIGEF. The receipt for the rural property's registration in the CAR proves that the registration has been completed.</p>
<p>8 - Drawing up the title deed.</p>	<p>8 - When stage 6.4 of the notary's office is completed, the property is fit and up-to-date. With the above steps completed, the property's documentation is fully regularized and ready to be handed over to the beneficiary (individual or collective).</p>

<sup>88</sup> CCIR is the Rural Property Registration Certificate, which is issued by INCRA via the Rural Registration System.

<p>9 - The property is ready and up to date. Once the above steps have been completed, the property is ready, with recognition of ownership. The technical documents can be sent to the notary's office for registration of the area. A new, updated certificate can then be issued.</p>	
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EMPAER will be responsible for coordinating this line of action for PROCASE II. Based on the previous experience mentioned above, EMPAER's partnership with INCRA will be reaffirmed, as it plays a central role throughout the process (issuing the CCIR and coordinating SIGEF). Some of the stages of this roadmap will be implemented in the field by companies hired for this purpose.

It is hoped that approximately 5,000 properties (covering around 100,000 hectares) will be able to follow this path with the Project, until the desired regularization is achieved. It should be made clear that in agrarian reform settlements (federal or state) and in the municipalities served by EMPAER, title will be granted individually, per beneficiary family. In the case of quilombola communities, the title will be collective, covering the entire georeferenced polygon and in the name of the duly registered residents' associations.

#### 3.4.4 Execution arrangement

EMPAER, through the Directorate of Agricultural Planning and Land Regularization, will be responsible for carrying out this subcomponent, conducting the entire process and following the flow of steps required until the definitive title deeds and domain recognition are issued. A specialized company will be hired through a bidding process, to carry out some stages of the roadmap presented in the previous section under EMPAER's supervision.

A specific Technical Cooperation Agreement will be signed with INCRA, with no transfer of funds, so that it can receive the georeferenced areas, carry out the inspection and approval of the technical pieces necessary for the regularization process of quilombola communities and federal land reform settlements.

The SEAFDS and EMPAER teams will also be working with ANOREG and the state's Corregedoria Geral de Justiça to sign a cooperation agreement to provide support for faster analysis by the registry offices.

The process will also include public hearings to talk to the municipalities and communities that will benefit, and priority will be given to titling on behalf of women. EMPAER will count on the support of the rural workers' unions and rural community associations in the municipalities and communities served.

#### 3.4.5 Costs

Table 7 - Costs for Subcomponent 2.4 - Land and environmental regularization <sup>89</sup>

Activity	Amount	Unit Cost US\$	Estimated value (US\$)
<b>Activity: Land and environmental regularization initiative</b>			<b>2 000 000</b>
Implementation of rural property regularization initiative	5 000 families	Estimated average cost per hectare: 20 000	2 000 000
<b>TOTAL for Subcomponent 2.4</b>			<b>2 000 000</b>

#### 3.4.6 Results

The land and environmental regularization initiative will assist approximately 5,000 rural properties and families, 40% of which will be quilombola communities in federal and state settlements.

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<sup>89</sup> This amount includes expenses for the aforementioned registration and georeferencing services, as well as for monitoring, inspection and titling. This amount may also cover the purchase of equipment and operating costs for carrying out the activities. EMPAER will pay its civil servants from its own budget.

### 3.4.7 Implementation schedule

Table 8: 6-year timetable for the implementation of Subcomponent 2.4

Land and environmental regularization - Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mobilization/Registration																								
Discrimination Commission 1																								
Discrimination Commission 2																								
Georeferencing / CAR																								
GEO Surveillance																								
SNCR/CCIR																								
Title																								

## 3.5 Subcomponent 2.5 - Knowledge management and south-south and triangular cooperation

### 3.5.1 Objective

Subcomponent 2.5 will develop and implement a knowledge management (KM) process capable of generating, recording, sharing, and using knowledge generated in the Project. It will also seek to feed the project implementation process with relevant information and knowledge.

Knowledge will be made available at different geographical scales: among Project participants (at community and territorial level), at state level, in the Northeast region and in other developing countries (via South-South and Triangular Cooperation, SSTC), and to different target audiences: beneficiaries, implementing partners and service providers, the project team, government entities and others. The objectives will be refined during the preparation of the KM and SSTC plan.

### 3.5.2 Strategic orientation and methodology

At the start of PROCASE II, the KM and SSTC specialist will draw up a guiding document, which will contain the entire methodology and implementation arrangement for KM and SSTC activities, known as the KM and SSTC plan. The KM and SSTC plan will be drawn up in the first year of Project implementation and will detail the general strategy and implementation methodology for all activities related to the KM and SSTC theme. The Annex *Knowledge Management (KM), South-South and Triangular Cooperation (SSTC) and Innovations in PROCASE II*, specifies what a KM and SSTC plan should contain and provides some important considerations for KM and SSTC in PROCASE.

The KM and SSTC Specialist plays a crucial role in development projects, ensuring that information and knowledge are systematically captured, shared, and used to improve project results. To foster a culture of knowledge sharing within the Project team, the specialist must emphasize that knowledge management is a collective responsibility. This involves promoting the importance of documenting experiences, good practices, lessons learned and so on, encouraging open communication and providing training to incorporate these practices into day-to-day work. In doing so, the specialist helps to build a collaborative environment where continuous learning and improvement are integral parts of the team's success.

In addition, during the initial phase and throughout the implementation of the Project, the Expert will lead the identification of strategic partners to carry out studies, research, and events. These partners will play a key role in the Project's sustainability strategy, ensuring that the knowledge generated is widely distributed and made available even after the end of the project. In particular, they will seek to ensure that the knowledge, innovations, and good practices generated in the Project can be scaled up and contribute to improving local, national, and regional public policies on rural development. The Specialist will also manage the hiring of specialized consultants to prepare technical documents and specific activities.

The specialist will also be responsible for the Project's institutional communication. Institutional communication includes creating information leaflets about the Project, managing the Project's website and social media channels, and issuing press releases, among other activities. The specialist will develop a comprehensive communication and visibility strategy. Activities related to institutional communication fall under general project management and are not part of this specific subcomponent. However, the KM and SSTC plan also includes a dissemination strategy, detailing how specific knowledge products will reach their target audiences. Effective coordination between general communication efforts and the dissemination of knowledge products will be key, as it enhances the Project's communication activities as a whole.

### **KM and SSTC plan**

This plan will define the detailed objective of the KM and SSTC activities, the products developed for each target group, the distribution channels, among others. PROCASE II will be able to draw on a wide range of resources, products and experiences from other initiatives and projects, including the lessons learned from PROCASE I. Therefore, PROCASE II's KM and SSTC activities should avoid duplicating material that already exists, while at the same time using this material in its activities, such as capacity building and training.

The detailed KM and SSTC activities and products will be defined when the plan is drawn up. The main activities and products include:

#### Systematization of experiences, good practices, results and studies of interest to the project on specialized topics:

The Project's interventions will be subject to participatory and qualitative evaluations of their results, and those with a proven impact will be selected to be systematized, using the appropriate methodology for this process, and will be disseminated as a benchmark for good practice. Systematization can lead to different products such as written documents, videos, podcasts, and others. In addition to systematization, specialized studies will be contracted. Studies and consultancies on topics relevant to the Project - such as studies about agroecology, agroforestry systems (AFSs) adapted to the Atlantic Forest and/or the semiarid region, sustainable management of natural resources, social technologies that improve access to water, or mechanization innovations - will generate inputs for improving the Project's implementation processes. They will also be key to ensuring the development of strategic, evidence-based Knowledge Management products that can serve as references for other rural development projects at various levels - state, regional, national, and international. These products are also important for the process of dialogue and influence on public policies.

In total, 25 systematizations and studies on KM will be drawn up and published during the Project.

#### Communication and Dissemination in Knowledge Management

The dissemination of accumulated knowledge is the central idea of KM. Communication activities are a means of ensuring ownership of the activities, results and knowledge generated in the implementation of the Project among stakeholders and can even lead to the creation of new knowledge. The dissemination of knowledge products allows innovative practices, lessons learned, etc. to be accessed by the Project and strategic dialogues to be established with a wide range of partners. The planning of these activities is an integral part of the KM and SSCT Plan and must be coordinated with the Project's institutional communication strategy. The Project will organize various events, such as thematic meetings, thematic exchanges (of beneficiaries, Project staff and others), round tables, webinars, among others.

The Project will also participate in and organize public policy dialogue events. Engagement and dialogue on public policy are important aspects of development projects. It is important that the knowledge generated during the Project informs policymakers, thus prioritizing the most important aspects for the Project's target groups. Involvement with policy is also key to the sustainability, replication, and expansion of projects. Annex *Knowledge Management (KM), South-South and Triangular Cooperation (SSTC) and Innovations in PROCASE II* specifies the policy dialogues in which PROCASE has been involved and describes the possibilities for involvement in PROCASE II.

South-South and Triangular Cooperation (SSTC) Activities:

Ten SSTC events will be organized, which may cover topics such as technical exchanges and policy dialogues. One or more of these events may take the form of SSTC learning routes, so that partners can learn about the experiences and lessons learned from the implementation of the Project, and so that beneficiaries, technicians, and project managers can learn from good practices implemented in other countries or regions of Brazil. The Project will maintain a close relationship with the IFAD Center for Knowledge and South-South and Triangular Cooperation, located in Brasilia and with a regional mandate for Latin America and the Caribbean, which will be able to support knowledge exchanges with other IFAD initiatives in Brazil and Latin America through SSTC activities.

**3.5.3 Execution arrangement**

The PMU will hire a foundation to carry out the Project's KM and SSTC activities, as defined in the KM and SSTC plan. This means that the foundation will prepare systematizations, conduct studies, prepare other knowledge products, and organize events, including SSTC events. The selected foundation must be a non-profit organization, preferably linked to a university, and the same foundation will be responsible for the Innovation component (1.3) and some of the contracts under subcomponent 2.3. The KM and SSTC specialist will be the focal point for KM and SSTC within the PMU and will be responsible for overseeing the contract with the foundation and coordinating its implementation.

**3.5.4 Costs**

A detailed work plan and budget must be drawn up for the implementation of the KM and SSTC Plan. This plan will be reviewed annually for proper budget execution. The following table shows a preliminary budget for general KM and SSTC activities:

Table 09 - Costs for Subcomponent 2.5 - Knowledge management and south-south and triangular cooperation

Activity	Unit	Number	C. Unit (in US\$)	Estimated value in (US\$)
Systematizations and studies in Knowledge Management prepared and published	Study	25	40 000	1 000 000
Annual phases of Communication and Dissemination in Knowledge Management implemented	Years	6	20 000	120 000
South-South and Triangular Cooperation	Exchanges	10	100 000	1 000 000
<b>TOTAL</b>				<b>2 120 000</b>

**3.5.5 Results**

Under this subcomponent, 25 systematizations and studies on Knowledge Management will be carried out, 6 annual communication and dissemination phases and 10 South-South Cooperation exchange events.

**3.5.6 Implementation schedule**

Table 10: 6-year timetable for the implementation of Subcomponent 2.5

Stages	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Studies																								
Systematizing Experiences																								
Communication and Dissemination in Knowledge Management																								
South-South and Triangular Cooperation																								

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 13 Pod Matriz De Riesgos**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## Apéndice I del Documento POD: Gestión de Riesgos del Proyecto (GRP)

### IDENTIFICACIÓN DE LOS PRINCIPALES RIESGOS

<b>Identificación del Proyecto:</b>	Proyecto de Desarrollo Rural Sostenible de Paraíba – PROCASE II
<b>Jefe de Equipo:</b>	Octavio Damiani
<b>Fecha:</b>	Mayo 2024

NÚMERO	1/ DESCRIPCIÓN DEL RIESGO	2/ TAXONOMÍA DEL RIESGO	PRODUCTOS, O RESULTADOS AFECTADOS	3/ PROBABILIDAD	4/ IMPACTO	5/ NIVEL DE RIESGO
1	Si la situación fiscal del estado empeora, el Gobierno Federal podría no otorgar la autorización final para la firma del contrato de préstamo.	Entorno de Ejecución: entorno económico-financiero	Componentes I y II	Media-Baja (2)	Alto (4)	Medio-alto (8)
2	Si la situación fiscal del estado empeora, se podría reducir el presupuesto asignado al proyecto y atrasar la ejecución	Entorno de Ejecución: entorno económico-financiero	Componentes I y II	Media-baja (2)	Medio-alto (3)	Medio-alto (6)
3	Si el Real brasileño se valorizara frente al dólar, los costos del proyecto podrían aumentar (en dólares) y el presupuesto ser insuficiente para ejecutar las actividades conforme planificado.	Entorno de Ejecución: entorno económico-financiero	Componentes I y II	Media-baja (2)	Medio-bajo (2)	Medio-bajo (4)
4	Cambios de autoridades podrían alterar las prioridades del ejecutor y producir cambios en los equipos técnicos, atrasando la implementación del proyecto.	Entorno de Ejecución: entorno político	Componentes I y II	Media-baja (2)	Medio-alto (3)	Medio-alto (6)
5	Si las capacidades del ejecutor son insuficientes para la adecuada gestión del proyecto e implementar un alto número de adquisiciones, se podrían	Organismos Ejecutores: estructura organizativa	Componentes I y II	Media-alta (3)	Medio-alto (3)	Alto (9)

NÚMERO	1/ DESCRIPCIÓN DEL RIESGO	2/ TAXONOMÍA DEL RIESGO	PRODUCTOS, O RESULTADOS AFECTADOS	3/ PROBABILIDAD	4/ IMPACTO	5/ NIVEL DE RIESGO
	generar atrasos y menor calidad de la ejecución					
6	Si las organizaciones beneficiarias no logran presentar oportuna y adecuadamente rendiciones de cuenta por los recursos transferidos, se puede atrasar la ejecución.	Organismos Ejecutores: estructura organizacional	Componente I	Medio-alta (3)	Medio-alto (3)	Alto (9)
7	Insuficientes capacidades institucionales podrían afectar la sostenibilidad de las inversiones del programa	Proyecto: Gestión pública y gobernabilidad	Componentes I y II	Medio-alto (3)	Medio-alto (3)	Medio-alto (9)
8	Debilidades del sistema de gestión ambiental y social pueden atrasar la ejecución de acciones del proyecto y la consecución de resultados.	Sostenibilidad ambiental y social	Componentes I y II	Medio-bajo (2)	Medio-bajo (2)	Medio-bajo (4)

1/ Use uno de los dos enunciados de riesgo siguientes: i) si sucede una CAUSA, podría ocurrir un EVENTO, que generaría un IMPACTO; ii) podría ocurrir un EVENTO, que generaría un IMPACTO  
 2/ Entorno de Ejecución: Entorno político, entorno económico-financiero, entorno institucional, entorno legal, entorno natural, entorno social; Organismos Ejecutores: Estructura organizativa, procesos internos, recursos humanos, sistemas, bienes y servicios, integridad; Proyecto: Diseño técnico, planificación, sostenibilidad, sistema de gobernanza, salvaguardias ambientales y sociales.

3/ Probabilidad: Alto, Medio-Alto, Medio-Bajo, Bajo

4/ Impacto: Alto, Medio-Alto, Medio-Bajo, Bajo

5/ Nivel de Riesgo: Alto, Medio-Alto, Medio-Bajo, Bajo

**COMENTARIOS<sup>1</sup>:**

<sup>1</sup> Se utiliza para destacar los principales aspectos que influyeron en la evaluación y/o las decisiones tomadas por el Jefe de Equipo de Proyecto.

## PLAN DE RESPUESTA A LOS RIESGOS PARA EL POD<sup>2</sup>

*Este formulario debe ser revisado y actualizado en la preparación de la Propuesta de Desarrollo de la Operación (POD). La información contenida en el Apéndice I es esencial para evaluar los riesgos del proyecto y sus posibles acciones de respuesta en la reunión de la Revisión de Calidad y Riesgos (QRR).*

NÚMERO	1/ DESCRIPCIÓN DEL RIESGO	2/ ESTRATEGIA DE GESTIÓN DEL RIESGO	DESCRIPCIÓN DE LA ACTIVIDAD	RESPONSABLE	3/ FECHA O DISPARADOR
1	Si la situación fiscal del Estado empeora, el Gobierno Federal podría no otorgar la autorización final para la firma del contrato de préstamo.	Mitigar	El Banco hará junto al FIDA un monitoreo de la situación fiscal del estado y mantendrá diálogo permanente con las autoridades estatales y federales; la Representación del Banco en Brasil posee un dashboard para el monitoreo de los datos fiscales del estado.	BID, FIDA, Gobierno de Paraíba, Gobierno Federal	Tramitación de la firma del contrato de préstamo
2	Si la situación fiscal del estado empeorara, se podría reducir el presupuesto asignado al proyecto y atrasar la ejecución.	Mitigar	El Banco mantendrá junto al FIDA un diálogo y monitoreo continuo con las contrapartes del Gobierno de Paraíba, incluyendo la eventual definición de un plan de acción con las partes involucradas para mantener la priorización del proyecto.	BID, FIDA Gobierno de Paraíba	Tramitación del presupuesto en la Asamblea Legislativa estadual
4	Cambios de autoridades podrían alterar las prioridades y producir cambios en los equipos técnicos de la SAFDS, atrasando la implementación del proyecto	Mitigar	El Banco mantendrá un diálogo y monitoreo continuo con nuevas contrapartes del Gobierno de Paraíba y se realizarán capacitaciones a nuevos técnicos en temas claves, especialmente fiduciarios y aspectos ambientales y sociales.	BID, FIDA, Gobierno de Paraíba	Cambio de autoridades
5	Si las capacidades son insuficientes para la adecuada gestión del proyecto e implementar un alto número de adquisiciones, se podría generar atrasos y menor calidad de la ejecución	Mitigar	Se creará una UGP para la gestión del proyecto; se contratará a una agencia especializada de contrataciones para apoyar en las contrataciones del personal y logística de capacitaciones para la gestión del proyecto; y el Banco realizará capacitaciones en políticas y procedimientos fiduciarios.	SEAFDS	Inicio de la fase de ejecución

<sup>2</sup> Resumen de la matriz de riesgos de la operación, de conformidad con el Marco para la Gestión de Riesgos en Proyectos con Garantía Soberana (OP-1519-4) y sus Guías (OP-1699-2).

6	Si las organizaciones beneficiarias no logran presentar oportuna y adecuadamente rendiciones de cuentas por los recursos transferidos, se puede atrasar la ejecución.	Evitar	Se establecerá claramente el mecanismo de coordinación y rendición de cuentas en el ROP del Programa; se elaborará un modelo de convenio a ser firmado con las organizaciones, estableciendo claramente las responsabilidades y mecanismos a ser aplicados; y el proyecto brindará apoyo técnico a las organizaciones para una adecuada rendición de cuentas.	SEAFDS	Inicio de la fase de ejecución
7	Insuficientes capacidades y claridad en responsabilidades institucionales podrían afectar la sostenibilidad de las inversiones del programa.	Mitigar	Para los planes productivos, se financiará asistencia técnica para fortalecer las capacidades de gestión de las organizaciones y se elaborarán planes de mantenimiento.	SEAFDS	Inicio de la fase de ejecución

1/ Use uno de los dos enunciados de riesgo siguientes: i) si sucede una CAUSA, podría ocurrir un EVENTO, que generaría un IMPACTO; ii) podría ocurrir un EVENTO, que generaría un IMPACTO  
No se incluyen los riesgos con nivel medio-bajo y bajo.

2/ Estrategia del Riesgo: Evitar, Transferir, Mitigar, Explotar, Mejorar, Compartir y Aceptar.

3/ Momento en el que se desarrollará la acción de respuesta para gestionar el riesgo identificado. Puede ser una fecha o una condición disparadora, como un evento o un hito.

**COMENTARIOS<sup>3</sup>:**

<sup>3</sup> Se utiliza para destacar los principales aspectos que influyeron en la evaluación y/o las decisiones tomadas por el Jefe de Equipo de Proyecto.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 14 Monitoring And Evaluation Plan**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



INTER-AMERICAN DEVELOPMENT BANK DOCUMENT

**BRAZIL**

**PARAÍBA RURAL SUSTAINABLE DEVELOPMENT PROJECT  
(PROCASE II PROJECT)  
(BR-L1623)**

**MONITORING AND EVALUATION PLAN**

June 2024 version

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## CONTENTS

<b>I.</b>	<b>INTRODUCTION</b> .....	<b>4</b>
<b>a.</b>	<b>Program objectives</b> .....	<b>4</b>
<b>b.</b>	<b>Theory of Change</b> .....	<b>4</b>
<b>c.</b>	<b>Summary of monitoring and evaluation mechanisms</b> .....	<b>13</b>
<b>II.</b>	<b>MONITORING</b> .....	<b>14</b>
<b>a.</b>	M&E team.....	15
<b>b.</b>	General implementation indicators .....	15
<b>c.</b>	IFAD Monitoring and Evaluation Indicators.....	25
<b>d.</b>	Sending reports .....	27
<b>e.</b>	Coordination, timetable, and budget for monitoring and evaluation .....	27
<b>f.</b>	M&E system .....	27
<b>g.</b>	Annual costs per product.....	27
<b>III.</b>	<b>EVALUATION</b> .....	<b>31</b>
<b>a.</b>	Main evaluation questions .....	31
<b>b.</b>	Evaluation methodology .....	31
<b>c.</b>	Sample size calculations .....	42
<b>d.</b>	Evaluation coordination, workplan and budget .....	44
<b>e.</b>	Responsibilities and disclosure of results .....	48
<b>f.</b>	Additional information on indicators measurement .....	50
	<b>BIBLIOGRAPHY</b> .....	<b>56</b>
	<b>ANNEXES</b> .....	<b>62</b>
	Annex I: Methodology for measuring the women empowerment indicator.....	62
	Annex II: Distribution of municipalities according to rural territory in the state of Paraíba...	65
	Annex III: Estimated CO <sub>2</sub> emissions avoided .....	71



## Acronyms and abbreviations

AWPB	Annual Workplan and Budgeting
CAR	Rural Environmental Registry
CI	Core Indicator
COI	Core Outcome Indicator
CRIAR	Direct Support Program for the Creation of Rural Agri-Food Initiatives
EA	Executing Agency
EFA	Economic and Financial Analysis
FF	Family Farming
GDP	Gross Domestic Product
HDI	Human Development Index
IBGE	Brazilian Institute of Geography and Statistics
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IT	Information Technology
KM	Knowledge Management
LF	Logframe
MARENA	Natural Resource Management Project in Priority Basins
MDDW	Minimal dietary diversity for women
MDE	Minimum Detectable Effect
MPI	Multidimensional Poverty Index
PROCASE	Paraíba Rural Sustainable Development Project
PCTs	Traditional Peoples and Communities
PCR	Project Completion Report
PEP	Project Execution Plan
PFI	Institutional Strengthening Plans
PIR	Resilient Investment Plan
PMR	Progress Monitoring Reports
PMU	Project Management Unit
PNs	Business plans
PNAE	National School Feeding Program
PROVIAR	Project to integrate small producers into the wine chain
PSM	Propensity score matching
ROP	Project Operational Regulations
SAT	Land Administration Systems
SDGs	Sustainable Development Goals
SEAFDS	State Secretariat for Family Farming and Semiarid Development
SSTC	South-South and Triangular Cooperation
STA	Specialized Technical Assistance
TA	Technical Assistance and Rural Extension
UAF	Family farming unit
VTPA	Total value of agricultural production

## I. Introduction

This document presents the aspects related to the monitoring mechanisms of the "Paraíba Rural Sustainable Development Project (PROCASE II Project)". The borrower will be the State of Paraíba and the Federative Republic of Brazil will be the guarantor of the borrower's financial obligations. The Executing Agency (EA) will be the borrower, through the State Secretariat for Family Farming and Semiarid Development (SEAFDS). SEAFDS will be responsible for the technical and fiduciary management of the Project and a Project Management Unit (PMU) will be created within its structure .

### a. Program Objectives

The overall goal of the Project is to **reduce rural poverty levels, improving food and nutritional security and adapting the rural population to climate change.**

The specific objectives are:

- I. Increase the adoption of agricultural technologies that contribute to the adaptation and mitigation of climate change;
- II. Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities;
- III. Improving the environmental conditions of rural communities and their surroundings

These objectives will be achieved through the implementation of interconnected actions aimed at changing the individual, organizational and inter-institutional capacities of the beneficiaries.

### b. Theory of Change

#### Problems

**General context.** Paraíba has a territory of 56,467 km<sup>2</sup>, with an estimated population of 4,059,905 inhabitants (IBGE, 2023), 23% of whom live in rural areas. Of the total, 52% are women, and 44% are under 25.

Paraíba's Human Development Index (HDI) for 2010 was 0.658, which is considered 'average'. As is the case throughout the country, this index has been improving since it was first measured in 1991. That year, it was 0.362, rising to 0.484 in 2000. In the last measurement of this index (2010), the state ranked 23rd out of the 27 Brazilian states.

In 2020, the state's Gross Domestic Product (GDP) was R\$70.2 billion, an increase of 3.9% compared to 2019. In terms of GDP per capita, the state had a value of R\$ 17,402 per inhabitant, a nominal increase of 2.9%, which resulted in an increase of 0.3 p.p. in the percentage of regional and national GDP per capita. In addition, Paraíba ranked as the 6-largest economy in the Northeast region in a universe of 9.

**Climate:** The very name semiarid highlights the climatic aspects of this region of Paraíba. As in the whole of the northeastern Sertão, in this region rainfall is the key element that characterizes the climate and determines a series of factors that express the region's potential, especially when it comes to agricultural and extractive production. There is little rainfall in the Semiarid region of Paraíba, especially when comparing rainfall to the very high evapotranspiration - 2,000 mm/year-1 (SILVA et al., 2010) or even 2,500 mm/year-1 (MONTENEGRO; MONTENEGRO, 2012) - which is characteristic of the region. This rainfall is quite variable in the semiarid region of Paraíba, with the annual average ranging from 330 to 900 mm.

These rains are concentrated in a short 'winter' period, which rarely exceeds four months a year (generally occurring between January and May in the westernmost regions of Paraíba's semiarid and later in the easternmost parts of the region). This already characterizes a very marked seasonality, and it is normal to have a drought or 'summer' of several months without rain.

**Climate change:** Current studies on the subject are predicting warming throughout the continent; thus, simulations for the Northeast region have predicted a temperature increase of 0.5°C - 2.0° C in the 2011-2040 period, compared to the 1961-1990 reference period (CHOU et al., 2014). By the end of the 21st century, the temperature increase could reach 2-3°C up to 4°C, depending on the simulation scenario. In the worst-case scenario, rainfall forecasts are quite drastic, which could significantly worsen aridity conditions in the region

(CONFALONIERI; LIMA; BRITO, 2014). Regarding rainfall, the projected annual cycle shows a reduction for the region. In addition, an increase in periods of consecutive dry days and a wide range of climatic variability are common features of these and other simulations for the Northeast of Brazil (CHOU et al., 2014).

According to recent data, some changes can already be detected in the climate of the semiarid Northeast, which confirms these predictions. For example, the European Center for Medium-Range Weather Forecasts estimates that in this region, between 1989 and 2016, the average minimum temperature increased by 0.76°C, while the average maximum temperature increased by 1.25°C. According to the University of California's Climate Risk Center, from 1981 to 2018, there was a reduction of approximately 74 mm in the average annual rainfall in the region.

**Environmental degradation:** In addition to the climate and aridity discussed in the previous section, the main characteristic of the semiarid region of Paraíba is the predominant presence of vegetation called Caatinga, a word of Tupi-Guarani origin meaning white forest - an allusion to its appearance during the dry season. This typical predominant biome of the Brazilian semiarid region comprises different flora arrangements over a mosaic of soils (TRAVASSOS, 2012). Although diverse, this vegetation has common characteristics: the Caatinga is made up of plants adapted to semiarid conditions, capable of going into long periods of dormancy, taking efficient advantage of the short and irregular periods of rain for their reproductive cycles. The Caatinga is predominantly of the hyperxerophilous type, characterized as low shrubby vegetation, very rarely arboreal, with small leaves and thorny stems, fully adapted to contain the effects of very intense evapotranspiration (BRASIL-CODEVASF, 2006).

Human occupation and the use of this vegetation in productive activities have had a degrading effect on the Caatinga in many regions, an effect that climate change is likely to exacerbate. However, the Caatinga is still present and is an important resource for farming families. When well-managed, this vegetation, which is fully adapted to the semiarid environment, can provide good quality fodder for animal husbandry (goats, sheep, and cattle) and pasture for bees and other products.

**Agricultural activities and family farming:** The 2017 Agricultural Census reports a total of 142,500 agricultural establishments in the 194 municipalities of the semiarid region of Paraíba (INSA-IBGE, 2018). Assuming that family establishments account for approximately 88% of this total, we have a contingent of 125,400 family production units working in this region to make a living.

According to the 2006 Agricultural Census (IBGE), family farming accounted for 59% of the gross value of production generated by establishments in the agricultural sector in Paraíba. Although family farming (FF) produces an important part of the overall agricultural product, the large number of family establishments means that this value is diluted among families. Paraíba's concentrated land structure is a strong indicator of the concentration of wealth in society and partly explains the high rate of rural poverty in the state. As can be seen in **Table 04** below, Paraíba's land structure reveals that the state has a high concentration of land in the hands of people who are not family farmers. In the semiarid region, 12% of establishments are non-family farms and occupy 57% of the area. Although there are several settlements in the state resulting from various land access programs (Agrarian Reform settlements, Land Credit, state land access initiative, etc.), these have not been enough to solve the problem of land concentration. This issue continues to be an important, albeit highly complex and controversial, aspect of Paraíba's rural development agenda.

**Access to technical assistance (TA):** Without the support of qualified professionals, farmers are prevented from implementing more sustainable and efficient agricultural practices, as well as adapting to climate change and the challenges of access to market and finance. Only 17% of family farming units (UAFs) have access to TA services (IBGE 2017), of which 80% say they receive TA from the government (federal, state, or municipal).

**Collective organizations:** Enterprises involved in the activities of packaging, processing, and commercializing products have also encountered many difficulties. There are around 8,700 processing units in the Project area (IBGE 2017). According to MDS 2018, 349 enterprises in Brazil were registered and able to offer their products to government buyers. Of these, only 7 are from Paraíba (2%).

**Commercialization:** Family farmers have limited commercialization channels and depend on local sales. According to FNDE data, Paraíba's PNAE received only 2% of the program's total resources in 2022. Regarding the Northeast, this result puts the state only ahead of Sergipe, Rio Grande do Norte and Alagoas. It is worth noting that the PNAE is an important means of Commercializing UAF products.

**Gender:** In the state of Paraíba, the Gender Disparity Index is 0.68%, indicating that Paraíba women are 32% less likely to have the same opportunities as men, with the biggest gaps being in the dimensions of political empowerment and economic opportunity. In rural areas, resistance to advances in women's autonomy and rights

is even greater. Gender gaps are expressed in restrictions on control and access to natural, social, and monetary resources.

One of the fundamental obstacles is the concentration of land ownership in the hands of men, leaving women in a situation of economic dependence. According to the 2017 Agricultural Census in Paraíba, 71.0% of women managers of FF establishments have land titles, compared to 73.1% of male managers - an inclusion gap of 2.1 percentage points. On the other hand, when it comes to the management of establishments, women run only 24% of family farming (FF) establishments in the Project. However, between 2006 and 2017, there was a 20.3% increase in the proportion of establishments run by women in the state. There is no data available on joint titling.

**LGBTQIAPN+:** The lack of government data on the socioeconomic and political challenges faced by the LGBTQIAPN+ community is indicative of the statistical 'invisibilization' and marginalization of this group. The lack of a social assistance policy, the rural exodus of the LGBTQIAPN+ population to urban centers, the lack of family support, limited access to income and low employability in the countryside, the difficulty of staying in the school environment due to prejudice, especially from the trans population, are some of the factors that favor maintaining the invisibility of data on the LGBTQIAPN+ population in rural areas.

Paraíba recorded a total of 68 cases of violent deaths of the LGBTQIAPN+ population between 2017 and 2022, according to data released in a report by the Secretariat for Women and Human Diversity. In total, 24 municipalities in Paraíba recorded cases. João Pessoa has the highest number of cases, with 29 crimes, followed by Campina Grande and Bayeux, with five cases each, and Patos was in third place, recording four crimes. Gay men represent the largest number of murders in Paraíba, leading with 17 of the 29 cases between 2020 and 2022, followed by cross-dresser, who represent six cases in the same period, and in third place are transgender women, with 4 crimes.

**Youth:** Brazil's Youth Statute (2013) defines young people as those between 15 and 29 years of age. In the Project area, there are 893,666 young people. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods, and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

In Paraíba, among young people aged 15 to 29, approximately 35.1% were neither studying nor working in 2021, according to the Synthesis of Social Indicators 2022. Young Afro-descendant women have a higher percentage out of school and the job market. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, and young women are the majority in this situation. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department.

**Persons with disabilities:** The Northeast is the region with the highest percentage of persons with disabilities in Brazil: 10.3% of the population or around 5.8 million people. The highest percentages of persons with disabilities are women and people of African descent. According to data from the Single Registry (November 2023), there are 144,655 persons with disabilities in the Project area, or around 5.6% of those registered.

Disability and poverty are intricately linked in Paraíba, with persons with disabilities facing significant stigma and discrimination. For example, this group has lower success rates at school and more limited access to economic activities, both of which are major factors contributing to family poverty. In the state, 88.7% of persons with disabilities do not work, and 74.4% earn less than the minimum wage.

**Agrarian Reform Settlers:** In Paraíba, there are 47 quilombola communities with recognized certificates of self-definition, with approximately 16,000 people. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have their territory officially delimited. Information provided by INCRA's Superintendence in Paraíba confirms that none of the quilombola communities in the state have land titles. In the case of agrarian reform settlers, it is worth mentioning that there are 280 federal settlements in the state, according to data collected from the INCRA Superintendence in Paraíba, with 13,535 settled families. Of these, only 1,835 (13.5%) have land titles.

#### **Traditional Peoples and Communities (PCT):**

**Indigenous people:** According to the 2022 Demographic Census, Paraíba has 30,492 indigenous people, corresponding to 0.76% of the state's total resident population. Of the total number of indigenous people in Paraíba, 50.8% are women, and 25.6% are young people aged between 15 and 29. However, only 6,842

indigenous people (18.7% of the total) live in Indigenous Territories. In the Unified Registry, there are 6,328 indigenous families registered, 73.1% of whom are in a situation of poverty or extreme poverty.

**Quilombolas:** Regarding quilombolas, according to the recently published data from the 2022 Demographic Census, there are 16,584 quilombolas in Paraíba, but only 17.6% (2,918 people) live in the state's 11 officially delimited quilombola territories. The municipalities in Paraíba with the highest number of quilombola residents were Conde (around 3,000), João Pessoa (2,260), Cacimbas (1,698), Santa Luzia (1,324) and Alagoa Grande (946). Overall, 51 municipalities in the state registered a quilombola population. When calculating the ratio between the number of quilombolas and the population of each municipality, the highlights are Cacimbas (23.5%), Conde (10.9%), Diamante (9.4%), Santa Luzia (8.9%), Riachão do Bacamarte (8.8%) and Dona Inês (7.8%).

**Roma:** It is estimated that the Roma population in the state is around 1,000 families of the Calon ethnic group, present in more than 35 municipalities, according to data collected by the Community Association of Gypsy Peoples of Condado (ASCOCIC) in 2015. According to a socioeconomic survey by the State Secretariat for Human Development, the largest Roma community in Paraíba is in the municipality of Sousa. In Sousa alone, 278 family nuclei were declared, accounting for 904 people. However, there are Roma families all over the state of Paraíba.

**Shellfish gatherers:** In Paraíba, there are three informal associations of shellfish gatherers who call themselves "Women of the Waters" communities in the municipalities of João Pessoa, Cabedelo, and Pitimbu. They bring together an average of two and a half thousand women. In Acaú/Pitimbu (Mata Sul da Paraíba), of the 316 women involved in shellfish gathering, 104 are active members of AMA - Associação de Marisqueiras de Acaú (Association of Shellfish Gatherers of Acaú). However, they are registered with the Ministry of Fisheries as artisanal fisherwomen.

## Empirical evidence

### **Agricultural extension and business plans**

Many studies have examined the economic, social, and environmental impacts of agricultural extension services. In general, the public provision of agricultural extension services is motivated by market failures, such as asymmetric information, limited access to credit, and inadequate or incomplete market infrastructures, among others (Feder et al., 1985). Evidence shows that, in many rural contexts, family farmers have more limited access to extension services and technology diffusion, even though they can extract the greatest benefits (Ragasa et al., 2012). If this is the case and there is a gap between the technology currently used and the best technology for farms in a given region, extension services can bridge this gap and speed up the process of diffusing improved technology, allowing for faster growth in rural incomes while protecting natural resources from degradation (Birkhaeuser et al., 1990).

Existing data supports the hypothesis that innovation and the adoption of more efficient agricultural technologies can effectively improve productivity and farmers' incomes. In a comprehensive review of a series of rigorous studies on the effects of agricultural research, Alston et al. (2000) found an average rate of return on investment of 58%. Fuglie and Rada (2013) evaluate the technological improvements introduced in sub-Saharan Africa by the Consultative Group on International Agricultural Research (CGIAR) and estimate that for the 34 million hectares on which these technologies were applied (representing 21% of the region's agricultural land), production increased by 65%. Other important effects of agricultural extension services are increased food security (Rosegrant and Cline, 2003; Aramburu et al., 2014) and, above all, better adaptation to climate change (Lybbert and Summer, 2012).

There is ample empirical evidence to show that promoting the adoption of technologies has significant and positive impacts on agricultural productivity and income. In Bolivia, the "Direct Support Program for the Creation of Rural Agri-Food Initiatives" (CRIAR), implemented in 2011 and co-financed by the IDB, provided financial support for the cost of adopting and implementing new agricultural technologies among small rural producers. In an evaluation of the program using the instrumental variables method, Salazar et al. (2015) found that, on average, productivity increased by 92%, households' net agricultural income increased by 36%, and the probability of having food security increased from 20 to 30%. Rossi (2013) evaluated the "Project for the Integration of Small Producers in the Wine Chain" (PROVIAR) implemented in the Argentine provinces of San Juan and Mendoza, which promoted the integration of wine value chains through the implementation of production plans and provided co-financing for the adoption of new technologies. Using the quasi-experimental

double-difference methodology, the study found significant impacts on increasing production (7.8%) and productivity (7.9%).

Another impact study carried out in Argentina used the quasi-experimental double difference methodology to evaluate the impact of a technology transfer program on dairy production and estimated a 13% increase in productivity, a 10% decrease in calf mortality, and an increase in annual net income of 39.7% from the incorporation of management technologies on dairy farms (Lema et al., 2015). Combining the double difference methodology with the Entropy Balance method, a study by Durán et al. (2018) evaluated the "Rural Productive Development Program" in Uruguay, an operation structured on financial support for the adoption of technologies, and found a significant effect on the productivity of the beneficiaries, finding increases of more than 10% in milk and meat production per hectare. Similarly, the "Natural Resource Management Project in Priority Basins" (MARENA) in Honduras provided co-financing for technological packages and technical assistance for the diversification of products and the adoption of production systems to improve the competitiveness of small farmers. Bravo-Ureta et al. (2011) evaluated the program using the double difference methodology combined with propensity score matching (PSM). They found positive and significant effects on the total value of agricultural production (VTPA) of beneficiaries, with annual increases in the range of US\$ 245 and US\$ 296 compared to non-beneficiaries.

Other extension programs focused on providing inputs and improved varieties have also obtained positive results. In the case of an extension program aimed at grape producers in Mendoza, Argentina, Cerdán-Infantes et al. (2008) used a 5-year panel with a fixed effects model and found that yields increased by 40%, but only for farmers whose production was low before the program. Using the PSM method to explain unobservable differences between adopters and non-adopters of an extension program in the Dominican Republic, González et al. (2009) detected significant positive effects on the productivity of rice and cattle producers but no other type of producer, suggesting that the effectiveness of different technologies may vary in the short term. This experience implies that it is important that the technologies, practices, and inputs proposed are carefully selected to meet the specific needs of farmers in the region and are well adapted to climatic and environmental conditions.

### **Land titling and environmental regularization**

The regularization of rural land tenure generally increases land security and thus increases agricultural producers' investment, productivity, and income (Lawry et al., 2017). Studies in Nicaragua and Peru show positive effects on agricultural investment, productivity, income and even investment in water, sanitation, and electricity in households (Aldana & Fort, 2001; Antle et al., 2003; Deininger & Chamorro, 2004; Foltz et al., 2000; Meeks, 2018; Torero & Field, 2005). Regularization programs can also facilitate access to credit by allowing the use of land as collateral; however, empirical evidence does not confirm this hypothesis, suggesting that these programs should consider the functioning of the credit market to increase their impact (M. R. Carter & Olinto, 2003). However, the empirical results fail to detect any real impact of diplomas on credit (Sanjak, 2012).

If registry and titling activities include land delimitation through georeferencing or physical demarcation, resulting in georeferenced parcel maps, it is hoped that the frequency of land conflicts will decrease and that families will be able to invest their time in more productive activities, as they can spend less time reallocating resources to land surveillance practices (Besley and Ghatak, 2010). Titling can also reduce transaction costs in the land market (e.g., rent, sale, mortgage, inheritance, etc.) by clarifying rights and making them more easily transferable. Increased tenure security through titling can also encourage rural farming families to invest in land. Titling gives landowners greater confidence that their investments will be capitalized at the price they would receive on the land market, ultimately increasing the value of their properties (Galiani and Schargrotsky, 2016). For example, Deininger and Chamorro (2002) investigated the effects of investment and income on Nicaragua's massive land titling program. Using household survey data and econometric analysis, they conclude that household beneficiaries increased investments in land security by 8% to 9%. They also experienced an increase in the value of the plots. Similarly, Torero et al. (2005) found that granting a registered title improved land values by 30% in Peru.

Land titling should be seen as an input for the formation of effective Land Administration Systems (SAT). Modern SAT fulfill four basic functions: land administration (for which it is important to have a situation of land regularity in the territory), valuation, land use planning, and land use planning (Williamson et al., 2010). Having an efficient and complete SAT is important to give sustainability to land regularization and the economic benefits that derive from it, but it is also important from a revenue point of view and to be able to meet the territorial development objectives that a country considers, such as the definition and conservation of protected natural areas, for example (Conroy et al., 2014).

Security of land tenure is generally associated with less deforestation (Barbier et al., 2011; Robinson et al., 2014), as is the case in indigenous lands in the Peruvian and Bolivian Amazon, Brazil, and Colombia (IDB, 2018). However, another study found no effects in Brazilian indigenous lands (BenYishay et al., 2017). In addition, there are cases where security of tenure increases the rate of deforestation, such as in Nicaragua (Liscow, 2013). In favor of titling, it has been found to have positive impacts on the adoption of environmental practices and technologies for soil and water conservation (Ali et al., 2014; Deininger et al., 2011; Quisumbing & Kumar, 2014). In this context, it is expected that environmental regularization through compulsory registration in the CAR will contribute to greater environmental impacts. However, evidence of this impact has so far been contradictory. For example, L'Roe et al. (2016) found that registration in the CAR in the state of Pará between 2007 and 2013 had no significant impact on the rate of deforestation, except for small properties in the 100 to 300 ha range. The authors link this effect to the interactive incentives of environmental and land regularization policies, in the sense that compliance with environmental regulations can increase land security.

### **Proposed solution**

To achieve the proposed objectives, the Project plans to finance activities and investments grouped into 2 intervention components:

**Component I: Resilient production systems to reduce rural poverty.** It will make investments to improve income, food security and nutrition, adapt production systems to climate change, and protect the natural resource base. Productive investments will be made in rural communities, as well as in processing units (cooperatives). All the actions will particularly target women, youth, persons with disabilities, LGBTQIAPN+ and families from traditional communities, with activities planned specifically for these groups.

**Subcomponent 1.1: Implementation of resilient biodiverse production systems.** Investments will be made through the Resilient Investment Plan (PIR), which will be the instrument for planning and implementing the resources of this subcomponent and will promote the recovery and implementation of polyculture areas and agricultural agroforestry systems, seeking to intensify biomass production and agricultural production itself, to reduce vulnerability to extreme climate events. At the same time, it will promote the implementation/strengthening of animal production units adapted to the context.

**Subcomponent 1.2: Strengthening and diversifying commercialization.** Business Plans (PNs) will be the main instrument for implementing this subcomponent, and will be drawn up with producer organizations, usually cooperatives. The PNs should make it possible to finance structuring investments and include producers who benefited from the PIRs as a priority.

**Subcomponent 1.3: Incentives for innovation.** Equipment, machinery, inputs, products and/or implements developed or adapted to meet the demands of family farmers.

### **Component II: Organizational strengthening, capacity building and knowledge management.**

It will invest to strengthen family production units, ensuring that activities are carried out to assist families individually and collectively, as well as presenting the main public policies available in the country. The Technical Assistance (TA) and Rural Extension services will support the preparation and implementation of the Resilient Investment Plans (PIRs). The services of Specialized Technical Assistance (STA) will be especially dedicated to the Business Plans (PNs) and to strengthening the capacities of the beneficiary organizations. There are also activities aimed at strengthening commercialization, through the creation of participatory guarantee systems (PGS) for agricultural products, and the creation of fairs and commercialization centers.

Farmers will have access to services related to land titling and environmental regularization (Rural Environmental Registry - CAR), allowing for better security of land and means of production.

The knowledge gained will be recorded and disseminated through Knowledge Management actions and publications, as well as through exchanges and South-South and Triangular Cooperation (SSTC).

All the actions will particularly target women, youth, persons with disabilities, and families of traditional communities, with activities planned specifically for these groups. Beneficiaries will receive information and investments to improve nutrition and food security.

**Subcomponent 2.1: Strengthening family farmers' capacities.** This subcomponent will work to strengthen families' capacities, considering the weaknesses identified in various areas, such as production processes; the environmental sustainability of this production and the wider landscape; the protection and recovery of threatened natural resources; organizational and governance issues; administrative and

financial management issues; commercialization and access to public policies. This subcomponent's main actions will be done by contracting TA services, including drafting and implementing the PIRs.

**Subcomponent 2.2: Strengthening organizations' commercialization capacities.** This subcomponent will work to strengthen the capacities of beneficiary organizations, such as cooperatives, prioritizing assistance for better business management, processes, and commercialization. This subcomponent's main actions will be done by contracting STA services, including the preparation and implementation of the PNs.

**Subcomponent 2.3: Diversity, gender, youth, nutrition, and food security.** The Gender, Diversity, Nutrition and PCT Plans will finance activities to promote gender equality and women's empowerment, as well as the social inclusion and empowerment of Afro-descendants, Traditional Peoples and Communities (PCTs), the LGBTQIAPN+ community and persons with disabilities. The Youth Plan will work to ensure the improvement of the living conditions of rural youth through socioeconomic empowerment, increased participation, voice and decision-making power in rural institutions and organizations and the appreciation of rural life through activities involving culture and sport.

**Subcomponent 2.4: Land and environmental regularization.** This subcomponent will finance activities to promote the guarantee of ownership and the right to property of the land occupied by farming families located in the area covered by the Project, providing legal security and access to public policies, seeking to promote social inclusion, cultural preservation and environmental sustainability of the territories occupied by these populations.

**Subcomponent 2.5: Knowledge Management and South-South and Triangular Cooperation.** This sub-component will support the organization and systematization of knowledge materials, as well as carrying out exchanges and knowledge-sharing through SSTC in semiarid regions in Brazil, Latin America, and Africa, with the aim of visiting successful experiences and sharing the methodology and results achieved during the implementation of the Project.

**Project Management, Monitoring and Evaluation (M&E).** These funds will finance Project management, monitoring and evaluation and auditing activities.

The International Fund for Agricultural Development (IFAD) will provide co-financing (parallel financing) of 10 million dollars. For the purposes of managing the execution of the activities to be financed with IFAD resources, the Bank and IFAD will sign a coordination agreement to detail the Bank's technical-operational responsibilities, such as reviewing disbursement requests, reviewing procurement documentation, and supervising the program, among others. In this context, the evaluation and impact framework should address both the IDB's institutional requirements under the Development Effectiveness Framework and IFAD's under its Strategic Framework for 2016-2025, and its Sustainable Development Goals (SDGs).

## **Expected Results and Impacts**

**Results.** In the medium term, implementing the two components are expected to contribute to achieving the following Program's specific objectives:

***Specific objective 1. Increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change.***

Through the implementation of Resilient Investment Plans (PIRs) and Business Plans (PNs), farmers are expected to start using sustainable or climate-smart inputs, technologies or practices (**Outcome 1.1**). In this way, farmers are expected to have better access to agricultural investments and services (**Outcome 1.2**).

***Specific objective 2. Improve the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT), and persons with disabilities.***

The activities carried out through TA aim to increase the beneficiary families' access to adequate, quality information aimed at developing more profitable agricultural production that is also more resilient to climate change, seeking greater integration into the region's different value chains with initiatives to support processing and commercialization.

Thus, the percentage of family farmers who sell their products at markets is expected to increase (**Outcome 2.1**) and the organizations supported by the PN are expected to increase their sales



(**Outcome 2.2**). The Gender and Diversity Plan will address a general implementation strategy for all activities related to the theme, and is expected to increase the number of women holding managerial positions in rural organizations (**Outcome 2.3**), in addition to the change in the percentage of people who report being empowered compared to the baseline (**Outcome 2.4**). The Youth Plan aims to ensure improvements in the living conditions of rural youth through socioeconomic empowerment, increased participation, voice and decision-making power in rural institutions and organizations, and the appreciation of rural life through activities involving culture and sport. This is expected to increase the number of people with new jobs (**Outcome 2.5**).

**Specific objective 3.** *Improve the environmental conditions of rural families and their surroundings*

Land titling and environmental regularization activities with rural communities can provide an area of rural property registered in the CAR (**Outcome 3.1**), and communities with a land and environmental regularization title (**Outcome 3.2**).

**Impacts.** In the long term, the confluence of results in adapting more productive and environmentally sustainable technologies, improving the productive and social inclusion of family farmers and the legal security of property, should affect a series of impacts that are aligned with the general objective of **reducing rural poverty levels, improving food and nutritional security, and adapting the rural population to climate change**.

Therefore, the various interventions financed by PROCASE II are expected to contribute to (i) a reduction in the Multidimensional Poverty Index (**Indicator I1**); (ii) an increase in families reporting minimum dietary diversity (MDDW) (**Indicator I2**); an increase in agricultural production (**Indicator I3**); and an increase in tons of greenhouse gas emissions (CO<sub>2</sub>e) avoided and/or sequestered (**Indicator I4**);

The summary of the intervention's theory of change is shown in **Figure 1**.

**Figure 1 - Theory of Change**

PROCASE II PROJECT THEORY OF CHANGE				
<b>Objective:</b> To reduce rural poverty levels by improving food and nutritional security and adapting the rural population to climate change.				
Inputs	Activities	Products	Outcomes	Impacts
Technical support	<b>C1. Resilient production systems to reduce rural poverty</b>	<b>C1. Resilient production systems to reduce rural poverty</b>	<b>SO1. Increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change</b>	Multidimensional Poverty Index (Adjusted Headcount)
	1.1 Implementation of resilient and biodiverse production systems	Resilient Investment Plans (PIRs) with agreements Resilient Investment Plans (PIRs) executed with more than 75% rendering of accounts	Percentage of households using sustainable or climate-smart inputs, technologies, or practices Farmers with better access to investments and agricultural services	
	1.2 Strengthening and diversifying commercialization	Business plans for structuring cooperatives/processing units with agreements Business plans for structuring cooperatives/processing units executed with more than 75% rendering of accounts		
	1.3 Incentives for innovation	Innovative technologies developed or adapted		
Building materials	<b>C2. Organizational strengthening, capacity building and knowledge management</b>	<b>C2. Organizational strengthening, capacity building and knowledge management</b>	<b>SO2. Improve the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities.</b>	Percentage of families reporting minimal dietary diversity (MDDW)
	2.1 Strengthening family farmers' capacities	Training events for Agroecological TA and STA entities held Families assisted by Agroecological TA Training events and farmer exchanges held Training events for access to public policies and other programs	Percentage of family farmers who sell their products at markets Organizations supported by PN increase their sales	Farmers increasing their agricultural production
Financing	2.2 Strengthening organizations' commercialization capacities	Cooperatives and producer organizations assisted with STA Local fairs and commercialization centers created/improved Health inspection services in operation Participatory certification systems pilot in operation	Percentage of women in management positions in rural organizations Change in the percentage of people who report being empowered compared to the baseline People with new jobs	Number of tons of greenhouse gas emissions (CO2e) avoided and/or sequestered
	2.3 Diversity, gender, youth, nutrition and food security	Gender and diversity plan drawn up Annual phases of the Gender and Diversity Plan implemented Youth plan drawn up Annual phases of the Youth Plan implemented PCT Strengthening Plan drawn up Annual phases of the PCT Strengthening Plan implemented Nutrition and Food Safety Plan drawn up Annual phases of the Nutrition and Food Safety Plan implemented Local Development Agents hired	<b>SO3. Improve the environmental conditions of rural communities and their surroundings</b>	
Technical and IT equipment	2.4 Land and environmental regularization	Families benefiting from land and environmental regularization	Area of rural properties registered in the CAR Communities handed land and environmental regularization titles	
	2.5 Knowledge management and south-south and triangular cooperation	Systematizations and studies on Knowledge Management prepared and published Annual phases of Communication and Dissemination in Knowledge Management implemented South-South cooperation exchange events held		

### **c. Summary of monitoring and evaluation mechanisms**

The Monitoring and Evaluation Plan will be based on the following instruments or mechanisms:

- a.** Project Execution Plan (PEP), which contains the procurement plan and the indicators established in the Results Matrix;
- b.** Annual Workplan and Budgeting (AWPB), reviewed periodically by the Bank;
- c.** Progress Monitoring Reports (PMR), which will report every six months on the progress made in the AWPB and the results obtained from carrying out the activities;
- d.** Mid-term and final evaluations, carried out by independent companies hired by the PMU;
- e.** Ex-post socioeconomic evaluation and Project Completion Report (PCR) ;
- f.** Impact assessment as described later in Section III (including the necessary surveys: baseline, mid-term line and end line).

This Monitoring and Evaluation Plan specifies: (i) the methodology for measuring indicators; (ii) the methodology for evaluating impact; (iii) data requirements; and (iv) those responsible and the estimated budget for implementing the activities.

**Monitoring.** The borrower, through the PMU, will send the Bank, no later than 60 days after the end of each semester of each year during the original disbursement period or its extensions, a monitoring report on the progress of activities, which will include the information needed to complete the Progress Monitoring Report (PMR) based on the indicators in the Results Matrix. The borrower, through the PMU, will have management systems that will contain information for monitoring and following up on the RMP.

**Evaluation.** The mid-term evaluation of the entire program must be submitted to the Bank by the borrower through the PMU within 90 days of the date on which 50% of the loan resources have been disbursed or when 36 months have elapsed from the entry into force of the loan agreement, whichever comes first. This evaluation is based on a qualitative methodology and a quantitative analysis of two rounds of surveys (baseline and mid-term) following the methodology set out in Section III. The final evaluation must be submitted to the Bank within 90 days of the date on which 95% of the loan resources have been disbursed. This evaluation is based both on a qualitative methodology to prepare the necessary inputs for the Relevance, Efficiency, and Sustainability criteria of the Project Completion Report and on a quantitative analysis of three rounds of surveys (baseline, mid-term, and end line survey) in accordance with the methodology set out in Section III. The evaluation will be carried out following the guidelines of the RCP Report. Following what is indicated in the Principles and Guidelines for preparing the Project Completion Report (PCR) and given that these two operations are complementary, follow a single vertical logic and have a single results matrix, a single Project Completion Report. The PCR will be prepared when both operations reach operational closure, fully justified. The borrower will be responsible for implementing the monitoring and evaluation activities as indicated in this Monitoring and Evaluation Plan. The final evaluation report will include the results of the impact evaluation of the program (see Section III). The impact evaluation, including the three rounds of research, will be financed with loan resources of US\$ 600,000, included in the Management component.

## II. Monitoring

The Executing Agency will be responsible for monitoring all components of the Program. The execution of the program will be coordinated by the PMU. The implementation scheme, including coordination mechanisms and possible support from a management company, is detailed in the Project Operational Regulations (ROP)

The monitoring of results will be based on: (i) the Project Execution Plan (PEP) and its Annual Workplan and Budgeting (AWPB); and (ii) the Results Matrix.

The project monitoring scheme will include: (i) holding at least 2 meetings a year to technically and operationally review the progress of the Project, solve problems and mitigate risks (based on updating the Risk Matrix to be prepared at the last meeting of each year), which will be attended by the relevant players in the Executing Agency; (ii) monitoring by the PMU of the targets agreed with the Bank; (iii) the preparation by the PMU of biannual reports on the achievements of each of the components and the performance of the Project in accordance with the agreed Results Matrix at least from the 2nd year of the Project's implementation, and the hiring of the intermediary and final evaluation to independently analyze the progress achieved and fulfilled by the Program; (iv) the use of management tools agreed within the framework of the Project Inception Workshop, to have adequate instruments to plan the activities and processes necessary to achieve the physical products and intermediate and final results, as well as how to monitor them; and (v) the use of the Project Operational Regulations (ROP) as the management tool and main reference in the progress reviews carried out with the Bank.

During the original disbursement period or its extensions, the PMU will submit the AWPB, the WBS, the procurement plan and the disbursement projection to the Bank. The first AWPB will be drawn up for the first twelve (12) months from the entry into force of the loan agreement. The second and subsequent AWPBs will be submitted to the Bank by November 30th of each year, for use during the following calendar year. The AWPB will be updated based on the Project's execution needs and each update must be approved by the Bank. The other documents (WBS, procurement plan and disbursement projection) must be reviewed and updated if necessary within the same timeframes.

During the original disbursement period or its extensions, the PMU will submit the semi-annual progress reports to the Bank within sixty (60) days after the end of each semester, in accordance with the provisions of the ROP, which will include the Environmental and Social Compliance report.

The ROP includes, among other things: (a) a detailed description of the operation's execution strategy and the Project's expected outputs, both quantitatively and qualitatively; (b) the Project's organizational scheme; (c) the technical and operational arrangements for its execution; (d) the programming, monitoring and results evaluation scheme; and (e) the mechanisms for updating the ROP. A series of specific activities will also be carried out to strengthen the PMU's monitoring capacity, such as a Planning Workshop in conjunction with the Project Inception Workshop, for which the Bank will provide support.

In addition, the PMU will select and hire the services of an independent consultancy firm to carry out the work:

- i. A field survey to compile the mid-term line of the impact evaluation, the results of which must be submitted to the Bank and IFAD within 30 days of the date on which 50% of the Bank's resources have been disbursed and justified, or after 36 months of implementation;
- ii. A mid-term evaluation, which must be submitted to the Bank within 90 days of the date on which 50% of the loan resources have been disbursed and justified, or after 36 months of execution, whichever comes first. This evaluation will focus on analyzing the progress made; aspects of coordination and execution; the degree of compliance with contractual obligations; recommendations for achieving the proposed goals and the sustainability of investments;
- iii. A field survey for the final line of the impact assessment, the results of which must be submitted to the Bank and IFAD within 30 days of the date on which 95% of the loan's resources have been disbursed;
- iv. An ex-post economic evaluation, which will determine the degree of efficiency of the loan following the PCR guide and is guided by the methodology applied for the ex-ante economic evaluation;

- v. An impact assessment, which will present the results of the analysis of the three surveys, following the methodology presented in Section III of this document and consistent with the RCP guide, and the results of which must be presented to the Bank and IFAD within 45 days of the date on which 95% of the loan resources have been disbursed; and
- vi. A final evaluation, which will be based on, among other qualitative sources, the impact assessment and the ex-post economic evaluation, to determine: the degree of compliance with the targets set in the Results Matrix; the effectiveness of the loan; the performance of the executor; factors that influenced implementation; and recommendations for future operations. This evaluation must be submitted to the Bank and IFAD within 90 days of the date on which 95% of the loan's resources have been disbursed.

#### **a. M&A team**

The M&E team will be made up of two professionals assigned to the PMU, with full and exclusive dedication to PROCASE II, who will be responsible for recording beneficiaries and activities, as well as planning and conducting the Project's evaluation studies.

The M&E team will work in conjunction with the SEAFDS bodies responsible for monitoring the Secretariat's projects. In this way, PROCASE II actions will be part of the state's public policy portfolio, bringing greater visibility to these actions.

#### **b. General implementation indicators**

The monitoring indicators will measure the degree of progress in the annual achievement of each of the products, results and purposes listed in the Results Matrix. The impact indicators will be measured through the impact assessment mentioned in the next section.

**Table 1** presents the indicators at the level of impacts and results in the Program Results Matrix, while **Table 2** shows the indicators at the product level. For each indicator, a detailed description of its measurement method and frequency is included, as well as the source of verification (systems, administrative files, or surveys) and the unit within the EA that will be responsible for providing and monitoring this information.

**Table 1.** Indicators and attribution methods

Indicator	Unit of measurement	Measuring frequency	Source of verification	Allocation methodology
<b>General Objective. Reducing rural poverty levels, improving food security and nutrition and adapting the rural population to climate change.</b>				
<b>IMPACTS</b>				
I1. Multidimensional Poverty Index (MPI) (Adjusted Headcount)	MPI	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
I2. Percentage of families reporting minimal dietary diversity (MDDW)	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
I3. Farmers who increase their agricultural production	Farmer	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
I4. Number of tons of greenhouse gas emissions (CO <sub>2</sub> e) avoided and/or sequestered	tCO <sub>2</sub> e/ha	2025 e 2031	FAO's EX-Ante Carbon-balance Tool (EX-ACT)	Simple difference (before - after, with attribution by empirical / literature evidence)
<b>RESULTS</b>				
<b>Specific Objective 1. Increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change</b>				
R1.1 Percentage of households using sustainable or climate-smart inputs, technologies or practices	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
R1.2 Farmers with better access to agricultural investments and services	Farmer	2025 e 2031	M&E system	Simple difference
<b>Specific Objective 2. Improve the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities.</b>				
R2.1 Percentage of family farmers who sell their produce at markets	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
R2.2 Organizations supported by PN increase their sales	Organizations	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
R2.3 Percentage of women in management positions in rural organizations	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)

Indicator	Unit of measurement	Measuring frequency	Source of verification	Allocation methodology
R2.4 Change in the percentage of people who report being empowered from baseline	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
R2.5 People with new jobs	Person	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
<b>Specific Objective 3. Improve the environmental conditions of rural communities and their surroundings</b>				
R3.1 Area of rural properties registered in the CAR in the municipalities covered by the Project	Hectares	2025 e 2031	Monitoring of registration receipts-Insert into M&E system	Simple difference (before - after, with attribution by empirical / literature evidence)
R3.2 Communities with title delivered for land and environmental regularization	Hectares	2025 e 2031	List of communities served with certification or/titling-Insert in M&E System	Simple difference (before - after, with attribution by empirical / literature evidence)

**Table 2. Products**

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
<b>Component I: Resilient production systems to reduce rural poverty</b>												
<b>Subcomponent 1.1: Implementation of resilient and biodiverse production systems</b>												
<b>Product 1.1.1</b>												
Resilient Investment Plans (PIRs) with agreements	Plans	0	2025	0	30	80	90	0	0	200	System M&A	
<b>Hito 1:</b> Families receiving productive investments and/or technologies	Families	0	2025	0	2.700	7.200	8.100	0	0	18.000		
<b>Hito 2:</b> Women-headed households receiving productive investments and/or technologies	Families	0	2025	0	1.350	3.600	4.050	0	0	9.000		50%
<b>Hito 3:</b> Families headed by young people receiving productive investments and/or technologies	Families	0	2025	0	540	1.440	1.620	0	0	3.600		20%
<b>Hito 4:</b> Families belonging to PCTs receiving productive investments and/or technologies	Families	0	2025	0	135	360	405	0	0	900		5%
<b>Hito 5:</b> Persons with disabilities receiving productive investments and/or technologies	People	0	2025	0	54	144	162	0	0	360		2%



Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
<b>Hito 6:</b> People accessing technologies that sequester carbon or reduce greenhouse gas emissions	People	0	2025	0	564	1.504	1.692	0	0	3.760		Mitigation Finance CI IFAD 3.1.3
<b>Product 1.1.2</b> Resilient Investment Plans (PIRs) executed with more than 75% rendering of accounts	Plans	0	2025	0	0	30	70	70	30	200	M&E system	
<b>Subcomponent 1.2: Strengthening and diversifying commercialization</b>												
<b>Product 1.2.1</b> Business plans for structuring cooperatives/processing units with agreements	Plans	0	2025	0	5	20	30	5	0	60	M&E system	
<b>Hito 1:</b> Families benefiting	Families	0	2025	0	420	1.680	2.520	420	0	5.040		
<b>Hito 2:</b> Women-headed households benefited	Families	0	2025	0	210	840	1.260	210	0	2.520		50%
<b>Hito 3:</b> Families headed by young people benefited	Families	0	2025	0	84	336	504	84	0	1.008		20%
<b>Hito 4:</b> Families belonging to the PCT benefited	Families	0	2025	0	21	84	126	21	0	252		5%
<b>Hito 5:</b> Persons with disabilities benefited	People	0	2025	0	8	34	50	8	0	100		2%

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
<b>Product 1.2.2</b> Business plans for structuring cooperatives/processing units executed with more than 75% of accounts rendered	Plans	0	2025	0	0	5	15	30	10	60	M&E system	CI IFAD 2.1.3
<b>Subcomponent 1.3: Incentives for Innovation</b>												
<b>Product 1.3.1</b> Innovative technologies developed or adapted	Units	0	2025	0	0	5	10	10	0	25	M&E system	Equipment, machinery, inputs, products, implements, etc.
<b>Component II: Organizational strengthening, capacity building and knowledge management</b>												
<b>Subcomponent 2.1: Strengthening family farmers' capacities</b>												
<b>Product 2.1.1:</b> Training events for Agroecological TA and STA entities held	Events	0	2025	6	10	2	2	0	0	20	Registration and list of participants and registration of the activity/participants in the M&E system	CTE = Specialized technical consultancy
<b>Hito 1:</b> TA and STA technicians trained	Technicians	0	2025	90	150	30	30	0	0	300		
<b>Product 2.1.2</b> Families assisted by Agroecological ATER	Families	0	2025	0	2.700	9.900	18.000	15.300	8.100	18.000	Registration of families assisted and recording in the M&E system	Considering that families stay for 3 years
<b>Hito 1:</b> Women-headed households assisted by TA	Families	0	2025	0	1.350	4.950	9.000	7.650	4.050	9.000		50%
<b>Hito 2:</b> Families headed by young people assisted by TA	Families	0	2025	0	540	1.980	3.600	3.060	1.620	3.600		20%

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
<b>Hito 3:</b> Families belonging to <u>PCTs</u> assisted by TA	Families	0	2025	0	135	495	900	765	405	900		5%
<b>Hito 4:</b> Persons with disabilities assisted by TA	People	0	2025	0	54	198	360	306	162	360		2%
<b>Product 2.1.3</b> Training events and farmer exchanges held	Events	0	2025	0	12	50	50	20	0	132	Registration and list of participants and registration of the activity in the Project's M&E system	
<b>Product 2.1.4</b> Training events for access to public policies and other programs	Events	0	2025	5	30	100	150	80	35	400		
<b>Hito 1:</b> Number of families benefiting	Families	0	2025	400	2.400	8.000	12.000	6.400	2.800	32.000	Registration and list of participants and registration of the activity/participants in the Project's M&E system	
<b>Hito 2:</b> <u>Women-headed households benefited</u>	Families	0	2025	200	1.200	4.000	6.000	3.200	1.400	16.000		50%
<b>Hito 3:</b> Families headed by <u>young people benefited</u>	Families	0	2025	80	480	1.600	2.400	1.280	560	6.400		20%
<b>Hito 4:</b> Families belonging to the <u>PCT benefited</u>	Families	0	2025	20	120	400	600	320	140	1.600		5%
<b>Hito 5:</b> Persons with disabilities <u>benefited</u>	People	0	2025	8	48	160	240	128	56	640		2%
<b>Subcomponent 2.2: Strengthening organizations' commercialization capacities</b>												
<b>Product 2.2.1</b>	Cooperatives and Producer Organizations	0	2025	0	5	25	50	35	5	60	M&E system	Considering the permanence of the

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
Cooperatives and producer organizations assisted with STA												organization for 2 years
<b><u>Product 2.2.2</u></b> Local fairs and commercialization centers created/improved	Installations	0	2025	0	5	10	15	12	8	50	M&E system	
<b><u>Product 2.2.3</u></b> Health inspection services in operation	Units	0	2025	0	0	0	1	1	0	2	M&E system	
<b><u>Product 2.2.4</u></b> Pilot participatory certification systems in operation	Pilots	0	2025	0	2	5	5	3	0	15	M&E system	
<b>Subcomponent 2.3: Diversity, gender, youth, nutrition, and food security</b>												
<b><u>Product 2.3.1</u></b> Gender and diversity plan drawn up	Plans	0	2025	1	0	0	0	0	0	1	Delivery of the prepared plan	
<b><u>Product 2.3.2</u></b> Annual phases of the Gender and Diversity Plan implemented	Phases	0	2025	0	1	1	1	1	1	5	M&E system	
<b><u>Product 2.3.3</u></b> Youth plan drawn up	Plans	0	2025	1	0	0	0	0	0	1	Delivery of the prepared plan	
<b><u>Product 2.3.4</u></b> Annual phases of the Youth Plan implemented	Phases	0	2025	0	1	1	1	1	1	5	M&E system	
<b><u>Product 2.3.5</u></b> PCT Strengthening Plan drawn up	Plans	0	2025	1	0	0	0	0	0	1	Delivery of the prepared plan	
<b><u>Product 2.3.6</u></b>	Phases	0	2025	0	1	1	1	1	1	5	M&E system	

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
Annual phases of the PCT Strengthening Plan implemented												
<b>Product 2.3.7</b> Nutrition and Food Security Plan drawn up	Plans	0	2025	1	0	0	0	0	0	1	Delivery of the prepared plan	
<b>Hito 1:</b> Families receive specific support to improve their nutrition	Families	0	2025	0	2.700	7.200	8.100	0	0	18.000		Nutrition sensitive CI IFAD 1.1.8
<b>Product 2.3.8</b> Annual phases of the Nutrition and Food Safety Plan implemented	Phases	0	2025	0	1	1	1	1	1	5	M&E system	
<b>Product 2.3.9</b> Local Development Agents hired	Units	0	2025	0	30	110	200	200	200	200	FAPESQ delivers final list of selected candidates	Considering that the Agent will remain in the PIR until the end of the Project
<b>Subcomponent 2.4: Land and environmental regularization</b>												
<b>Product 2.4.1</b> Families benefiting from land and environmental regularization	Families	0	2025	0	500	1.500	2.000	600	400	5.000	M&E System / National Rural Environmental Registry System (SICAR)	Adaptation Finance CI IFAD 1.1.1
<b>Hito 1:</b> Title registered in the woman's name	Woman	0	2025	0	250	750	1.000	300	200	2.500		50%
<b>Hito 2:</b> Title registered in the young person's name	Young	0	2025	0	100	300	400	120	80	1.000		20%
<b>Subcomponent 2.5: Knowledge management and south-south and triangular cooperation</b>												
<b>Product 2.5.1</b> Systematizations and studies on Knowledge	Studies	0	2025	0	2	3	5	5	10	25	Project management and communication team	These are different promotional materials (videos,

Products	Unit of measurement	Value Baseline	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of Project	Means of verification	Comments
Management prepared and published												podcasts, books)
<b>Product 2.5.2</b> Annual phases of Communication and Dissemination in Knowledge Management implemented	Phases	0	2025	1	1	1	1	1	1	6	Project management and communication team	
<b>Product 2.5.3</b> South-South cooperation exchange events held	Events	0	2025	0	0	3	3	3	1	10	Project management and communication team	

### c. IFAD Monitoring and Evaluation Indicators

The Results Matrix contains indicators for products, outcomes, and impacts, defined in agreement with the state government, the IDB, and IFAD.

The Matrix includes the mandatory indicators of the IDB and IFAD. **Table 3** shows the correspondence between the indicator in the Matrix and the mandatory IFAD indicator (*COI - Core Outcome Indicator or CI - Core Indicator*).

**Table 3.** Correspondence between Results Matrix indicators and IFAD COIs and CIs

#	Indicator at Results Matrix	Indicator correspondence from IFAD
1	<b>I2. Percentage of families reporting minimal dietary diversity (MDDW)</b> I2a. Percentage of households headed by women I2b. Percentage of households headed by young people I2c. Percentage of families belonging to PCT I2d. Percentage of households headed by persons with disabilities	<b>COI 1.2.8: Women reporting Minimum Dietary Diversity (MDDW) (RMF 11)</b> Women (%) - Percentage (%) Women (number) - Women Households (%) - Percentage (%) Households (number) - Households Household members - Number of people Women-headed households - Households
2	<b>I3. Farmers who increase their agricultural production</b> I3a. Women-headed households I3b. Families headed by young people I3c. Families belonging to PCT I3d. Persons with disabilities	<b>COI 1.2.4 Households reporting an increase in production</b> Total number of household members - Number of people Households - Percentage (%) Households - Households
3	<b>I4. Number of tons of greenhouse gas emissions (CO<sup>2</sup> e) avoided and/or sequestered</b> I4a. Hectares of area I4b. tCO <sub>2</sub> e/ha/year	<b>COI 3.2.1 Tons of Greenhouse gas emissions (tCO<sub>2</sub>e) avoided and/or sequestered</b> Hectares of land - Area (ha) tCO <sub>2</sub> e/20 years - Number tCO <sub>2</sub> e/ha - Number tCO <sub>2</sub> e/ha/year - Number
4	<b>R1.1 Percentage of households using sustainable or climate-smart inputs, technologies, or practices</b>	<b>COI 3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices</b> Total number of household members - Number of people Households - Percentage (%) Households - Households
5	<b>R1.2 Farmers with better access to agricultural investments and services</b> R1.2a Farmers (Women) R1.2b Farmer (Men) R1.2c Young farmer R1.2d Farmer belonging to PCT R1.2e Persons with disabilities	<b>CI 1: Persons receiving services promoted or supported by the Project</b> Total number of persons receiving services - Number of people Men - Men Women - Women Youth - Young people Indigenous people - Indigenous people Persons with disabilities - Number
6	<b>R2.2 Organizations supported by PN increase their sales</b>	<b>COI 2.2.5 Rural producers' organizations reporting an increase in sales</b> Number of Rural POs Total number of PO members Women PO members Men PO Members Young PO members Indigenous People PO members Person with disabilities PO members
7	<b>R2.4 Change in the percentage of <u>people</u> who report being empowered from baseline</b> R2.4a Percentage of women R2.4b Percentage of young people R2.4c Percentage of people belonging to PCTs R2.4d Percentage of persons with disabilities	<b>COI IE.2.1 Individuals demonstrating an improvement in empowerment</b> Indigenous people - Percentage (%) Indigenous people - Indigenous people Youth - Percentage (%) Youth - Young people Total persons - Percentage (%) Total persons - Number of people Women - Percentage (%) Women - Women

#	Indicator at Results Matrix	Indicator correspondence from IFAD
		Men - Percentage (%) Men - Men Persons with disabilities - Number Persons with disabilities - Percentage (%)
8	<b>R2.5 People with new jobs</b> R2.5a Women with new jobs R2.5b Young people with new jobs R2.5c People belonging to PCTs with new jobs R2.5d Persons with disabilities with new jobs	<b>COI 2.2.1 Persons with new jobs/employment opportunities</b> Men - Men Women - Women Indigenous people - Indigenous people Youth - Young people Total number of persons with new Jobs/employment opportunities - Number of people Persons with disabilities - Number
9	<b>Habit 6:</b> People accessing technologies that sequester carbon or reduce greenhouse gas emissions	<b>CI 3.1.3 Persons accessing technologies that sequester carbon or reduce greenhouse gas emissions</b> Men - Men Women - Women Youth - Young people Indigenous people - Indigenous people Total persons accessing technologies - Number of people Persons with disabilities - Number
10	<b>Product 1.2.2:</b> Business plans for structuring cooperatives/processing units executed with more than 75% rendering of accounts	<b>CI 2.1.3 Rural producers' organizations supported</b> Total size of POs - Organizations Rural POs supported - Organizations Men - Men Women - Women Youth - Young people Indigenous people - Indigenous people Rural POs supported that are headed by women - Organizations Persons with disabilities - Number
11	<b>Hito 1:</b> Families receive specific support to improve their nutrition	<b>CI 1.1.8 Households provided with targeted support to improve their nutrition</b> Total persons participating - Number of people Men - Men Women - Women Households - Households Household members benefitted - Number of people Indigenous people - Indigenous people Youth - Young people Number of persons with disabilities - Number
12	<b>Product 2.4.1:</b> Families benefiting from land and environmental regularization	<b>CI 1.1.1 Number of beneficiaries gaining increased secure access to land</b> Men - Men Women - Women Indigenous people - Indigenous people Youth - Young people Total number of beneficiaries with increased secure access to land - Number of people Persons with disabilities - Number

Important observations:

- **Disaggregations:** Some IFAD indicators need to present data in a more disaggregated form (Men, Women, Youth, PCT, and persons with disabilities) than presented in the Results Matrix. PROCASE II is aware of the importance of presenting these disaggregations and that the data obtained in the field and stored in the M&E system will be disaggregated. In addition, the Impact Assessment survey will have a sampling design with representative strata for women, young people, PCT, and persons with disabilities.



- **Methodology for evaluating the COIs:** For the evaluation of the COIs, questions will be incorporated according to the IFAD manuals: "*Evaluation Manual, prepared by the Independent Office of Evaluation of IFAD*"; and "*Manual for measuring the COIs: Core Outcome Indicators - Measurement Guidelines (COI)*";
- **Stakeholder Feedback (SF) indicators:** The indicators "SF.2.1 Households satisfied with Project-supported services" and "SF.2.2 Households reporting they can influence the decision-making of local authorities and Project-supported service providers", although not present in the Results Matrix, will be assessed in the impact survey.

#### **d. Sending reports**

The PMU will submit progress reports with data on progress in implementation, including output indicators (and results and impacts, where applicable). These reports will be published every six months.

#### **e. Coordination, timetable, and budget for monitoring and evaluation**

The PMU will be responsible for monitoring and evaluating the Project. It will be responsible for drawing up and submitting the six-monthly reports described above, and for continuously monitoring the output indicators and measuring the final value of the results and impact indicators in the Results Matrix.

In addition to regular support for the Project, the IDB and IFAD will carry out administrative missions (supervision) annually to monitor the progress of the Project in terms of products and outcomes. Monitoring will consist of six-monthly activities (periodic updating of the database) and other annual activities (reports on products and results, IDB and IFAD management missions). The monitoring and evaluation activities will be carried out with resources from both the Project (allocated under the "Monitoring" and "Evaluation" cost heading) and the IDB administration, as detailed in Error! Reference source not found., which presents the monitoring work plan.

#### **f. M&E system**

The Project will have to keep the information management system updated, which will store disaggregated data specific to the beneficiaries, such as the composition of their family, ethnic group, and, above all, the type of benefit received. It is also crucial that this system is available to all the PMU teams so they can feed and consult the system.

To this end, PROCASE II will adopt a system capable of storing the information needed for monitoring, such as the registration of families, activities, etc.

The system should allow monitoring the progress of Logframe (LF) indicators, broken down by gender, youth, persons with disabilities, and PCTs. It should also allow the inclusion of geographical coordinates of families and activities. The M&E team will be responsible for verifying the consistency of the information entered by the partner/contracted institutions to carry out the physical activities in the field.

#### **g. Annual costs per product**

The total amount available for studies and adjustments to the M&E system is USD 1.3 million, which corresponds to 1.2% of the total cost of the Project. This budget was defined on the basis of the actual costs obtained through dialogue with the PROCASE team, and the estimated costs for carrying out the Impact Assessment survey.

**Table 5** shows the costs for the M&A, broken down by product with expected annual values. The annual costs are in addition to the expected funds of 105 million dollars for the entire operation. It should be noted that this information is consistent with the costs presented in the WBS.

**Table 4.** Schedule and budget for Monitoring and Evaluation activities

PRODUCTS BY ACTIVITY	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Responsible	Estimated cost (US\$)	Financing
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Management system (M&A and financial)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	PMU	200.000	Operation Resources
Baseline survey			X	X	X	X																			PMU	167.000	Operation Resources
Mid-term survey											X	X													PMU	167.000	Operation Resources
Mid-term review													X												PMU	20.000	Operation Resources
End line survey																			X	X					PMU	167.000	Operation Resources
Impact assessment																					X	X			PMU	20.000	Operation Resources
Ex-post economic analysis																							X		PMU	25.000	Operation Resources
Final evaluation (PCR report)																							X	X	PMU	35.000	Operation Resources
Thematic studies and evaluations		x	x								x	x			x	x			x	x			x	x	PMU	500.000	Operation Resources
	<b>Total cost:</b>																						<b>1.300.000</b>				

**Table 5**  
Annual costs per product

Products	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final Target
<b>Component I: Resilient production systems to reduce rural poverty</b>							
<b>Subcomponent 1.1: Implementation of resilient and biodiverse production systems</b>							
Product 1.1.1 Resilient Investment Plans (PIRs) agreed	-	30.000,00	80.000,00	90.000,00	-	-	200.000,00
Product 1.1.2 Resilient Investment Plans (PIRs) executed with more than 75% rendering of accounts	-	-	8.432.400,00	19.675.600,00	19.675.600,00	8.432.400,00	56.216.000,00
<b>Total Subcomponent 1.1</b>	-	<b>30.000,00</b>	<b>8.512.400,00</b>	<b>19.765.600,00</b>	<b>19.675.600,00</b>	<b>8.432.400,00</b>	<b>56.416.000,00</b>
<b>Subcomponent 1.2: Strengthening and diversifying commercialization</b>							
Product 1.2.1 Business plans for structuring cooperatives/processing units with agreements	-	10.000,0	40.000,0	60.000,0	10.000,0	-	120.000,0
Product 1.2.2 Business plans for structuring cooperatives/processing units executed with more than 75% rendering of accounts	-	-	490.000,0	1.470.000,0	2.940.000,0	980.000,0	5.880.000,0
<b>Total Subcomponent 1.2</b>	-	<b>10.000,0</b>	<b>530.000,0</b>	<b>1.530.000,0</b>	<b>2.950.000,0</b>	<b>980.000,0</b>	<b>6.000.000,0</b>
<b>Subcomponent 1.3: Incentives for innovation</b>							
Product 1.3.1 Innovative technologies developed or adapted	-	-	200.000,00	400.000,00	400.000,00	-	1.000.000,00
<b>Total Subcomponent 1.3</b>	-	-	<b>200.000,00</b>	<b>400.000,00</b>	<b>400.000,00</b>	-	<b>1.000.000,00</b>
<b>Total Component 1</b>	-	<b>40.000,00</b>	<b>9.242.400,00</b>	<b>21.695.600,00</b>	<b>23.025.600,00</b>	<b>9.412.400,00</b>	<b>63.416.000,00</b>
<b>Component II: Organizational strengthening, capacity building and knowledge management</b>							
<b>Subcomponent 2.1: Strengthening family farmers' capacities</b>							
Product 2.1.1: Training events for Agroecological TA and STA entities held	90.000,00	150.000,00	30.000,00	30.000,00	-	-	300.000,00
Product 2.1.2 Families assisted by Agroecological TA	-	945.000,00	3.465.000,00	6.300.000,00	5.355.000,00	2.835.000,00	18.900.000,00
Product 2.1.3 Training events and farmer exchanges held	-	4.800,00	20.000,00	20.000,00	8.000,00	-	52.800,00
Product 2.1.4 Training events for access to public policies and other programs	12.500,00	75.000,00	250.000,00	375.000,00	200.000,00	87.500,00	1.000.000,00
<b>Total Subcomponent 2.1</b>	<b>102.500,00</b>	<b>1.174.800,00</b>	<b>3.765.000,00</b>	<b>6.725.000,00</b>	<b>5.563.000,00</b>	<b>2.922.500,00</b>	<b>20.252.800,00</b>
<b>Subcomponent 2.2: Strengthening organizations' commercialization capacities</b>							
Product 2.2.1 Cooperatives and producer organizations assisted with STA	-	50.000,00	250.000,00	500.000,00	350.000,00	50.000,00	1.200.000,00
Product 2.2.2 Local fairs and commercialization centers created/improved	-	80.000,00	160.000,00	240.000,00	192.000,00	128.000,00	800.000,00
Product 2.2.3 Sanitary Inspection Services in operation	-	-	-	150.000,00	150.000,00	-	300.000,00
Product 2.2.4 Pilot participatory certification systems in operation	-	4.000,00	10.000,00	10.000,00	6.000,00	-	30.000,00
<b>Total Subcomponent 2.2</b>	-	<b>134.000,00</b>	<b>420.000,00</b>	<b>900.000,00</b>	<b>698.000,00</b>	<b>178.000,00</b>	<b>2.330.000,00</b>
<b>Subcomponent 2.3: Diversity, gender, youth, nutrition, and food security</b>							
Product 2.3.1 Gender and diversity plan elaborated	25.000,00	-	-	-	-	-	25.000,00
Product 2.3.2 Annual phases of the Gender and Diversity Plan implemented	-	200.000,00	200.000,00	200.000,00	200.000,00	200.000,00	1.000.000,00

Products	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final Target
Product 2.3.3 Youth plan elaborated	25.000,00	-	-	-	-	-	25.000,00
Product 2.3.4 Annual phases of the Youth Plan implemented	-	100.000,00	100.000,00	100.000,00	100.000,00	100.000,00	500.000,00
Product 2.3.5 PCT Strengthening Plan elaborated	25.000,00	-	-	-	-	-	25.000,00
Product 2.3.6 Annual phases of the PCT Strengthening Plan implemented	-	80.000,00	80.000,00	80.000,00	80.000,00	80.000,00	400.000,00
Product 2.3.7 Nutrition and Food Safety Plan elaborated	25.000,00	-	-	-	-	-	25.000,00
Product 2.3.8 Annual phases of the Nutrition and Food Security Plan implemented	-	120.000,00	120.000,00	120.000,00	120.000,00	120.000,00	600.000,00
Product 2.3.9 Local Development Agents hired	-	75.000,00	275.000,00	550.000,00	550.000,00	550.000,00	2.000.000,00
<b>Total Subcomponent 2.3</b>	<b>100.000,00</b>	<b>575.000,00</b>	<b>775.000,00</b>	<b>1.050.000,00</b>	<b>1.050.000,00</b>	<b>1.050.000,00</b>	<b>4.600.000,00</b>
<b>Subcomponent 2.4: Land and environmental regularization</b>							
Product 2.4.1 Families benefiting from land and environmental regularization	-	200.000,00	600.000,00	800.000,00	240.000,00	160.000,00	2.000.000,00
<b>Total Subcomponent 2.4</b>	<b>-</b>	<b>200.000,00</b>	<b>600.000,00</b>	<b>800.000,00</b>	<b>240.000,00</b>	<b>160.000,00</b>	<b>2.000.000,00</b>
<b>Subcomponent 2.5: Knowledge management and south-south and triangular cooperation</b>							
Product 2.5.1 Knowledge Management Systematizations and studies prepared and published	-	80.000,00	120.000,00	200.000,00	200.000,00	400.000,00	1.000.000,00
Product 2.5.2 Knowledge Management Annual Communication and Dissemination Phases implemented	20.000,00	20.000,00	20.000,00	20.000,00	20.000,00	20.000,00	120.000,00
Product 2.5.3 South-South and Triangular Cooperation exchange events held	-	-	300.000,00	300.000,00	300.000,00	100.000,00	1.000.000,00
<b>Total Subcomponent 2.5</b>	<b>20.000,00</b>	<b>100.000,00</b>	<b>440.000,00</b>	<b>520.000,00</b>	<b>520.000,00</b>	<b>520.000,00</b>	<b>2.120.000,00</b>
<b>Total Component 2</b>	<b>222.500,00</b>	<b>2.183.800,00</b>	<b>6.000.000,00</b>	<b>9.995.000,00</b>	<b>8.071.000,00</b>	<b>4.830.500,00</b>	<b>31.302.800,00</b>
<b>Component III: Project Management, Monitoring and Evaluation</b>							
<b>Subcomponent 3.1: Project management unit</b>							
3.1.1: PMU (administration and supervision)	1.531.200,00	1.000.000,00	1.500.000,00	1.500.000,00	1.500.000,00	1.500.000,00	8.531.200,00
3.1.2: Training for executing and sub-executing agencies	150.000,00	150.000,00	50.000,00	50.000,00	50.000,00	-	450.000,00
<b>Total Subcomponent 3.1</b>	<b>1.681.200,00</b>	<b>1.150.000,00</b>	<b>1.550.000,00</b>	<b>1.550.000,00</b>	<b>1.550.000,00</b>	<b>1.500.000,00</b>	<b>8.981.200,00</b>
<b>Subcomponent 3.2: Monitoring and Evaluation (M&amp;E)</b>							
3.2.1: Management system (M&E and financial)	150.000,00	10.000,00	10.000,00	10.000,00	10.000,00	10.000,00	200.000,00
3.2.2: Impact Assessment (baseline, mid-term and final)	200.000,00	-	-	200.000,00	-	200.000,00	600.000,00
3.2.3: Thematic studies and evaluations	100.000,00	-	50.000,00	100.000,00	100.000,00	150.000,00	500.000,00
<b>Total Subcomponent 3.2</b>	<b>450.000,00</b>	<b>10.000,00</b>	<b>60.000,00</b>	<b>310.000,00</b>	<b>110.000,00</b>	<b>360.000,00</b>	<b>1.300.000,00</b>
<b>Total Component 3</b>	<b>2.131.200,00</b>	<b>1.160.000,00</b>	<b>1.610.000,00</b>	<b>1.860.000,00</b>	<b>1.660.000,00</b>	<b>1.860.000,00</b>	<b>10.281.200,00</b>
<b>Total Loan</b>	<b>2.353.700,00</b>	<b>3.383.800,00</b>	<b>16.852.400,00</b>	<b>33.550.600,00</b>	<b>32.756.600,00</b>	<b>16.102.900,00</b>	<b>105.000.000,00</b>

### III. Evaluation

#### e. Main evaluation questions

According to the theory of change set out above, the impact assessment proposed for PROCASE II should contribute to answering the following questions, which are closely aligned with the Project's three specific objectives and, in the long term, with the overall objective:

1. What is the impact of the Project on the adoption of agricultural technologies (including climate change adaptation and mitigation technologies) by family farmers and on the integration of their products into value chains?
2. What is the impact of the Project on inclusive issues of gender, young people, persons with disabilities, and families belonging to traditional communities?
3. What is the impact of the Project on the environmental conditions of rural families and their environment?
4. In the long term, what impact will the Project have on rural families' income, food security, access to services, and adaptation to climate change?

Given that the Program addresses the gaps identified in the state of Paraíba through various complementary interventions, the evaluation plan proposes assessing the effects of the Project as a complete package of activities since the individual effects of receiving technical assistance, land titling and other activities included in the design and execution of the Project cannot be broken down individually if they are provided in a complementary way to the same group of beneficiaries. However interesting it may be to separate these effects, we believe that the most important thing is to evaluate the package as a whole, since the complementarity between the components should make the effect of the Project greater than the simple sum of its parts.

It should be noted that the environmental and climate impacts of the Project will be measured in a complementary way using specific methodologies to capture the effects of reducing CO<sub>2</sub> emissions. See **section f** for more details on the measurement of this indicator based on a simple before-after comparison methodology.

#### b. Evaluation methodology

##### Selection of Beneficiaries

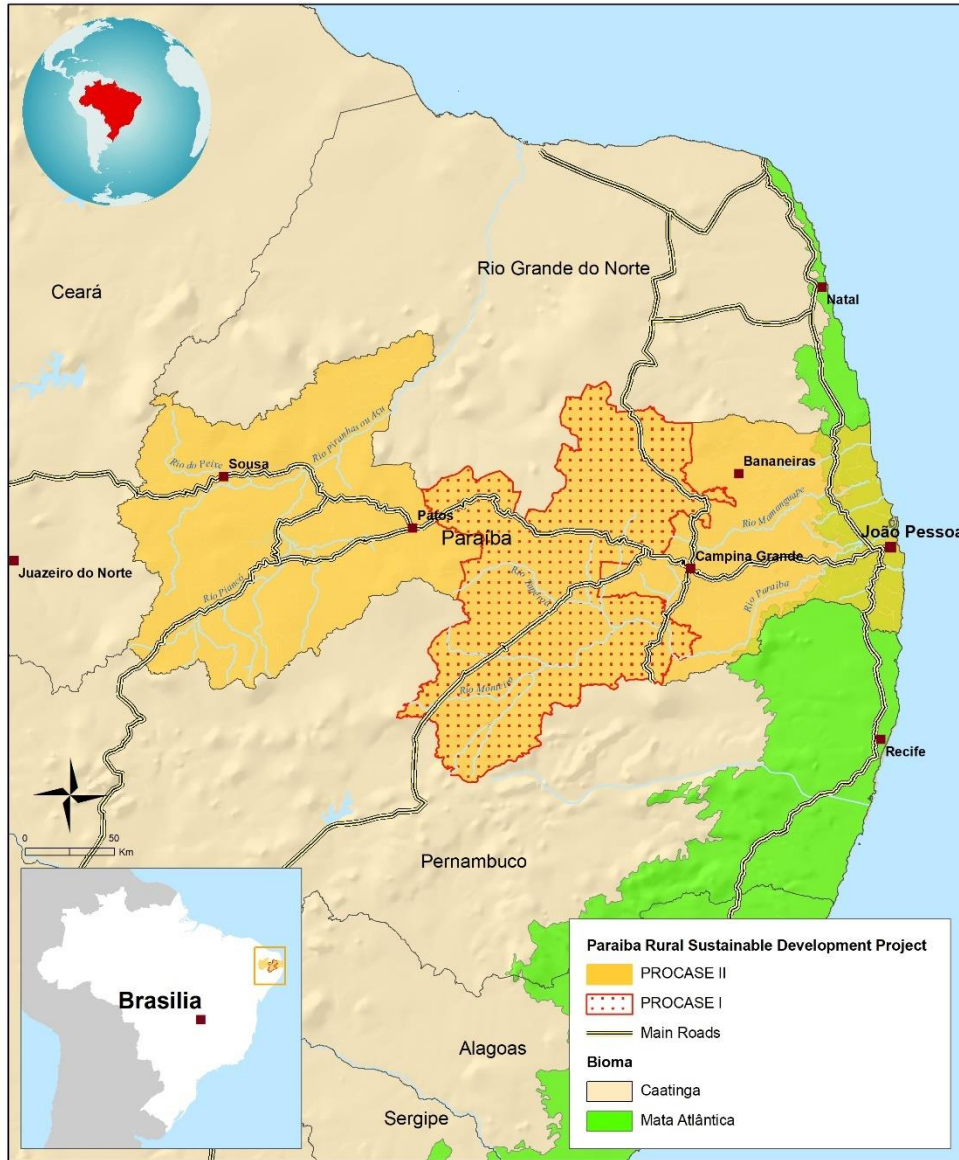
Any effective evaluation methodology must be closely linked to the design of the Project, so it is important to understand the process by which associations, producers, and other beneficiaries are selected to participate in the Project. While the first phase of the Project, PROCASE I (funded by IFAD), was implemented in 56 municipalities in the state, PROCASE II will scale up interventions to all municipalities in the state (223), as shown in Figure 2. It is worth noting that the state of Paraíba groups municipalities into fifteen rural territories (Figure 3) according to their productive, climatic, and geographical characteristics. The Secretariat for Territorial Development defines a rural territory as a group of municipalities with a population density of less than 80 inhabitants/km<sup>2</sup> and an average population per municipality of up to 50,000 inhabitants. Figure 3 shows the geographical distribution of municipalities according to rural territory. In addition, a table of municipalities according to rural territory can be found in Annex II.

The interventions will prioritize communities based on the following technical criteria: i) incidence of rural poverty (according to information from the Single Registry – Cadastro Único); ii) presence of Traditional Peoples and Communities (PCTs); iii) incidence of food and nutritional insecurity; iv) concentration of rural women and youth; v) limited access to water for human consumption and production; vi) avoidance of overlap with PROCASE I interventions, and other similar projects being implemented in the state, such as Sertão Vivo and PDHC III (IFAD projects).

Around 60,000 families (approximately 210,000 people) in the family farming sector will benefit directly from the Project, of which 50% will be women, 20% young people, 5% PCTs, and 2% persons with disabilities. The Project's main target groups are family farmers living in poverty and extreme poverty. However, the actual selection of farmers and productive organizations to be beneficiaries will occur until the Project is

implemented, which is why this evaluation plan presents a preliminary methodological proposal that will have to be updated during the Project's start-up workshop.

**Figure 2. Map of the Project Area**



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.  
IFAD Map compiled by IFAD | 02-04-2024

**Figure 3. Rural Territories of the State of Paraíba**



Source: [Government of Paraíba](http://www.parabiba.gov.br) (2011)

### Control Group (counterfactual)

To determine the impact of the Project on the outcome and impact indicators presented in **Table 1**, the evaluation must identify a counterfactual to answer the following question: "How would the productive and environmental condition of family farmers in Paraíba have developed if the Project had not been implemented?" Of course, this is a hypothetical question that can only be answered by identifying a "control group", or a group of rural families that are similar to the beneficiaries of the Project in productive and socio-demographic characteristics, but who do not have access to it. This control group then serves to estimate what would have happened to the Project participants in the absence of the Project, and allows comparisons to be made with the group of beneficiary farmers/families - the "treatment group" - to estimate the isolated causal effect of other factors that may have influenced the results. Therefore, the challenge of any impact evaluation is to identify a treatment group and a control group that are statistically identical, on average, in the absence of the Project. If the two groups are identical, with the sole exception of one group participating in the Project and the other not, then we can be sure that any difference in results must be due to the Project.

### Selection of the Control Group

To determine the impact of PROCASE II on the outcome and impact indicators presented in **Table 1**, the evaluation must identify a counterfactual to answer the following question: "**How would the productive and environmental condition of family farmers in Piauí have developed if the Project had not been implemented?**" Of course, this is a hypothetical question that can only be answered by identifying a "control group" or a group of rural families that are similar to the beneficiaries of the Project in productive and socio-demographic characteristics but do not have access to Project's activities. This control group is then used to estimate what would have happened to the Project participants in the absence of the Project, allowing comparisons with the group of beneficiary farmers/families - the "treatment group" - to estimate the isolated causal effect of other factors that may have influenced the results. Therefore, the challenge of any impact evaluation is to identify a treatment group and a control group that are statistically identical, on average, in the absence of the Project. If the two groups are identical, with the sole exception that one group

participates in the Project and the other does not, then we can be sure that any difference in results must be due to the Project.

The impact evaluation literature generally recommends evaluating programs by randomly assigning treatment. This procedure makes it possible to set up two groups of individuals: those who receive Project interventions (treatment group) and those who do not (control group). This type of allocation, called an experimental model, offers the advantage of setting up two groups which, from a statistical point of view, are strictly comparable, both from the point of view of directly observable variables and those that are not. In this way, any differences observed between the two groups after treatment can be directly attributed to the program.

The Project's geographical targeting throughout the state involves two methodological challenges for the impact evaluation: firstly, it is not possible to exclude a certain group of rural families or municipalities within the Project area for evaluation purposes beforehand since the state intends to offer PROCASE II services in an inclusive manner to the entire target population<sup>1</sup>. Although the Project will work with a subset of municipalities and beneficiaries based on the finite resources available through the loan, this selection will only be made during the first year of Project implementation and is not considered feasible for the purposes of the evaluation plan at this stage of preparation. Therefore, it will not be possible to randomize the intervention to select the municipalities or families that will receive the interventions and those that can serve as a control group. Secondly, the environmental and socioeconomic characteristics that will result in the prioritization of certain municipalities and their population are closely linked to the expected impacts that the Project intends to have; in other words, it will not be possible to select a counterfactual outside the intervention area in the same municipality, as the comparability between the treated group and the selected control group would be limited and would probably result in a biased estimate of the impact.

Given that these two methodological options have been evaluated as unfeasible in the context of PROCASE II, a third possible evaluation strategy was chosen: the decision was made together with the government team to identify those municipalities located on the border with Paraíba in the states of Pernambuco, Ceará, and Rio Grande do Norte, which exhibit the same socio-productive and geographical characteristics as certain municipalities within the state. As mentioned above, the set of potential control units is composed of the municipalities located on the border with the state of Paraíba, and the set of potential treatment units is made up of all 223 municipalities in Paraíba. To facilitate the pairing of municipalities outside and inside the state, the government team carried out a preliminary analysis to identify those municipalities on the border that met the criteria for prioritizing municipalities for the Project, including the incidence of poverty and food insecurity, the presence of indigenous peoples and traditional communities, and the type of agricultural production. As a result, 76 municipalities were selected, located in the states of Ceará (8), Pernambuco (38), and Rio Grande do Norte (30).

From this universe of municipalities inside and outside the state, it is possible to select a sample at the municipal level to constitute the treatment group for the evaluation. The impact assessment will then be based on a counterfactual located in the same geographical and socio-political area and presenting similar characteristics to the treatment group prior to the intervention, thus ensuring that the estimated impact is attributable to the Project and not to other external factors.

Another aspect to highlight is the **preliminary nature** of this identification strategy. This document selects a treatment group and a control group at the municipal level, but this sample will be revised once the prioritization process has been completed during the PROCASE II implementation stage. Therefore, close coordination between the IDB, IFAD, and the PMU will be essential to ensure that the evaluation plan is updated in coordination and coherence with the progress of the Project's implementation.

Given that there is no quantitative mechanism for prioritizing the municipalities and communities, it is not possible to apply certain criteria to arrive at a final selection of the treatment and control group. Still, we do know a series of variables that will be considered in the process. Therefore, in an effort to apply the same logic to prioritizing municipalities for their participation in the Project, we will use a Propensity Score approach to "pair" comparable municipalities inside and outside the state, thus selecting the municipalities most similar to those selected for treatment.

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<sup>1</sup> Although there is a significant proportion of families and farmers who will not actually participate in the Project, the government did not feel comfortable explicitly excluding a group of municipalities or communities, due to the political sensitivity of this proposal.



The *Propensity Score Matching* (PSM) approach was first proposed by Rosenbaum and Rubin (1983) as a method to reduce bias in estimating treatment effects with observational data sets when randomization is not performed. This method estimates a propensity score, which is the conditional probability of being assigned to the treatment given a series of observed characteristics. Conceptually, this propensity score attempts to replicate what may have been an underlying allocation mechanism unknown to the experimenter, which depends on a series of observable characteristics. The propensity score is defined as follows:

$$p(x) = Pr[W = 1|X = x]$$

$W$  is the treatment status ( $W = 1$  if treated,  $W = 0$  otherwise), and  $X$  is a vector of observable characteristics. Thus, the propensity score indicates the conditional probability of participating in the Project, given a certain set of characteristics.

For the PSM to work, two assumptions must be met: first, it is assumed that there is some overlap, or common support, between the treated and untreated units ("*overlap condition*"). This means that the propensity score cannot perfectly predict treatment status but that there is enough similarity between treated and untreated units to allow them to be matched. Secondly, the propensity score matching method requires the assumption of no confounding (conditional independence assumption): treatment status is independent of outcomes once a set of covariates is controlled for. If these two assumptions are met, the propensity score is an efficient parameter to capture all the information from the variables used to construct it. This means that the propensity score captures all the variation coming from the allocation mechanism, and all other effects should be interpreted as differences caused by the intervention. In other words, conditioned by the propensity score, all potential outcomes should be independent of the allocation mechanism. Therefore, the resulting treatment and control groups can be interpreted as having been produced from a randomized experiment.

To calculate the propensity score, we need to select a group of variables that meet the criterion of non-confounding. Therefore, we selected a set of variables at the municipal level that are characteristics likely to determine the placement of the Project in a given municipality. As shown in **Table 6**, these variables include characteristics of the municipality that we know are relevant to the underlying allocation mechanism, such as the Human Development Index, vegetation cover and Gross Domestic Product. It also includes characteristics of farms at the municipal level that we know are relevant to eligibility at the farmer level, such as the proportion of land dedicated to different types of production, the average annual value of agricultural production, and the factors of production, including the number of agricultural workers and machinery used.

**Table 6. Source of data at the municipal level**

Source	Variables
IBGE Cities (2019)	Population, indigenous population, Gross Domestic Product (GDP)
National Census (2010)	Municipal Human Development Index (MHDI)
National Agricultural Census (2017)	Number of establishments, proportion of establishments headed by women, proportion of establishments headed by a PCT, total area used by establishments, size of agricultural establishments, proportion of land devoted to different types of production, value of annual production, total number of agricultural workers, total number of agricultural machines, number of animal heads, proportion of establishments with access to: electricity, credit, technical assistance, proportion of establishments using fertilizers.

**Table 7. Profit estimation of participation**

<b>Variable</b>	<b>Coefficient</b>
GDP	-0.240 (0.48)
Value of agricultural production	-0.028 (0.15)
Human development index	-4.287 (2.65)
Total population	0.463 (0.54)
Indigenous population	-3.990 (7.06)
Geographical extent (ha)	0.321 (0.29)
% Agricultural establishments with electricity	-0.275 (1.10)
Irrigated land area (ha)	-0.072 (0.09)
Labor - agricultural	<b>0.058</b> *** (0.02)
Labor - services	<b>0.065</b> *** (0.02)
Workforce earning up to 1 minimum wage	<b>-0.026</b> (0.02)
Number of pigs	<b>-1.341</b> *** (0.21)
Number of head of chickens/birds	<b>0.216</b> *** (0.06)
Number of goats	<b>0.630</b> *** (0.18)
Number of sheep	<b>-0.744</b> *** (0.22)
% Agricultural establishments - forestry	<b>21.592</b> ** (8.45)
% Agricultural establishments - fishing	<b>323.848</b> ** (158.19)
Total value of agro-industry production	<b>0.158</b> ** (0.06)
% Agricultural establishments with technical assistance	<b>4.210</b> *** (1.12)
Extent of land for cultivation	<b>-0.581</b> *** (0.19)
Number of tractors	<b>0.249</b> ** (0.12)
Number of agricultural establishments	<b>0.625</b> ** (0.28)
Constant	6.806 (2.61)

<sup>a</sup> Standard deviation in brackets.

<sup>b</sup> Difference different from zero if the p-value is significant at the 99th confidence level (\*\*\*) , 95 (\*\*) or 90 (\*).

We followed Imbens and Rubin (2015) to select the relevant covariates for the PSM model. First, we identified a set of basic covariates selected according to their theoretical association with participation in the Project. Here, the municipal GDP, the value of agricultural production, the Human Development Index, the total and indigenous population, the geographical extension, the percentage of agricultural establishments with electricity, the irrigated area, the amount of agricultural and service labor, and the labor force earning up to 1 minimum wage are included. In a second step, we choose from the set of remaining variables, adding one variable at a time to the logistic regression and calculating the likelihood ratio statistic, which tests the null hypothesis that the coefficient of the additional covariates is equal to zero. We do this until the additional variable does not improve the model's fit.

Error! Reference source not found. shows the results of the probit estimate for the probability of being assigned to the treatment, given the specified variables. This calculation generates each municipality's propensity score ("pcscore"). This propensity score will be used to select municipalities into treatment and control groups. It should be noted that we only used the PSM to match comparable treatment and control municipalities and did not rely on this empirical methodology to estimate the impact.

**To select comparable municipalities, we used the 1:1 nearest neighbor *matching without replacement* mechanism. Each treated municipality was paired with a non-participating municipality with the smallest difference in propensity score without allowing the same non-participating municipality to be used as a pair for more than one treated municipality. This resulted in 83 pairs placed under the common support. Given the budgetary and logistical limitations of the evaluation, we cannot include all of them in our sample. Therefore, we used PSM to select 30 municipalities for our study (15 treated and 15 untreated), as this will allow for a sufficient sample size to achieve the desired statistical power, as well as being logistically feasible in terms of the field survey to be carried out (see section III.c and III.d for more details). Firstly, we limited our sample to municipalities located in the common support zone (i.e., overlap) according to the distribution of propensity scores. This means that only the municipalities in each group that received propensity scores comparable to those in the other group were considered. In the second stage, the best pair was identified for each of the 15 rural territories in the state to ensure that the sample is representative of the geographical and socio-productive variation in the state and the Project's target population. This methodology allows us to locate the closest non-participating municipality to each participating municipality. In this way, we selected the 15 treated and control municipalities that are closest, respectively, and, therefore, the most comparable for each rural territory. Table 1. Indicators and attribution methods**

Indicator	Unit of measurement	Measuring frequency	Source of verification	Allocation methodology
<b>General Objective. Reducing rural poverty levels, improving food security and nutrition and adapting the rural population to climate change.</b>				
<b>FACTS</b>				
Multidimensional Poverty Index (MPI) (Adjusted Headcount)	MPI	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
Percentage of families reporting minimal dietary diversity (MDDW)	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
Farmers who increase their agricultural production	Farmer	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
Number of tons of greenhouse gas emissions (CO2e) avoided and/or sequestered	tCO2e/ha	2025 e 2031	FAO's EX-Ante Carbon-balance Tool (EX-ACT)	Simple difference (before - after, with attribution by empirical / literature evidence)

<b>SULTS</b>				
<b>Specific Objective 1. Increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change</b>				

Indicator	Unit of measurement	Measuring frequency	Source of verification	Allocation methodology
.1 Percentage of households using sustainable or climate-smart inputs, technologies or practices	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
.2 Farmers with better access to agricultural investments and services	Farmer	2025 e 2031	M&E system	Simple difference
<b>Specific Objective 2. Improve the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities.</b>				
.1 Percentage of family farmers who sell their produce at markets	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
.2 Organizations supported by PN increase their sales	Organizations	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
.3 Percentage of women in management positions in rural organizations	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
.4 Change in the percentage of people who report being empowered from baseline	%	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
.5 People with new jobs	Person	2025 e 2031	Impact Assessment	Quasi-experimental (Differences-in-differences)
<b>Specific Objective 3. Improve the environmental conditions of rural communities and their surroundings</b>				
.1 Area of rural properties registered in the CAR in the municipalities covered by the Project	Hectares	2025 e 2031	Monitoring of registration receipts-Insert into M&E system	Simple difference (before - after, with attribution by empirical / literature evidence)
.2 Communities with title delivered for land and environmental regularization	Hectares	2025 e 2031	List of communities served with certification or/titling-Insert in M&E System	Simple difference (before - after, with attribution by empirical / literature evidence)

**Table 8** shows the final selection of municipalities for the treatment and control groups.

**Table 8. Selected municipalities**

Rural Territory	Municipalities treated	Control municipalities
01 - Mata Sul	Cruz do Espírito Santo (PB)	Baixio (CE)
02 - Brejo	Guarabira (PB)	Flores (PE)
03 - Borborema	Riacho de Santo Antônio (PB)	Mauriti (CE)
04 - Curimataú	Frei Martinho (PB)	Venha-Ver (RN)
05 - Cariri	Sumé (PB)	Brejinho (PE)
06 - Middle Hinterland	Emas (PB)	Ipueira (RN)
07 - Piancó Valley	Piancó (PB)	Santana do Seridó (RN)
08 - Middle Piranhas	Brejo do Cruz (PB)	Luís Gomes (RN)
09 - Alto Sertão	Uiraúna (PB)	Goiana (PE)
10 - Piranhas Valley	Sousa (PB)	Solitude (PE)
11 - Serra do Teixeira	Princess Isabel (PB)	Campo Redondo (RN)
12 - Paraíba Valley	Juripiranga (PB)	São José do Belmonte (PE)
13 - Maringá Valley	Paulista (PB)	São José do Egito (PE)
14 - Mata Norte	Mataraca (PB)	Acari (RN)
15 - Piemont da Borborema	Tacima (PB)	Itambé (PE)

**Table 9** shows the balance of the final sample of municipalities selected for the treatment and control groups. It presents the average and standard deviation of the socio-productive characteristics of both groups and checks whether there are statistically significant differences between the average values of the treatment and control. As can be seen, there are very few significant differences between the characteristics of the municipalities allocated to the treatment and control group. Therefore, it is considered that the strategy used to determine the treatment and control municipalities has produced satisfactory results, providing sufficient comparability between the groups at baseline in terms of the relevant variables.

**Table 9. Balance of socio-productive characteristics<sup>a,b</sup>**

Variables	Treatment Group	Control Group	Difference
<b>Municipal characteristics</b>			
Gross Domestic Product (GDP, R\$)	12.03	12.02	0.01
Human Development Index	0.60	0.61	-0.01
Total population (1,000)	9.37	9.37	0.00
Indigenous population (1,000)	0.01	0.00	0.00
Total area (ha)	5.64	5.70	-0.06
Working in the agricultural sector	7.17	.51	-0.35
Total production value (R\$)	9.02	9.29	-0.27
Total value of agro-industry production (R\$)	4.46	5.49	-1.03
Value of agricultural production (R\$)	8.21	8.49	-0.29
Value of livestock production (R\$)	8.02	8.60	-0.57
Total number of agricultural establishments (1,000)	6.13	6.62	-0.49
<b>Sociodemographic characteristics</b>			
% of indigenous agricultural establishments	0.01	0.00	0.01
% of agricultural establishments headed by women	0.19	0.21	-0.03
% of producers' literate	0.60	0.63	-0.03

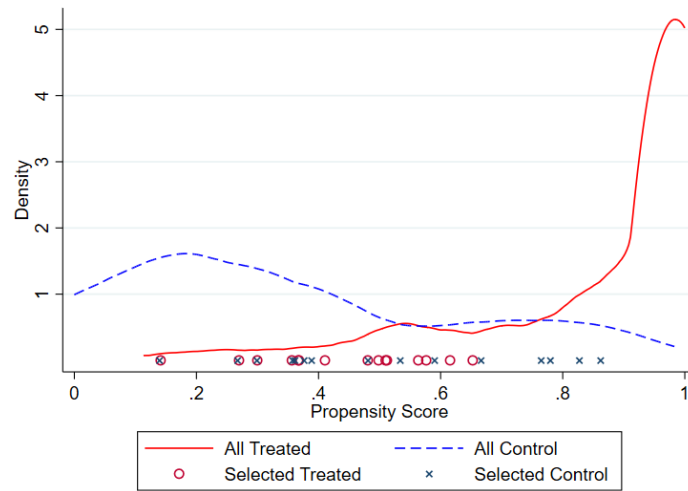
<b>Productive characteristics</b>			
Production area - crops (ha)	7.14	7.57	-0.43
Irrigated area (ha)	4.81	4.76	0.05
Milk production (l)	6.54	6.75	-0.22
Number of cattle	8.84	8.76	0.08
Number of horses	5.73	5.68	0.05
Number of goats	7.31	7.54	-0.23
Number of sheep	8.12	8.02	0.10
% of agricultural establishments with access to credit	0.18	0.17	0.01
% of agricultural establishments with technical assistance	0.20	0.16	0.04
% of agricultural establishments that use fertilizers	0.29	0.25	0.05
% of agricultural establishments with electricity	0.91	0.86	0.05
% of agricultural establishments <1 ha	0.11	0.15	-0.04
% of agricultural establishments from 1 to <3ha	0.17	0.23	-0.07 **
% of agricultural establishments from 3 to <10 ha	0.27	0.25	0.02
% of agricultural establishments from 10 to <50 ha	0.28	0.24	0.04
% of agricultural establishments from 50 to <100 ha	0.06	0.04	0.02
% of agricultural establishments from 100 to <200 ha	0.04	0.03	0.00

**Table 10 (continued). Balance of socio-productive characteristics <sup>a,b</sup>**

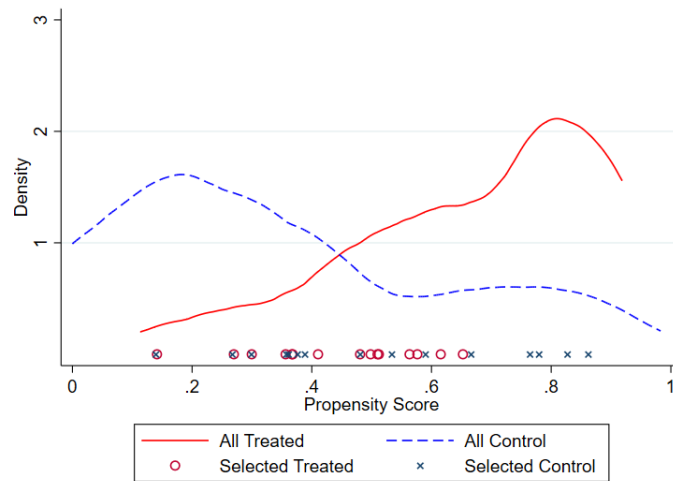
<b>Variables</b>	<b>Treatment Group</b>	<b>Control Group</b>	<b>Difference</b>
<b>Productive characteristics (continued)</b>			
% of agricultural establishments from 200 to <500 ha	0.03	0.03	0.00
% of agricultural establishments >=500ha	0.02	0.01	0.01
% of agricultural establishments permanent crops	0.02	0.03	-0.01
% of agricultural establishments temporal crops	0.24	0.35	-0.12
% of livestock establishments	0.71	0.59	0.12
<b>Production inputs</b>			
Number of tractors	2.37	2.38	-0.02
Labor - agricultural	32.16	38.89	-6.72
Labor - services	34.27	32.81	1.46
% of the workforce earning up to 1 minimum wage	56.28	59.90	-3.63
<b>Observations</b>	<b>15</b>	<b>15</b>	
<sup>a</sup> Mean value per treatment and control group, and the difference between the means of the two groups. Standard deviation in brackets. Unequal difference in gray if the p-value is significant at a confidence level of 99 (***) , 95 (**) or 90 (*). <sup>b</sup> Non-proportional variables are included in logarithm in the estimate.			

**Figure 4.** Distribution of the Propensity Score shows the distribution of propensity scores for pre-selected and non-selected municipalities before and after pairing, highlighting the fact that there is a substantial area of common support. The figure also shows the pairing between the municipalities selected for the treatment and control group, according to score, to confirm that close neighbors were identified for each case.

**Figure 4. Distribution of the Propensity Score**



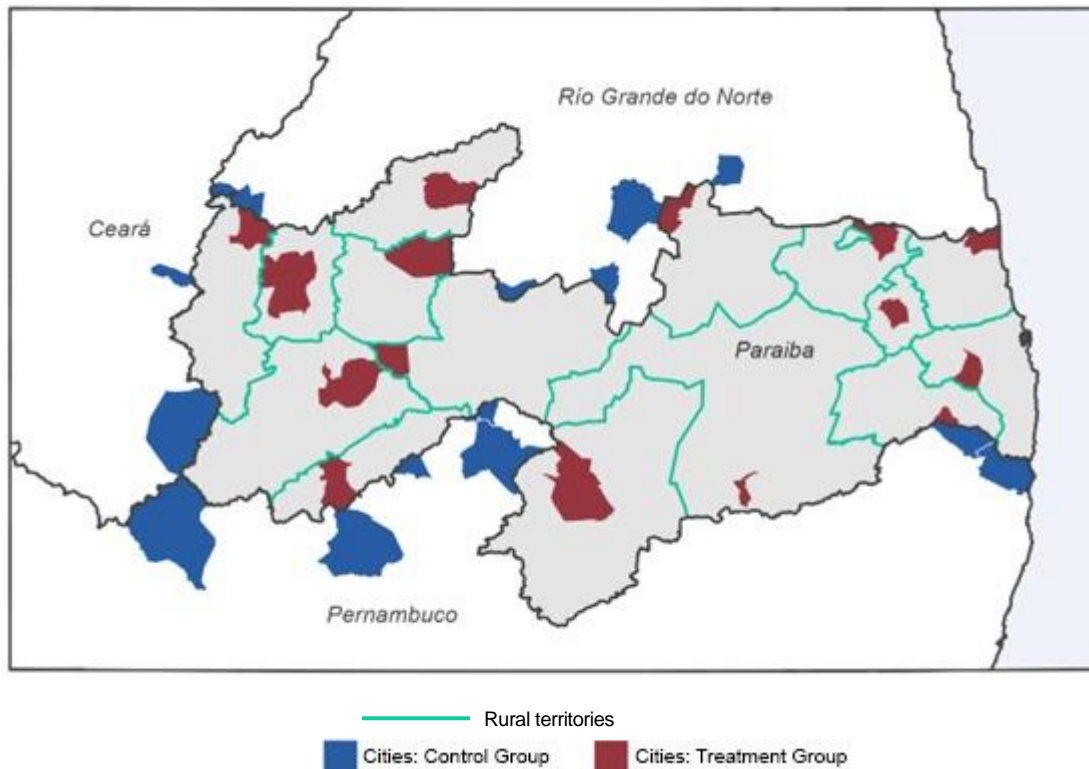
*Panel (a) - Before pairing*



*Panel (b) - After pairing*

Finally, **Figure 5** shows a map of the geographical distribution of the treatment and control municipalities in the Project area.

**Figure 5. Geographical distribution of treated and monitored municipalities**



**Source:** Authors, QGIS.

Once the sample of municipalities for the treatment and control groups have been selected, a random selection of communities must be made within each municipality, given that the community represents the main treatment unit. The producers to be sampled for evaluation within each community will then be selected. In each municipality that was selected in the first stage, several producers should be identified who are representative of the producers there and meet the profile of typical beneficiaries of the Project, either by being a beneficiary (in the treatment group) or by having the characteristics of a beneficiary (in the control group). For the municipalities to be intervened, a register of all the beneficiaries in each community will be kept, since the registration of the beneficiary population in each community forms part of the initial activities of the Project. From this list, a number (to be determined in the next section) of producers who can be interviewed must be selected at random. This selection must respect the stratification of the sample, which considers the subgroups of women (50% of beneficiaries), young people (15-29 years old, 20% of beneficiaries), and traditional peoples and communities (quilombola communities and indigenous peoples, 5% of beneficiaries)<sup>2</sup>. In the communities that form part of the control group, no such register of the beneficiary population will be prepared, so it will be necessary to apply the "snowball" strategy to comply with the sampling guidelines.

### Empirical approach

The empirical framework then proposes the use of the quasi-experimental difference-in-differences (DD or Dif-Dif) methodology, which makes it possible to control for unobservable and non-time-varying differences between the treatment and control groups, measuring the results and impacts of interest for a group of beneficiaries and a group of non-beneficiaries with similar characteristics, at a time before and after the intervention. The basic intuition of the methodology is that the impact is measured by comparing the variation in the average of the impact variable between family farmers who will receive benefits from the

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<sup>2</sup> It will not be possible to stratify for **people with persons with disabilities** since this information will not be accessible beforehand, and because the proportion of beneficiaries (2%) will not allow us to obtain a large enough sample to estimate the impact with sufficient statistical power. In this case, the impact will be estimated as a before-after difference for the treatment group.



Project and those who will not. Thus, the estimation can isolate the following factors from the impact: (i) systematic differences in non-variable characteristics over time between treatment and control producers, and (ii) general temporal trends during the period of implementation of the intervention.

The DD methodology depends on two main assumptions being met: First, it must meet the common trend assumption ("parallel trends"), which implies that any change over time or between groups follows the same pattern as in the absence of treatment (Blundell and Dias, 2000). Unfortunately, there is no historical data available at producer level in the different municipalities in the state of Bahia to verify this assumption.

The second assumption assumes that the counterfactual scenario identified is sufficiently similar to the treatment group in all observable characteristics and that any unobservable characteristics do not vary between the two groups over time. Only if this assumption is valid can any difference between the two groups over time be attributed as an impact on the Program (Gertler et al., 2011).

The double difference is estimated using the following regression specification:

$$Y_{ict} = \beta_0 + \beta_1 B_i + \beta_2 T_t + \beta_3 \times (B_i * T_t) + \beta_4 \times X_{ict} + \epsilon_{ict} \quad (1)$$

Where:

$Y_{ict}$ : impact variable for producer  $i$  in community  $c$  at time  $t$

$B_i$ : a binary variable equal to 1 for treated producers and 0 for producers in the control group.

$T_t$ : binary variable equal to 0 for base line and 1 for end line

$X_{ict}$ : vector of characteristics at family level for producer  $i$  in community  $c$  at time  $t$

$\epsilon_{ict}$ : end of error

$\beta_0 - \beta_4$ : parameters to be estimated

While the  $\beta_1$  controls for initial differences, observable and unobservable and not variable over time, between the treatment and control group, the coefficient  $\beta_1$  controls for general trends over time that are the same for the treatment and control group. Therefore, the coefficient  $\beta_3$  represents temporal trends in the treatment group outside the general trends and thus allows the impact of the intervention to be estimated.

### c. Sample size calculations

Power calculations indicate the minimum sample size required to estimate program impacts accurately. The appropriate sample size for the estimates is essentially determined by the Minimum Detectable Effect (MDE) that will be considered statistically significant when implementing the hypothesis tests in the evaluation model. If the MDE is high, this implies that large differences in the parameter of interest (but less than this MDE) can be considered non-significant. On the other hand, the minimum sample size that would make it possible to determine the minimum detectable effect is also a function of the magnitude of Type I errors (it is concluded that the program had an impact when in fact it did not) and Type II errors (the evaluation concludes that the program did not have an impact when, in fact, it did), according to what one is willing to assume in the evaluation procedure.

According to Wassenich (2007), the following equation can be used to estimate the sample size for an evaluation:

$$N = \frac{\sigma^2(z_\alpha + z_\beta)^2}{P(1 - P) EMD^2}$$

Where:

$N$  = sample size

$EMD$  = minimum detectable effect as the mean difference between the treatment ( $\bar{Y}_{1t}$ ) and control ( $\bar{Y}_{0t}$ )

- $\sigma$  = standard deviation of the variable of interest
- $z_{\alpha}$  = z-value for the chosen significance level (type I error)
- $z_{\beta}$  = z-value for the chosen power level (type II error)
- $P$  = proportion of the sample assigned to the treatment group

In addition, to consider the intra-cluster correlation of farmers in each community, the following formula is used to estimate the final sample size:

$$N_{\text{corregido}} = N[1 + \rho(m - 1)]$$

Where  $\rho$  = intra-cluster correlation  
 $m$  = average number of farmers to be interviewed in each community

For this calculation, data from the impact evaluation of PROCASE I, the previous IFAD-funded Project that was implemented between 2012 and 2020, is used. The impact evaluation of PROCASE I was completed in 2019 (with the baseline being raised in 2015) and was conducted using the Differences-in-Differences method based on survey data from 613 families, 241 treatment and 372 control. PROCASE I's target population is considered highly comparable to PROCASE II's in terms of its geographic targeting and prioritization of family farmers.

In the context of calculating power, it is important to highlight the importance of estimating the impact for various subgroups of beneficiaries. The Project explicitly prioritizes the inclusion of certain vulnerable groups, including women, young people and indigenous peoples and traditional communities (PCT). To ensure that the impact can be estimated with sufficient statistical power for each of the subgroups, the calculation must be made for each of these stratifications.

The relevant indicator to be used for calculating the sample will be the impact indicator, i.e., total annual household income (linked to indicator I.1). According to data from the PROCASE I program's impact evaluation follow-up survey, the average total household income in the control group in 2019 was R\$15,185 (equivalent to US\$3,037). PROCASE I reported an increase in income of 31%, or an absolute value of R\$ 4,851 (MDE). The standard deviation of this variable was obtained from the same database. It should be noted that the same values were also obtained for the prioritized groups of women and young people to calculate the size of these sample stratifications. Unfortunately, PROCASE I did not focus on the PCT group, so no information is available for this substratum. Therefore, it will be assumed that 10% of the sample should represent producers belonging to the PCT group, which represents oversampling (relative to the 5% of beneficiaries targeted by the Project).

For the other parameters relevant to the calculation, the following values are assumed (see **Table 11**): The confidence level normally chosen is the z-value of a two-tailed test with a confidence level of 95% or 90%. In this case, the confidence level used was 95%, where  $z_{\alpha} = 1,96$ . In addition, for this type of evaluation, a statistical power of 10% is generally used, which implies  $z_{\beta} = 1,28$ . The proportion of treatment and control groups will be equal (50%). To consider the intra-cluster correlation of farmers within each community, the observed value of 0.12 is considered. An average of 10 farmers are chosen to be interviewed in each community, which represents the cluster level. Finally, the possible loss of sample during the final line due to not being able to interview all the farmers in the sample ("attrition"), a sample loss level of  $\tau = 10\%$ , is considered.

**Table 11.** Assumptions for determining sample size

Parameter	Sample global	Stratification women	Stratification youth
<i>EMD</i>	15.184,46	12.336,86	11.411,47
$\sigma$	4.850,96	7.079,83	6.888,80
$z_{\alpha}$	1,96 ( $\alpha = 0,05$ )		

$z_{\beta}$	1,28 ( $\beta = 0,90$ )
$P$	0,50
$\rho$	0,12
$m$	10
$\tau$	0,10

The estimated sample size based on this calculation is shown in **Table 12**. The sample size is **1,780 producers**, while 790 families are expected to be interviewed in the treatment and control group, respectively. A total of 110 communities will be sampled (55 communities in the treatment and control group respectively), and 10 producers will be surveyed in each community, which results in a ratio of approximately 60 producers surveyed per municipality/rural territory. To ensure sufficient statistical power, 27% of the households surveyed should be headed by a woman and 35% by young people (it should be noted that these stratifications are non-exclusive). 10% of the households sampled must belong to PCTs.

**Table 12. Sample size by group**

Group	Communities	General stratification	Stratification women	Stratification youth	PCT stratification
Treatment	55	240	240	310	100
Control	55	240	240	310	100
<b>Total</b>	110	480	480	620	200
<b>Total sample</b>		<b>1,780</b>			
<b>Communities by municipality</b>		3,7			
<b>Producers by municipality</b>		59,3			

The proposed evaluation strategy envisages collecting information through three successive measurements of the defined impact and outcome indicators, along with other variables that will make it possible to reinforce the quality of the estimates. The Baseline measurement should be carried out before the implementation of the Project (estimated in the second half of Year 1), the Mid-Term measurement should be conducted when approximately 50% of the disbursements and/or execution time has passed (estimated in the second half of Year 3), and the End Line measurement should be carried out at the end of the implementation of the loan, thus assessing the effective presence of the expected impacts and results (estimated in the second half of Year 5).

#### d. Evaluation coordination, workplan and budget

The aim of the survey of farmers' households in the selected municipalities is to obtain information related to the impact/outcome variables of interest (consistent with the indicators defined in the Results Matrix - see Table 1), as well as a series of conditioning variables that supposedly affect the outcome variables. The main justification for including conditioning variables is to improve the accuracy of impact estimates. **Table 13** presents a detailed list of the variables that should be captured in the questionnaire, where the indicators highlighted in red represent those that are mandatory for meeting the requirements of the development effectiveness framework.

**Table 13. Variables to be collected through the household survey**

<b>Impacts</b>
<ul style="list-style-type: none"> <li>Income for the definition of poverty and extreme poverty</li> <li>Women's food diversity</li> </ul>
<b>Productive Results</b>

<ul style="list-style-type: none"> <li>• Use of sustainable and/or climate-smart inputs, technologies, or practices</li> <li>• Areas recovered through Payments for Environmental Services (PES)</li> <li>• Access to agricultural investments and services</li> <li>• Area of rural properties registered with CAR</li> <li>• Communities with land regularization titles</li> <li>• Selling products at markets</li> <li>• Management positions in rural organizations held by women</li> </ul>
<b><i>Socioeconomic characteristics</i></b>
<ul style="list-style-type: none"> <li>• Age, gender, race/ethnicity, relationship to head of household, marital status</li> <li>• Household composition according to age</li> <li>• Literacy and years of schooling</li> <li>• Living conditions at home</li> <li>• Non-agricultural assets</li> <li>• Dimensions of women's and men's empowerment</li> <li>• People with access to new jobs</li> <li>• Access to drinking water</li> <li>• Access to sanitation</li> <li>• Access to waste collection service with proper destination</li> </ul>
<b><i>Agricultural goods</i></b>
<ul style="list-style-type: none"> <li>• Land use</li> <li>• Equipment</li> <li>• Production problems (diseases, pests, droughts, floods)</li> </ul>
<b><i>Organization/association</i></b>
<ul style="list-style-type: none"> <li>• Participation in government programs</li> <li>• Participation in producer organizations, cooperatives, etc.</li> <li>• Holding management positions in rural organizations</li> <li>• Technical assistance</li> </ul>

Based on this list of necessary variables, **Table 14** shows the general structure of the questionnaire to be applied to the sample of producers. Each module and section of the questionnaire is closely linked to the variables identified in Table 13. Naturally, the main module of the questionnaire focuses on agricultural production to detail the production system with all its costs, factors of production, and products. However, to have a comprehensive view of the producer and his sources of income and costs that will certainly affect his production decisions, modules on other economic activities are also included.

**Table 14. Questionnaire modules**

<b><i>Module 0: Basic information</i></b>
<ul style="list-style-type: none"> <li>• <b>Section A.1:</b> Identification of household/production unit (name of interviewee, location of household/farm, status of Project beneficiary, etc.)</li> <li>• <b>Section A.2:</b> Identification of the interviewee/interviewer (name of the interviewer, start and end time of the interview, etc.)</li> <li>• <b>Section A.3:</b> GPS coordinates and related information</li> </ul>
<b><i>Module 1: Information on demographics, housing, and household location</i></b>
<ul style="list-style-type: none"> <li>• <b>Section 1.1:</b> Household members (age, gender, race/ethnicity, relationship to the head of household, marital status, years of schooling, etc. of each household member)</li> <li>• <b>Section 1.2:</b> Living conditions (type and condition of housing, access to electricity, water, sanitation, waste collection service, ownership situation)</li> <li>• <b>Section 1.3:</b> Location (knowledge of and distance from various facilities, including main road, agricultural markets, etc.)</li> </ul>

<b>Module 2: Earth</b>
<ul style="list-style-type: none"> <li>• <b>Section 2.1:</b> Characteristics of property parcels (location, area, use, ownership status/guarantee, CAR registration, etc.)</li> <li>• <b>Section 2.2:</b> Tenure disputes (conflicts and resolution)</li> <li>• <b>Section 2.3:</b> Production problems (drought, flooding, etc.)</li> <li>• <b>Section 2.4:</b> Agricultural practices and technologies</li> </ul>
<b>Module 3: Property / Assets</b>
<ul style="list-style-type: none"> <li>• <b>Section 3.1:</b> Agricultural assets (type, quantity, and source)</li> <li>• <b>Section 3.2:</b> Non-agricultural assets (type, quantity, and source)</li> </ul>
<b>Module 4: Livestock production</b>
<ul style="list-style-type: none"> <li>• <b>Section 4.1:</b> Inventory (number and value of animals owned, changes in the last year - births, deaths, purchases, sales)</li> <li>• <b>Section 4.2:</b> Livestock production (sales, domestic consumption, animal products, etc.)</li> <li>• <b>Section 4.3:</b> Costs and supplies (veterinary services, food, etc.)</li> </ul>
<b>Module 5: Agricultural production</b>
<ul style="list-style-type: none"> <li>• <b>Section 5.1:</b> Temporary crops (area, sowing/harvesting time, technology used, costs of seeds, fertilizers, pesticides, equipment, sales, family consumption, storage, etc. of processed and unprocessed crops)</li> <li>• <b>Section 5.2:</b> Permanent crops (area, harvest time, technology used, costs of seeds, fertilizers, pesticides, equipment, sales, family consumption, storage, etc. of processed and unprocessed crops)</li> <li>• <b>Section 5.3:</b> Forest products (area, collection time, cost of equipment and processing, sale, consumption, storage, etc.)</li> </ul>
<b>Module 6: Technical assistance and extension</b>
<ul style="list-style-type: none"> <li>• <b>Section 6.1:</b> Type of assistance, provider, frequency, supplies</li> <li>• <b>Section 6.2:</b> Knowledge of agroecological practices and technologies</li> </ul>
<b>Module 7: Non-agricultural economic activity</b>
<ul style="list-style-type: none"> <li>• <b>Section 7.1:</b> Employment (type of occupation, days worked, salary, remittances)</li> <li>• <b>Section 7.2:</b> Loans, credits, and savings (type, amount, reason for loan)</li> </ul>
<b>Module 8: Social capital</b>
<ul style="list-style-type: none"> <li>• <b>Section 8.1:</b> Participation in government programs, rural organizations, cooperatives, etc.</li> <li>• <b>Section 8.2:</b> Holding management positions</li> </ul>
<b>Module 9: Women's empowerment and food security</b>
<ul style="list-style-type: none"> <li>• <b>Section 9.1:</b> Food security and food consumption</li> <li>• <b>Section 9.2:</b> Decision-making at home</li> <li>• <b>Section 9.3:</b> Time allocation (daily use of time for various activities)</li> </ul>

**Table 15. Schedule of evaluation activities**

Activity	Year Month	Year 1			Year 2			Year 3			Year 4			Year 5			Year 6								
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
<b>Baseline</b>		[Light blue bar]																							
Revision of the list of selected communities		█	█																						
Sample selection based on the list of communities			█	█																					
Identification and hiring of the consulting firm				█	█																				
Questionnaire elaboration					█	█																			
Piloting and revision of the questionnaire						█	█																		
Planning and coordination of fieldwork							█	█																	
Survey collection								█	█																
Analysis of collected data									█	█															
Preparation of the final baseline report										█	█														
<b>Mid-term line</b>														[Light blue bar]											
Identification and hiring of the consulting firm									█	█															
Questionnaire update										█	█														
Piloting and revision of the questionnaire											█	█													
Planning and coordination of fieldwork												█	█												
Survey collection													█	█											
Analysis of collected data														█	█										
Preparation of the final report of the mid-term line															█	█									
Preparation of the mid-term assessment																█	█								
<b>End line</b>														[Light blue bar]											
Identification and hiring of the consulting firm																█	█								
Questionnaire update																	█	█							
Piloting and revision of the questionnaire																		█	█						
Planning and coordination of fieldwork																			█	█					
Survey collection																				█	█				
Analysis of collected data																					█	█			
Preparation of the final report for the end line																						█	█		
<b>Preparation of the impact assessment report</b>														[Dark blue bar]											

The schedule of evaluation activities is presented in **Table 15**. Assuming that the Project is signed at the end of 2025 by the State of Paraíba and that planning that Project implementation begins in the first half of 2026, it is estimated that baseline activities will begin in the last quarter of 2026 (or at the time the Program reaches eligibility), including the preparation of the list/register of beneficiary producers, so that this list serves as the sampling frame for the evaluation treatment group. The baseline is expected to be available by the end of the first quarter 2027.

Between 2028 and 2029, or approximately three years after the start of the Project, a second round of surveys will be carried out to compile the mid-term line. The timing of this activity will be similar to that carried out for the baseline, except that only the questionnaire already developed will be revised and the survey will be repeated with the same sample of farmers. The results of the mid-term line should be available 90 days after the date on which 50% of the loan resources have been disbursed and justified, or after 36 months of execution, whichever comes first.

The end line will be carried out as soon as the implementation of the program is complete, possibly at the end of 2030. It should be noted that this third round will be applied among the same sample of farmers. The results of the final evaluation, and, therefore, the final impact evaluation report, are expected to be available within 90 days of the date on which 95% of the loan resources have been disbursed and justified.

**Table 16** shows the preliminary budget for the impact evaluation. To estimate the budget for survey collection based on the sample size, several impact evaluations of comparable agricultural programs are used as a reference: (i) the baseline of the Sustainable Rural Projects in the Cerrado (BR-T1409) and the Caatinga (BR-T1378) which were collected in October 2022; (ii) the baseline of the Sustainable Rural Project in the Amazon (BR-T1462) to be collected in 2024, (iii) the end line of the Sustainable Rural Project in the Caatinga (BR-T1378) to be collected in 2024, and (iv) the end line of PROCASE I, implemented by IFAD in 2019. In these projects, the application of a survey costs an average of R\$440 or US\$88 per questionnaire applied. For the 1,780 farming families sampled in this evaluation, a total cost of US\$88 per survey round is calculated. Added to these costs are the analysis and preparation of the data collected, as well as the preparation of the mid-term and final impact evaluation reports, which add US\$10,000 to the budget respectively, resulting in a total budget of approximately US\$500,000.

**Table 16.** Preliminary impact assessment budget

Activity	Costs (US\$)
Baseline	156.640
Baseline analysis	10.000
Mid-term	156.640
Mid-term analysis and evaluation	10.000
End line	156.640
Final impact assessment	10.000
<b>Total</b>	<b>500.000*</b>

\*Rounded up from US\$499,680

Note that this budget is a preliminary estimate. The exact costs will depend on local prices for the field team, transportation to the field, etc. It is suggested that the following tool from the [IDB Evaluation Portal](#) is used to calculate the fieldwork budget more accurately. It is suggested that this tool be included in the terms of reference of baseline and end-line consultancies so that applicants can use it to propose a budget for their work.

#### **f. Responsibilities and disclosure of results**

The Project Management Unit (PMU) will be responsible for implementing and supervising the impact evaluation. The evaluation will be financed with administration and management funds from this loan (see Error! Reference source not found. for more details). The PMU team will receive technical support from the Bank and IFAD to implement the evaluation according to the design drawn up and also technical analysis

if deemed necessary. The following reports will be prepared during the implementation of the impact assessment:

- i. **Impact assessment plan:** This document provides the comprehensive design of the assessment and should be used as a reference for implementing the various stages of the assessment. Once the company responsible for conducting the baseline has been contracted, the plan should be updated with details of the sampling and survey, as well as the current timeline for the baseline. In this update, the activities of the awareness campaign should also be described in more detail.  
**Completion:** First half of year 1 of implementation (*tentatively: December 2026*)
- ii. **Questionnaire design and sampling implementation:** The preparation of the survey instrument and the implementation of the sampling will be the responsibility of the company contracted for the fieldwork, with the technical support of the Bank. Both the questionnaire and the sample must reflect the details presented in the evaluation plan.  
**Completion:** First half of year 1 of implementation (*tentatively: January 2027*)
- iii. **Baseline Report:** The report will provide details on baseline management, highlighting any adjustments made to the initial Project. It will include all documents associated with the baseline, including the questionnaire, the list of producers interviewed (with address, GPS coordinates), the field guide, the data dictionary, as well as an analysis of the data collected and comparability of the treatment and control group.  
**Completion:** Second half of year 1 of implementation (*tentatively: April 2027*)
- iv. **Mid-term report:** Like the baseline report, this will provide details on the administration of the survey, highlighting any adjustments made to the initial design. It will include all the documents associated with the survey, including the questionnaire, the list of producers interviewed (with housing, GPS coordinates), the field guide, the data dictionary, as well as an analysis of the data collected.  
**Completion:** First half of year 4 of implementation (*tentatively: February 2029*)
- v. **Mid-term assessment report:** Using the data collected in the two rounds of research, the report will present a comprehensive analysis of the Program's mid-term impact, focusing on the main outcome and impact indicators identified in the results matrix. The main aim of this report is to assess the progress of the Project and its success to date, as well as to identify any implementation problems that need to be addressed.  
**Completion:** First half of year 4 of implementation (*tentatively: April 2029*)
- vi. **Final report:** Like the baseline report, this will provide details on the administration of the research, highlighting any adjustments made to the initial design. It will include all the documents associated with the final stage, namely the questionnaire, the field guide, the data dictionary, as well as an analysis of the data collected.  
**Completion:** First half of year 6 of implementation (*tentatively: December 2030*)
- vii. **Impact assessment report:** Using the data collected in the three rounds of survey, the report will present a comprehensive analysis of the Program's impact, focusing on the main impact indicators identified for the results matrix. The main objective of this report is to answer the evaluation questions identified and provide conclusions on the effectiveness of the Program and the lessons learned. It should contribute to the preparation of the Project Completion Report in accordance with PCR guidelines.  
**Completion:** Second half of year 6 of implementation (*tentatively: June 2031*)



## f. Additional information indicators measurement

This section presents the methodological details for measuring certain results and/or impact indicators that require additional information or a complementary measurement to the data analyzed through the impact assessment presented in the previous section. **Table 16** summarizes the indicators discussed in this section.

**Table 17. Indicators whose measurement requires additional methodological details**

#	Indicator	Means of verification
1	I1. Multidimensional Poverty Index (Adjusted Headcount)	Impact Assessment
2	I2. Percentage of families reporting minimal dietary diversity for women (MDDW)	Impact Assessment
3	I3. Farmers who increase their agricultural production	Impact Assessment
4	I4. Tons of greenhouse gas emissions (CO <sub>2</sub> e) avoided and/or sequestered	<u>MapBiomass; FAO's EX-Ante Carbon-Balance Tool (EX-ACT)</u>
5	R1.1 Percentage of households using sustainable or climate-smart inputs, technologies, or practices	Impact Assessment
6	R1.2 Farmers with better access to agricultural investments and services	M&E system (simple inspection)
7	R2.1 Percentage of family farmers who sell their products at markets	Impact Assessment
8	R2.2 Organizations supported by PN increase their sales	Impact Assessment
9	R2.3 Percentage of women in management positions in rural organizations	Impact Assessment
10	R2.4 Change in the percentage of people who report being empowered from baseline	Impact Assessment
11	R2.5 People with new jobs	Impact Assessment
12	R3.1 Area of rural properties registered in the CAR	Monitoring of registration receipts-Insert into M&E system
13	R3.2 Communities with title delivered for land and environmental regularization	List of communities served with certification or/titling-Insert in M&E System

### 1. Impact 1: Multidimensional Poverty Index (adjusted headcount)

The Multidimensional Poverty Index (MPI) was developed by Alkire and Foster (2011), based on the concept of Sen (2000), who considers poverty to be a multidimensional phenomenon capable of affecting individuals in different ways. Thus, the measurement of poverty includes different types of deprivation. T

The theoretical justification for the MPI is based on the contributions of Amartya Sen. For the author, poverty cannot be explained solely by a lack of income. The lack of basic capacities to achieve adequate levels of education, health, nutrition, housing, access to natural resources, and equity must be considered. In this sense, in addition to income, other dimensions are defined to measure families' well-being.

Initially, as pointed out by Fahel, Teles, and Caminhas (2016), the poverty line cut-off must be determined. In other words, it is essential to identify the individuals - or households, which is the level of aggregation used in this study - in poverty. Thus, each household is assigned a deprivation score (from 0 to 1 or 0% to 100%) based on its deprivations in the indicators that make up the index, calculated from the weighted sum of the deprivations experienced.

The MPI will be calculated based on data from the impact assessment studies and measure poverty based on five dimensions: Income, Social Capital, Human Capital, Food Security, Housing Conditions and Sustainability. All the dimensions have the same weight and the indicators for each dimension are also equally weighted. The dimensions above and the variables that comprise them are in **Table 17**.

**Table 18.** Dimensions of the Multidimensional Poverty Index

Dimensions	Indicators
<b>1) Income dimension</b> It captures the lack of resources in households	Yield indicator Household income per capita
<b>2) Social Capital Dimension</b> It captures the capacity levels of the target institutions and individuals. This concerns both changes in individual capacities and collective actions.	Access to Agricultural Policies Indicator Benefits received, given by the average of the following benefits: (i) Cistern for production - 2nd water; (ii) Agricultural financing, PAA, PNAE, Rural insurance, SEAF, Agrarian reform and Land credit.
	Indicator Participation of young women in community actions (Inclusion and empowerment) 1. Participation of young people in community actions; and 2. Participation of women in community actions.
	Associativity indicator: 1. Number of different types of associations in which the family participates, including Community associations, neighborhood associations, etc.; Collective work, community work, joint effort, etc.; Organized social movements; Movements linked to churches; Trade unions; and Others (clubs, sports, and social associations, etc.); 2. Whether the interviewee or family member processes their production through the association; or whether the production or part of the production is marketed through the association.
	Access to Public Policies and Services Indicator 1. Benefits received, identified by access to the following benefits: Retirement, Social Security, Unemployment Insurance, Family Allowance, School Allowance, Food Card, Gas Allowance, Basic Food Basket, Education Allowance, Educa Mais Brasil, English Without Borders, Young Apprentice, Pronatec, Sisutec, Sisu, Prouni, FIES Postgraduate, Free Pass, Elderly Card, Social Driver's License, Living Without Limits, Health is Priceless, Rede cegonha, Social electricity tariff, Light in the Countryside, Light for All, Cistern for human consumption - 1st water, ATER, Brazil without Misery Plan (PBSM), Program to combat rural poverty, Individual Microentrepreneur (MEI), Refis or SEBRAE Program, Emergency aid in disasters - Bolsa Estiagem, Family Health Program (PSF) and Defense Insurance.2. Public services accessed: Health agent; PSF/presence of doctor in community/district; School transportation; Public transportation and public safety.
	Access to Credit Indicator Whether the person interviewed or a member of their family has ever accessed the following benefits: Minha Casa Minha Vida/ Minha Casa Melhor; Agricultural financing; Pronaf; Safrá Guarantee.
<b>3) Human Capital Dimension</b> It captures the level of education and training in rural households.	Education Indicator - educational level of interviewees
	Indicator of access to training programs - Whether the interviewee or a family member is part of a community business plan with Training Activities

Dimensions	Indicators
	Indicator of access to technical advice - Whether the interviewee or a family member is part of a community business plan with technical advice and assistance.
<b>4) Food Security and Nutrition Dimension</b> <b>It captures food security through the results of surveys on: i) access to food; ii) diversification of diet; iii) origin of food.</b>	Food insecurity indicator - If there was ever a time when the family found it very difficult to get food, or even went through the situation of not having enough to eat;
	Varied diet indicator - The frequency with which the family has a varied / diversified diet (vegetables, leaves, fruit, meat, beans, rice, juice)
	Indicator of food origin - If it came from donations from neighbors and relatives
<b>5) Housing and living conditions dimension</b> <b>It captures housing conditions in terms of where most of the family lives, where they spend most of their time and whether they have access to important social facilities.</b>	<b>Housing Conditions Indicator:</b> Type of home Material used for external walls Material used for the roof; Material used for the floor; Existence of bathroom/sanitary facilities in the house Existence of piped water Overcrowding in the household = Number of people per room = number of rooms / number of people in the household. Electricity in the home
	Durable Goods Indicator: Whether the household has: stove, refrigerator, stereo, telephone, TV
<b>6) Sustainability Dimension</b> <b>Captures the adoption of agroecological and sustainable practices</b>	Indicator of cultivation practices: If slash-and-burn is used; If pesticides are used; If chemical fertilizers are used; If organic compost is used; If is used; If straw is used;
	Indicator on the disposal of pesticide packaging: Packaging is returned; Whether agrochemical packaging is buried, burned, or discarded; Whether agrochemical packaging is reused;
	Indicator on waste disposal: Whether household waste is collected by the municipal system; If household waste is recycled; Whether household waste is buried/burned; If household waste is thrown into the environment; If organic waste is separated from household waste for composting.
	Indicator of the state of conservation of springs, water mirrors and riparian forest State of conservation of the water mirror; State of the springs; State of the riparian forest.

## 2. Impact 2: Percentage of households reporting minimal dietary diversity (MDDW)

This indicator will be measured to fulfill the framework of the core indicator (CI), which is IFAD's main mechanism for measuring and reporting Project results at the output and outcome levels. It was developed in 2017 and provides a simplified picture of the main outputs and outcomes achieved by IFAD-supported activities. The structure of the IC consists of 45 indicators: 3 scope indicators, 20 output indicators and 22 outcome indicators. These indicators correspond to the strategic objectives and thematic areas of IFAD's Strategic Framework for 2016-2025 and are aligned with the Sustainable Development Goals (SDGs) defined in the 2030 Agenda.

One of the outcome indicators of this framework is the percentage of women who report minimal dietary diversity. This indicator was initially developed by FAO and USAID in the context of their Food and Nutrition Technical Assistance initiative (FANTA; FAO, 2016). The Minimum Dietary Diversity for Women of

Reproductive Age (MDD-W) aims to measure the diversity of food groups that have been shown to reflect a key dimension of diet quality: micronutrient adequacy, summarized in 11 micronutrients (Martin-Prével et al., 2015). Promoting varied diets is one approach to improving micronutrient nutrition for women of reproductive age. In addition to micronutrient adequacy, high-quality diets are characterized by balance in protein, carbohydrate, and fat intake (Institute of Medicine, 2005) and moderation in the consumption of certain foods, which have low nutrient density and those associated with a higher risk of chronic diseases (George et al., 2014).

The MDD-W is a dichotomous indicator of whether women aged 15 to 49 consumed at least five of the ten defined food groups the previous day or night. The proportion of women aged 15 to 49 who meet this minimum in a population can be used as a proxy indicator of greater micronutrient adequacy, an important dimension of diet quality. The indicator is only applied when a woman between the ages of 15 and 49 is available for this part of the questionnaire.

The questionnaire should then include a classification of foods into 10 food groups. Women (aged 15-49) are asked which foods they have consumed in the last 24 hours. If a woman's diet includes foods that can be classified into a minimum of five food groups, she is expected to meet the minimum requirement for micronutrient intake. The amount of each food group should be 15 g or more.

### **3. Impact 3: Farmers increasing their agricultural production**

Beneficiary families say that the activities supported by the Project (e.g., training, provision of inputs) have helped them to increase the quantity of the main crops harvested as a result of better yields (i.e., the quantity of harvest per unit area of land) or an increase in the area cultivated, compared to the pre-project situation. For cereals, grains and pulses, production is usually measured in tons or kilograms. It can also refer to an increase in livestock production (e.g. increased milk production, reduced animal mortality, improved fertility) or in the volume of fish caught compared to the pre-Project situation.

### **4. Impact 4: Number of tons of greenhouse gas emissions (CO<sub>2</sub>e) avoided and/or sequestered**

Finally, impact indicator I.4 calculates the amount of greenhouse gas emissions avoided as a direct result of preserved vegetation cover.

The Ex-Ante Carbon Balance Tool (EX-ACT) was developed by the Food and Agriculture Organization of the United Nations (FAO) to assess the impacts of interventions in the Agriculture, Forestry and Other Land Use (AFOLU) sector on greenhouse gas (GHG) emissions.

The tool calculates changes in carbon stocks and GHG emissions, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), which, once converted into CO<sub>2</sub> equivalent, are used to derive the carbon balance that indicates the impact of the Project. A positive carbon balance indicates that the Project generates higher emissions, while a negative carbon balance indicates that the Project contributes to reducing emissions.

EX-ACT distinguishes between two periods: the Project implementation phase and the capitalization phase. The six-year implementation phase is the period during which Project activities are carried out. The period covered by the analysis does not necessarily end with the end of the active Project intervention. Additional changes can occur due to interventions (Project activities), such as changes in soil carbon content or biomass. This period defines the capitalization phase. In this analysis, following the recommendations of the IPCC, a general period of 20 years was considered for the implementation and capitalization phase.

This analysis is based on the information provided by the activities described in the Project Concept Note and the models developed in the Economic and Financial Analysis (EFA). It considers the activities of Component 1 - Subcomponent 1.1, 1.2, and 1.3.

The total estimated carbon balance of PROCASE II is -1,449,802 tCO<sub>2</sub>-eq for 20 years of accounting, 6 years of implementation, and 14 years of capitalization for a total area of 13,575 hectares and 1,072,757 head of cattle. This equates to a carbon balance of -107 tCO<sub>2</sub>-eq per ha and -5 tCO<sub>2</sub>-eq per hectare per year.

### **5. Outcome 1.1: Percentage of households using sustainable or climate-smart inputs, technologies, or practices**

Project beneficiaries who receive training in environmentally sustainable practices and/or climate-related risk management, and who state that: (a) they have fully mastered these practices; and (b) they now routinely use these technologies and practices.

### **6. Outcome 1.2: Farmers with better access to agricultural investments and services**

Refers to the number of new individuals who received services or took part in activities promoted or supported by the Project during the period considered (annual report).

### **7. Result 2.1: Percentage of family farmers who sell their produce at markets**

Beneficiary families interviewed say that, compared to the pre-project situation: (a) they can now access the public or private market more easily.

### **8. Result 2.2: Organizations supported by PN increase their sales**

The producer organizations interviewed claimed to have seen an increase in the volume of production sold or in the value of sales compared to the pre-project situation, thanks to the Project's commercialization and other training support.

### **9. Result 2.3: Percentage of women in management positions in rural organizations**

The Project has the explicit aim of strengthening the empowerment of women in the area of intervention through various activities that should enable them to participate more actively in domestic decisions and production chains. Through the implementation of business plans (PN), they will benefit cooperative organizations and their members and will receive specialized technical assistance and investments to improve the conditions for storing, processing, and commercializing products. Support for the inclusion of women (as well as young people and PCT communities) will be a cross-cutting activity and must be considered when drawing up the Business Plans. To help reduce the disparity in women's participation in rural productive activities, resources allocated to the PN will be allocated exclusively to associations and cooperatives led mostly by women (see ROP for more information).

By prioritizing the inclusion of women in the management of rural organizations, it is hoped that the Project will contribute to increasing the number of management positions held by women.

The target was set in line with the Project's demands to increase the rate of management positions held by women by 30%. To confirm that the objective has been achieved at the end of the Project, it is proposed to repeat the same survey in the final year of execution to find out if the percentage of women involved in the leadership of rural organizations has increased adequately.

IFAD has a history of surveys that use this characteristic. The standard questionnaire contains 27 questions to identify both the socio-demographic characteristics of each organization's representative and the characteristics of the organization itself, including location, type of services offered by the organization, improvements incorporated through the Project (in which case the organization benefited) and the organization's access to commercial networks and public programs. The full questionnaire is presented in Annex III.

The survey can be carried out virtually, given that this format has had a high degree of success when implemented by IFAD in other projects (with a response rate of 90%) and that it represents a highly economical way of applying this simple questionnaire. Following the methodology developed by IFAD, the survey will have three elements of dissemination: a call, a card/invitation, and a link to the electronic questionnaire. The electronic questionnaire must allow the respondent's answers to be collected and transmitted automatically. The three dissemination elements will have to be shared with the Project's

Regional Units and then sent to the leaders of the identified rural organizations. It should be noted that a complete list of relevant organizations appears in Annex III. This list will be adjusted based on the review to be done before the survey is implemented.

#### **10. Result 2.4: Change in the percentage of people who report being empowered compared to the baseline**

It is proposed to measure the indicator through impact assessment, given that women's empowerment, which is considered an important dimension of this Project. To meet the requirements of IFAD's results framework, the degree of empowerment will be measured using an empowerment indicator that IFAD has developed based on the Women's Empowerment in Agriculture Index (pro-WEAI) developed by IFPRI, OPHI and USAID. Like the pro-WEAI, the indicator reflects an empowerment framework in which empowerment is a process of change in the interrelated dimensions of resources, agency, and achievements. This indicator focuses on measuring agency, i.e., the ability of individuals, who were previously unable to do so, to make strategic decisions (Malapit, et al, 2019).

IFAD's empowerment indicator aims to measure the empowerment of individuals in 10 of the 12 dimensions called for by the pro-WEAI, focusing on those that IFAD can influence through the activities it supports. Each dimension is assigned to one of the three domains of empowerment: intrinsic agency (internal power), instrumental agency (power to), and collective agency (power with), which are linked to the definition of empowerment.

The dimension map is as follows:

- i. **Intrinsic agency:** Income autonomy, self-efficacy, and attitudes towards intimate partner violence;
- ii. **Instrumental agency:** Contribution to productive decisions, Ownership of land and other assets, Access to and decisions about financial services, Control over the use of income, and Work balance.
- iii. **Collective agency:** group membership and participation in influential groups

Table A2 in the Appendix gives more details on the measurement requirements for this indicator.

#### **11. Result 2.5: People with new jobs**

Number of new seasonal, full-time, or recurring on-farm and off-farm jobs created thanks to the Project's activities since its inception, either as independent individuals (self-employed) or as employees of micro, small and medium-sized enterprises. Jobs created within the framework of farmers' organizations that have received support from the Project are also included, but temporary jobs created for a limited period (e.g., for road construction) will be excluded.

#### **12. Result 3.1: Area of rural properties registered in the CAR in the municipalities covered by the Project**

Sum of the registration of farmers' properties in the National Rural Environmental Registration System (SICAR) in the municipalities covered by the Project, as reported by INCRA.

#### **13. Outcome 3.2: Communities with land and environmental regularization titles delivered**

Number of communities that have obtained the land regularization title, with the application for registration at the registry office.

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## ANNEXES

### Annex I: Methodology for measuring the women empowerment indicator

**Table A1. Measurement of the Empowerment Indicator**

EMPOWERMENT	
IE.2.1	Individuals demonstrating an improvement in empowerment
Definition	<p>IFAD's empowerment indicator is an index that IFAD has developed building on the project-level <b>Women's Empowerment in Agriculture Index (pro-WEAI)</b> developed by IFPRI, OPHI and USAID. Similarly to the pro-WEAI, IE2.1 reflects a framework of empowerment<sup>23</sup> in which empowerment is a process of change on the interrelated dimensions of resources, agency, and achievements. This indicator focuses on measuring agency, i.e. the ability of individuals, who were unable to do so previously, to make strategic choices. (Malapit, et al, 2019).</p> <p>IFAD's empowerment indicator aims at measuring individuals empowerment in the communities where IFAD's projects are implemented, in the domains relevant to IFAD's operations. IE 2.1 includes 10 out of the 12 dimensions for the pro-WEAI, focusing on those IFAD can influence through its supported activities. Each dimension is mapped to one of three domains of empowerment: <b>intrinsic agency (power within)</b>, <b>instrumental agency (power to)</b>, and <b>collective agency (power with)</b> which are linked to the definition of empowerment.</p> <p>Dimensions' mapping is as follows:</p> <ul style="list-style-type: none"> <li>▪ <b>Intrinsic agency:</b> Autonomy in income, Self-efficacy and Attitudes about intimate partner violence.</li> <li>▪ <b>Instrumental agency:</b> Input in productive decisions, Ownership of land and other assets, Access to and decisions on financial services (if any provided by IFAD supported project), Control over use of income and Work balance.</li> <li>▪ <b>Collective agency:</b> Group membership and Membership in influential groups</li> </ul> <p><i>The indicator must be disaggregated by sex in order to compare empowerment between women and men.</i></p>
Data source and collection method	<p>COI survey conducted at Baseline, Mid-Term and Completion. Data should be reflected in ORMS in these 3 points in Time.</p> <p>The survey unit corresponds to the household but the gender of the respondent matters; it is indeed important to ensure that the proportion of women (men) respondent reflect the proportion of women (men) targeted by the project.</p> <p>If the project is defined as Gender-Transformative, the COI questionnaire then includes all the questions with a <b>IE.2.1</b> (IFAD's Empowerment Indicator CI NUMBER) mention included in the modules of the COI questionnaire, as well as all the questions included in the empowerment-dedicated sub-modules of the module [H] PARTICIPATION AND EMPOWERMENT listed below:</p> <ul style="list-style-type: none"> <li>[[H2] GROUP MEMBERSHIP AND INFLUENCE</li> <li>[H3] TIME ALLOCATION</li> <li>[H4] AUTONOMY IN DECISION-MAKING</li> <li>[H5] NEW GENERAL SELF-EFFICACY SCALE</li> <li>[H6] ATTITUDES ABOUT DOMESTIC VIOLENCE</li> </ul> <p>Note that sub-module [H6] Attitudes about Domestic Violence is mandatory. However, given the sensitivity of the topic in certain contexts, project staff might contact ECG PDT and Gender Team for guidance on how to best collect the data.</p> <p>Also note that for sub-modules [H3] to [H6], the project team might consider surveying both man AND woman WITHIN the household for a specific subset of projects. It is recommended that, since this approach requires additional resources (time, budget and capacities) project staff contact ECG PDT and</p>

<sup>23</sup> Kabeer, 1990, 2005.

	Gender Team for support if required.																																							
Unit surveyed	Household survey, beneficiary individuals reflecting the proportion of women/men targeted by the project																																							
Measurement	COMPARISON of the results with baseline survey																																							
COI related questions	<p>All questions with a <b>IE.2.1</b> (CI NUMBER) mention:  <b>[B] HOUSING AND ASSETS:</b> B.1.2, B.2.1, B.2.2, B.2.3, B.2.4.  <b>[C] PRODUCTION AND NATURAL RESOURCES:</b> C.0.1, C.0.3, C.0.7, C.1.3, C.1.4, C.1.15, C.1.22, C.1.23, C.2.0, C.2.1, C.2.7, C.2.8, C.2.9, C.2.10, C.2.11, C.3.3, C.3.4, C.3.5, C.3.6.  <b>[E] FINANCIAL SERVICES:</b> E.1, E.2, E.3, E.4, E.5, E.7, E.8, E.10  <b>[F] NUTRITION :</b> F.1.2, F.1.3.  <b>[I] RURAL ENTERPRISES:</b> I.0.2, I.1.3, I.2.1.  as well as <b>Empowerment-dedicated sub-modules:</b>  <b>[H] PARTICIPATION AND EMPOWERMENT:</b>  <b>[[H2] GROUP MEMBERSHIP AND INFLUENCE</b>  <b>[H3] TIME ALLOCATION</b>  <b>[H4] AUTONOMY IN DECISION-MAKING</b>  <b>[H5] NEW GENERAL SELF-EFFICACY SCALE</b>  <b>[H6] ATTITUDES ABOUT DOMESTIC VIOLENCE</b></p>																																							
Determination of the value of the indicator	<p>The indicator only applies to individuals which benefitted from or participated to in any project-supported activity: check with Project M&amp;E system.</p> <p>Each dimension is equally weighted and is assigned a rating - 1: Adequate and 0: not adequate - according to the answers of the dimension-related questions:  See <i>Appendix II on Nutrition and Empowerment Indicators of COI measurement Guidelines for description of ADEQUACY CRITERIA and for the estimation of IE.2.1 at project level based on COI survey results.</i></p> <p>Based on the rating of each dimension, an empowerment score is calculated and is then expressed as a percentage. Each dimension is equally weighted. <i>The score then has to be compared with the baseline score to assess whether or not it has increased.</i></p> <p><i>Example 1 for 1 individual:</i></p> <table border="1"> <thead> <tr> <th>COI Survey</th> <th>Baseline</th> <th>Mid-Term</th> </tr> </thead> <tbody> <tr> <td><b>Dimensions:</b></td> <td></td> <td></td> </tr> <tr> <td><b>Intrinsic agency</b></td> <td><b>Intrinsic agency</b></td> <td><b>Intrinsic agency</b></td> </tr> <tr> <td>▪ <b>Autonomy in income:</b></td> <td>▪ <b>Adequate: 1Pt</b></td> <td>▪ <b>Adequate: 1Pt</b></td> </tr> <tr> <td>▪ <b>Self-efficacy:</b></td> <td>▪ <b>Not Adequate: 0 Pt</b></td> <td>▪ <b>Not Adequate: 0 Pt</b></td> </tr> <tr> <td>▪ <b>Attitudes about intimate partner violence:</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> </tr> <tr> <td><b>Instrumental Agency</b></td> <td><b>Instrumental agency</b></td> <td><b>Instrumental Agency</b></td> </tr> <tr> <td>▪ <b>Input in productive decisions:</b></td> <td>▪ <b>Not Adequate, 0 Pt</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> </tr> <tr> <td>▪ <b>Ownership of land and other assets:</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> </tr> <tr> <td>▪ <b>Access to and decisions on financial services:</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> </tr> <tr> <td>▪ <b>Control over use of income:</b></td> <td>▪ <b>Adequate, 0 Pt</b></td> <td>▪ <b>Adequate, 1 Pt</b></td> </tr> <tr> <td>▪ <b>Work balance:</b></td> <td>▪ <b>Not Adequate, 0 Pt</b></td> <td>▪ <b>Not Adequate, 0 Pt</b></td> </tr> <tr> <td><b>Collective Agency:</b></td> <td><b>Collective agency</b></td> <td><b>Collective agency</b></td> </tr> </tbody> </table>	COI Survey	Baseline	Mid-Term	<b>Dimensions:</b>			<b>Intrinsic agency</b>	<b>Intrinsic agency</b>	<b>Intrinsic agency</b>	▪ <b>Autonomy in income:</b>	▪ <b>Adequate: 1Pt</b>	▪ <b>Adequate: 1Pt</b>	▪ <b>Self-efficacy:</b>	▪ <b>Not Adequate: 0 Pt</b>	▪ <b>Not Adequate: 0 Pt</b>	▪ <b>Attitudes about intimate partner violence:</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Adequate, 1 Pt</b>	<b>Instrumental Agency</b>	<b>Instrumental agency</b>	<b>Instrumental Agency</b>	▪ <b>Input in productive decisions:</b>	▪ <b>Not Adequate, 0 Pt</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Ownership of land and other assets:</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Access to and decisions on financial services:</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Control over use of income:</b>	▪ <b>Adequate, 0 Pt</b>	▪ <b>Adequate, 1 Pt</b>	▪ <b>Work balance:</b>	▪ <b>Not Adequate, 0 Pt</b>	▪ <b>Not Adequate, 0 Pt</b>	<b>Collective Agency:</b>	<b>Collective agency</b>	<b>Collective agency</b>
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	<i>Total points:</i>	<i>4 Points (out of 10)</i>	<i>6 Points (out of 10)</i>
	<i>Empowerment score:</i>	<i>40%</i>	<i>60%</i>
	<i>The respondent has experienced an improvement in empowerment</i>		
	<i>Example 2 for 1 individual:</i>		
	<i>COI Survey</i>	<i>Baseline</i>	<i>Mid-Term</i>
	<i>Dimensions:</i>		
	<i>Intrinsic agency</i>	<i>Intrinsic agency</i>	<i>Intrinsic agency</i>
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	<i>Total points:</i>	<i>4 Points (out of 10)</i>	<i>4 Points (out of 10)</i>
	<i>Empowerment score:</i>	<i>40%</i>	<i>40%</i>
	<i>Overall, the respondent has not experienced an improved in empowerment. However, an analysis of the change within domains of empowerment provides insights to changes in empowerment at the indicator level. Attitudes about intimate partner violence is offset by the control over use of income.</i>		
<i>Mandatory Disaggregation</i>	<ul style="list-style-type: none"> <li>- Total persons (number)</li> <li>- Total persons (%)</li> <li>- Females (number)</li> <li>- Females (%)</li> <li>- Males (number)</li> <li>- Males (%)</li> </ul>		
<i>SDG target Direct / Indirect</i>	<ul style="list-style-type: none"> <li><b>Direct impact: 10.2</b></li> <li>- Indirect impact: .1.4, 5.4, 5.5, 5.a, 5.c and 16.7</li> </ul>		

**Source:** IFAD Core Indicators Framework (2017)

**Annex II:** Distribution of municipalities according to rural territory in the state of Paraíba

**Table A2. Rural Territories and Municipalities in Paraíba**

Rural Territories	Municipalities	
01 - Território Rural da Mata Sul	Alhandra	
	Bayeux	
	Caaporã	
	Cabedelo	
	Conde	
	Cruz do Espírito Santo	
	João Pessoa	
	Lucena	
	Mari	
	Pitimbu	
	Riachão do Poço	
	Santa Rita	
	Sapé	
	Sobrado	
02 - Território Rural do Brejo	Alagoinha	
	Araçagi	
	Cuitegi	
	Duas Estradas	
	Guarabira	
	Mulungu	
	Pilõesinhos	
	Pirpirituba	
	Riachão	
	Serra da Raiz	
	Sertãozinho	
	03 - Território Rural da Borborema	Alagoa Grande
		Alagoa Nova
Alcantil		
Algodão de Jandaíra		
Areia		
Areial		
Aroeiras		
Assunção		
Barra de Santana		
Barra de São Miguel		
Boa Vista		
Boqueirão		
Cabaceiras		



Rural Territories	Municipalities
	Campina Grande
	Caturité
	Esperança
	Fagundes
	Gado Bravo
	Juazeirinho
	Lagoa Seca
	Livramento
	Massaranduba
	Matinhas
	Montadas
	Natuba
	Olivedos
	Pocinhos
	Puxinanã
	Queimadas
	Remígio
	Riacho de Santo Antônio
	Santa Cecília
	São Domingos do Cariri
	São Sebastião de Lagoa de Roça
	Soledade
	Taperoá
	Tenório
	Umbuzeiro
	Baraúna
	Barra de Santa Rosa
	Cubati
	Cuité
	Frei Martinho
	Nova Floresta
	Nova Palmeira
	Pedra Lavrada
	Picuí
	São Vicente do Seridó
	Sossêgo
	Amparo
	Camalaú
	Caraúbas
	Congo
	Coxixola
	Gurjão

Rural Territories	Municipalities
	Monteiro
	Ouro Velho
	Parari
	Prata
	Santo André
	São João do Cariri
	São João do Tigre
	São José dos Cordeiros
	São Sebastião do Umbuzeiro
	Serra Branca
	Sumé
	Zabelê
06 - Território Rural do Médio Sertão	Areia de Baraúnas
	Cacimba de Areia
	Cacimbas
	Catingueira
	Desterro
	Emas
	Junco do Seridó
	Mãe D'Água
	Malta
	Maturéia
	Passagem
	Patos
	Quixaba
	Salgadinho
	Santa Luzia
	Santa Terezinha
	São José de Espinharas
	São José do Bonfim
	São José do Sabugi
	São Mamede
Teixeira	
Várzea	
07 - Território Rural do Vale de Piancó	Aguiar
	Boa Ventura
	Conceição
	Coremas
	Curral Velho
	Diamante
	Ibiara
	Igaracy
Itaporanga	

Rural Territories	Municipalities
	Nova Olinda
	Olho D'Água
	Pedra Branca
	Piancó
	Santa Inês
	Santana de Mangueira
	Santana dos Garrotes
	São José de Caiana
	Serra Grande
	08 - Território Rural do Médio Piranhas
Bom Sucesso	
Brejo do Cruz	
Brejo dos Santos	
Catolé do Rocha	
Jericó	
Mato Grosso	
Riacho dos Cavalos	
São Bento	
São José do Brejo do Cruz	
09 - Território Rural do Alto Sertão	Bernardino Batista
	Bom Jesus
	Bonito de Santa Fé
	Cachoeira dos Índios
	Cajazeiras
	Carrapateira
	Joca Claudino
	Monte Horebe
	Poço Dantas
	Poço de José de Moura
	Santa Helena
	São João do Rio do Peixe
	São José de Piranhas
Triunfo	
Uiraúna	
10 - Território Rural do Vale do Piranhas	Aparecida
	Lastro
	Marizópolis
	Nazarezinho
	Santa Cruz
	São Francisco
	São José da Lagoa Tapada
	Sousa
Vieirópolis	

Rural Territories	Municipalities
11 - Território Rural da Serra do Teixeira	Água Branca
	Imaculada
	Juru
	Manaíra
	Princesa Isabel
	São José de Princesa
	Tavares
12 - Território Rural do Vale do Paraíba	Caldas Brandão
	Gurinhém
	Ingá
	Itabaiana
	Itatuba
	Juarez Távora
	Juripiranga
	Mogeirol
	Pedras de Fogo
	Pilar
	Riachão do Bacamarte
	Salgado de São Félix
	São José dos Ramos
	São Miguel de Taipu
Serra Redonda	
13 - Território Rural do Vale do Maringá	Cajazeirinhas
	Condado
	Lagoa
	Paulista
	Pombal
	São Bentinho
	São Domingos
Vista Serrana	
14 - Território Rural da Mata Norte	Baía da Traição
	Capim
	Cuité de Mamanguape
	Curral de Cima
	Itapororoca
	Jacaraú
	Lagoa de Dentro
	Mamanguape
	Marcação
	Mataraca
	Pedro Régis
Rio Tinto	
	Arara

Rural Territories	Municipalities
15 - Território Rural do Piemont da Borborema	Araruna
	Bananeiras
	Belém
	Borborema
	Cacimba de Dentro
	Caiçara
	Tacima
	Casserengue
	Damião
	Dona Inês
	Logradouro
	Pilões
	Serraria
	Solânea

### Annex III: Estimated CO<sub>2</sub> emissions avoided

**Table A3. Change in land use, in hectares**

2.2 AFFORESTATION & REFORESTATION										
If country-specific data are available, please go to Tier 2: <span style="border: 1px solid black; padding: 2px;">Tier 2</span>										
Final land-use	Fire used? (y/n)	Initial land-use	Initial agroforestry system	Reforested area (ha)				Total emissions (tCO <sub>2</sub> -e)		Balance
				Without	*	With	*	Without	With	
Tropical dry forest	NO	Grassland	Please select	0	D	75	D	0	-10.294	-10.294 ▼
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
Please select	NO	Please select	Please select	0	D	0	D	0	0	0
<b>Total af/re forestation (tCO<sub>2</sub>-e)</b>								<b>0</b>	<b>-10.294</b>	<b>-10.294 ▼</b>

Please go to section 4.1.1 in the Grassland and livestock Module to complete the assessment

\*The selection of "D" corresponds to a default (linear) dynamics of change. Other selection options include "I" for immediate changes and "E" for exponential - please refer to the guidelines for further explanation of these assumptions.

2.3 OTHER LAND-USE CHANGES										
If country-specific data are available, please go to Tier 2: <span style="border: 1px solid black; padding: 2px;">Tier 2</span>										
User notes	Fire used? (y/n)	Initial land-use	Final land-use	Area of land use change (ha)				Total emissions (tCO <sub>2</sub> -e)		Balance
				Without	*	With	*	Without	With	
HORTICULTURA E FRUTICULTURA IRRIGADA	NO	Annual cropland	Hedgerow	0	D	203	D	0	1.760	1.760 ▲
CRIANZA DE CABRAS EN SISTEMA AGROFORESTAL	NO	Grassland	Agroforestry - default	0	D	3.015	D	0	3.585	3.585 ▲
AVICULTURA CAIPIRA COM SAF FORRAGEIRO	NO	Annual cropland	Agroforestry - default	0	D	271	D	0	-599	-599 ▼
CAPRINO DE LEITE COM SAF FORRAGEIRO	NO	Grassland	Agroforestry - default	0	D	2.412	D	0	2.868	2.868 ▲
BOVINO DE LEITE COM SAF FORRAGEIRO	NO	Grassland	Agroforestry - default	0	D	905	D	0	1.076	1.076 ▲
	NO	Please select	Please select	0	D	0	D	0	0	0
	NO	Please select	Please select	0	D	0	D	0	0	0
	NO	Please select	Please select	0	D	0	D	0	0	0
	NO	Please select	Please select	0	D	0	D	0	0	0
	NO	Please select	Please select	0	D	0	D	0	0	0
	NO	Please select	Please select	0	D	0	D	0	0	0
<b>Total non forest land-use change (tCO<sub>2</sub>-e)</b>								<b>0</b>	<b>8.690</b>	<b>8.690 ▲</b>

Please go to the Cropland and Grassland modules to complete the assessment

\*The selection of "D" corresponds to a default (linear) dynamics of change. Other selection options include "I" for immediate changes and "E" for exponential - please refer to the guidelines for further explanation of these assumptions.

**Source: EX-Ante Carbon Balance Tool (FAO, 2024)**

**Table A2. Calculation of avoided emissions**

PROJECT COMPONENTS		Lifetime of assessment	WITHOUT PROJECT					WITH PROJECT					BALANCE				
			CO2 (tCO2)	N <sub>2</sub> O (tCO2e)	CH <sub>4</sub> (tCO2e)	Other GHGs (tCO2e)	Total emissions, tCO2-e	CO2 (tCO2)	N <sub>2</sub> O (tCO2e)	CH <sub>4</sub> (tCO2e)	Other GHGs (tCO2e)	Total emissions, tCO2-e	CO2 (tCO2)	N <sub>2</sub> O (tCO2e)	CH <sub>4</sub> (tCO2e)	Other GHGs (tCO2e)	Total emissions, tCO2-e
Land use changes	Deforestation	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Afforestation	20	0	0	0	0	-10.294	0	0	-10.294	-10.294	-10.294	0	0	0	-10.294	
	Other land-use	20	0	0	0	0	8.690	0	0	8.690	8.690	0	0	0	8.690		
	Annual	20	15.136	654	0	15.790	849	4.967	0	5.816	-14.287	4.313	0	-9.975			
Cropland	Perennial	20	-15.564	15	0	-15.550	-1.372.277	6	0	-1.372.270	-1.356.712	-8	0	-1.356.721			
	Flooded rice	20	0	0	0	0	0	0	0	0	0	0	0	0			
Grasslands & Livestock	Grasslands	20	0	0	0	0	0	0	0	0	0	0	0	0			
	Livestock	20	0	115.294	2.301.989	2.417.282	0	136.728	2.396.779	2.533.507	0	21.434	94.790	116.224			
	Forest mngt.	20	0	0	0	0	0	0	0	0	0	0	0				
	Inland wetlands	20	0	0	0	0	0	0	0	0	0	0	0				
	Coastal wetlands	20	0	0	0	0	0	0	0	0	0	0	0				
	Fisheries and aquaculture	20	0	0	0	0	0	0	0	0	0	0	0				
	Inputs & Invest.	20	0	0	0	944.397	944.397	0	0	744.056	744.056	0	0	-200.341	-200.341		
<b>Total emissions, tCO2-e</b>			<b>-428</b>	<b>115.962</b>	<b>2.301.989</b>	<b>944.397</b>	<b>3.361.919</b>	<b>-1.373.032</b>	<b>141.701</b>	<b>2.396.779</b>	<b>744.056</b>	<b>1.909.503</b>	<b>-1.372.604</b>	<b>25.739</b>	<b>94.790</b>	<b>-200.341</b>	<b>-1.452.416</b>
<b>Total emissions, tCO2-e/ha</b>			<b>0,0</b>	<b>8,5</b>	<b>169,6</b>	<b>69,6</b>	<b>247,7</b>	<b>-101,1</b>	<b>10,4</b>	<b>176,6</b>	<b>54,8</b>	<b>140,7</b>	<b>-101,1</b>	<b>1,9</b>	<b>7,0</b>	<b>-14,8</b>	<b>-107,0</b>
<b>Total emissions, tCO2-e/ha/yr</b>			<b>0,0</b>	<b>0,4</b>	<b>8,5</b>	<b>3,5</b>	<b>12,4</b>	<b>-5,1</b>	<b>0,5</b>	<b>8,8</b>	<b>2,7</b>	<b>7,0</b>	<b>-5,1</b>	<b>0,1</b>	<b>0,3</b>	<b>-0,7</b>	<b>-5,3</b>

**Source:** EX-Ante Carbon Balance Tool (FAO, 2024)

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 15 Fiduciary Agreements And Requirements**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





Country : Brazil

Division : RND

Operation No .: BR-L1623

Year : 2024

## Fiduciary Agreements and Requirements

**Executing Agency (OE) :** State of Paraíba through the Secretariat of Family Agriculture and Semi-Arid Development (SEAFDS)

**Name of the Operation :** Sustainable Rural Development Project of the State of Paraíba - PROCASE II

### I. Fiduciary context of the Executing Agency

#### 1. Use of country system in operation

<input checked="" type="checkbox"/> Budget	<input checked="" type="checkbox"/> Reports	<input checked="" type="checkbox"/> Information System	<input type="checkbox"/> National Public Tender (LPN)
<input checked="" type="checkbox"/> Treasury	<input type="checkbox"/> Internal audit	<input checked="" type="checkbox"/> Price Comparison	<input type="checkbox"/> Others
<input checked="" type="checkbox"/> Accounting	<input checked="" type="checkbox"/> External Control	<input type="checkbox"/> Individual Consultants	

#### 2. Fiduciary execution mechanism

<input checked="" type="checkbox"/>	Co-Financing	The International Fund for Agricultural Development (IFAD) will provide joint co-financing of US\$10 million directly to the State of Paraíba. The Bank and IFAD will sign a Coordination Agreement that will detail operational responsibilities, including the Bank's technical, fiduciary, environmental and social supervision of the execution of IFAD resources, as well as the coordination of supervision missions between both institutions.
<input checked="" type="checkbox"/>	Co-executors/Sub-executors	The Paraíba Company for Research, Rural Extension and Land Regularization (EMPAER) will act as sub-executor of the land regularization activities of component II. As part of the preparation, an Institutional Capacity Analysis of the SEAFDS and the EMPAER was carried out.
<input checked="" type="checkbox"/>	Particularities of fiduciary execution	The SEAFDS will be responsible for the technical and fiduciary management of the Project, and in whose structure a Project Management Unit (UGP) will be created with the objective of guaranteeing compliance with the loan contract and that provided for in the ROP. The UGP will have, in addition to the central team in João Pessoa, territorial offices. The program will have a Management Committee, which will have a strategic planning function, including, among others, the review of annual reports and the approval of the Annual Operational Plan (POA) and Collegiates of Sustainable Territorial Development (CODETER) in the project area, organizations to the participation and local coordination of the actions of the government, social organizations and civil society, which will fulfill a consultative function, serving as a space for the communication of the actions carried out by the project and the coordination with other initiatives that occur in the territories.

### 3. Fiduciary capacity

Fiduciary capacity of the EMB	The evaluation of the institutional and fiduciary capacity of the SEAFDS and the EMPAER concluded that they have previous experience in executing similar Programs, including with resources from IFAD – PROCASE I, and a medium institutional capacity for the execution of the Program. To avoid possible difficulties and delays in execution due to weaknesses found and possible delays in the procurement processes, it is proposed: (i) nominate all members of the PMU; (ii) hire the Inter-American Institute for Cooperation on Agriculture (IICA) as a specialized agency to support procurement management, given its experience in similar projects, including PROCASE I; and (iii) the provision of training, by the Bank and IFAD, on fiduciary policies and procedures.
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### 4. Fiduciary risks and risk response

Risk Taxonomy	Risk	Risk level	Risk response
Organizational structure	Difficulties and delays in execution due to weaknesses found and possible delays in procurement processes	Medium-High	Hire IICA; Conduct training for the UGP Team.
Internal processes	Delays in the accountability of beneficiaries for the resources transferred to their organizations	Medium-High	Establish a clear accountability mechanism in the ROP; Sign a legal instrument between the UGP and each beneficiary organization, detailing responsibilities and procedures.

### 5. Policies and Guides applicable to the operation: OP-273-12

### 6. Exceptions to Policies and Guides: Does not apply

## II. Aspects to be considered in the Special Stipulations of the Loan Contract

Special conditions prior to the first disbursement: No
Exchange rate: For the purposes of the provisions of Article 4.10 of the General Standards, the Parties agree that the applicable exchange rate will be that indicated in subsection (b)(i) of said Article. For the purposes of determining the equivalence of expenses incurred in Local Currency charged to the Local Contribution or the reimbursement of expenses charged to the Loan, the agreed exchange rate will be the purchase exchange rate set by the Central Bank of Brazil in force on the date effective in which the Borrower, the Executing Agency or any other natural or legal person to whom the power to make expenses has been delegated, makes the respective payments in favor of the contractor, supplier or beneficiary.
Type of Audit: During the execution of the program, audited financial statements will be presented annually no later than 120 days after the close of each fiscal period. The external audit will be carried out by an external firm acceptable to the Bank. Final EFAs for the program will be submitted no later than 120 days after the date of the last disbursement.

## III. Agreements and Requirements for the Execution of Acquisitions

<input checked="" type="checkbox"/>	<p>Tender documents</p>	<p>For acquisitions of Works, Goods and Non-Consulting Services executed in accordance with the Procurement Policies (document GN-2349-15), subject to LPI, the Bank's Standard Bidding Documents (SEs) or those agreed between OE and the Bank for the private acquisition. Likewise, the selection and contracting of Consulting Services will be carried out in accordance with the Consultant Selection Policies (document GN-2350-15) and the Standard Request for Proposals (SEP) issued by the Bank or agreed upon between the OE will be used. and the Bank for the particular selection.</p>
<input checked="" type="checkbox"/>	<p>Use of National Systems</p>	<p>The COMPRASNET System is accepted by the Bank for the acquisition of common goods and services up to the LPI threshold.</p> <p>In addition, for the contracting and implementation of the Resilient Investment Plans and Business Plans (approximately 200 PIR and 60 PN) planned, community organizations or cooperatives will be contracted respectively, for which the SEAFDS will sign a legal instrument with each one establishing obligations and responsibilities. in the execution of the plan, as well as the conditions for disbursements to organizations, percentages and means of verification. The model of this legal instrument will be included as an annex to the ROP. This selection and contracting process is carried out based on the National Procurement Law and regulated by Law No. 12,188/10 and Regulated Decree No. 7,215/10 - National Technical Assistance and Rural Extension Program – PNATER.</p>
<input checked="" type="checkbox"/>	<p>Hiring and Direct Selection</p>	<p>The direct contracting of the Inter-American Institute for Cooperation on Agriculture (IICA) is planned as a specialized agency to manage contracts corresponding to the PMU staff and the training that is part of the administration and management costs of the program, which involves a total of US \$5.88 million. The total estimated cost of this IICA contract is US\$471,000 for the six years of execution, and payments will be made based on (percentage) of the resources executed. The main functions of IICA will be: (i) hiring of technical and administrative personnel to manage the program; and (ii) logistics contracting for the implementation of training actions planned for administration and management. This entity will receive transfers of resources from the program to carry out these contracts and acquisitions. Such contracting is justified in accordance with the provisions of GN-2350-15, 3.11 (d), due to the exceptional value experience of this institution, demonstrated by its extensive experience and track record in supporting project execution, knowledge and experience of its technical staff in procurement policies of international organizations and their experience in PROCASE I.</p>
<input checked="" type="checkbox"/>	<p>Advance Acquisitions Retroactive Financing</p>	<p>The Bank may recognize, with a charge to the local contribution, up to the sum of US\$2.5 million (10% of the estimated amount of the local contribution), eligible expenses incurred by the borrower before the date of loan approval, through the SEAFDS and EMPAER, for the hiring of PMU personnel, studies and diagnoses, and services and equipment necessary for project management and for the execution of component actions, provided that requirements substantially analogous to those have been met. established in the loan contract. These expenses must have been incurred as of July 5, 2023 (registration date of the operation), but in no case will expenses incurred more than 18 months before the loan approval date be included.</p>

<input checked="" type="checkbox"/>	<b>Procurement Supervision</b>	<p>The supervision method will be ex post, except in those cases where ex ante supervision is justified. For acquisitions that are executed through the national system, supervision will be carried out through the country's national supervision system. The method ((i) ex ante, (ii) ex post or (iii) national system) of supervision must be determined for each selection process. Ex post reviews will be carried out in accordance with the Project Supervision Plan, subject to change during execution. The ex-post review reports will include at least one visit (The inspection verifies the existence of the acquisitions, leaving the verification of quality and compliance with specifications to the sector specialist) of physical inspection, chosen from the acquisition processes subject to the review ex post. [Summary of provisions] [Link]. The threshold amounts for ex post review are the following:</p> <table border="1"> <thead> <tr> <th>Executing agency</th> <th>Plays</th> <th>Goods/Services</th> <th>Consulting services</th> </tr> </thead> <tbody> <tr> <td>SEAFDS and EMPAER</td> <td>USD 25MM</td> <td>USD 5MM</td> <td>USD 1MM</td> </tr> </tbody> </table>	Executing agency	Plays	Goods/Services	Consulting services	SEAFDS and EMPAER	USD 25MM	USD 5MM	USD 1MM
Executing agency	Plays	Goods/Services	Consulting services							
SEAFDS and EMPAER	USD 25MM	USD 5MM	USD 1MM							
<input checked="" type="checkbox"/>	<b>Records and Files</b>	<p>The documentation of the process will be in charge of the SEAFDS and the EMPAER, through the UGP, which will maintain the necessary documentation for supervision and audit purposes.</p>								

### Major Acquisitions

Description of the acquisition	Selection Method	New Procedures/Tools	Estimated date	Estimated Amount 000'US\$
<b>Estate</b>				
Acquisition of computers	National System - COMPRASNET	N/A	06/30/2025	650,000
<b>Non-consulting services</b>				
Training in Public Policies	Price Comparison		09/30/2025	1,000,000
<b>Selection and Hiring of Consultancies – Firms</b>				
Contracting of Technical Assistance and Rural Extension – ATER for the preparation and implementation of Resilient Investment Plans and Business Plans	National System – Law No. 12,188/10 and Regulatory Decree No. 7,215/10	N/A	08/15/2025	18,900,000
<b>Selection and Hiring of Individual Consultants</b>				

Selection and hiring of specialized and technical consultants (50 CI)	Individual Consultant Selection (3CV)	N/A	04/15/2025	5,432,700.00
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**IV. Agreements and Requirements for Financial Management**

<input checked="" type="checkbox"/>	Programming and Budget	<p>The PMU will be responsible for coordinating the planning process for the execution of program activities. The budget allocation resources are made available through SEPLAG - Secretary of State for Planning, Budget and Management of the Government of the State of Paraíba, on the occasion of a previously sent file containing the POA instrument, prepared by PROCASE, with the respective values and actions that will be developed this year.</p> <p>After sending the file detailed above, between the period from September to November of each fiscal year, SEPLAG, by letter sent to PROCASE/SEAFDS, informs the availability of budget allocation to be inserted into the SIOP system - Integrated Planning and Management System. Budget, which feeds information for the formalization of the PLOA - Annual Budget Bill.</p> <p>Once the information has been entered into the SIOP, the SEPLAG sends the PLOA for voting in the Legislative Assembly, once finalized, the values will be internalized in the SIAF system - Integrated State Financial Administration System, a system that carries out budget management. , financial and accounting of the Government of the State of Paraíba.</p>
<input checked="" type="checkbox"/>	Treasury and Disbursement Management	<p>The State treasury system will be used where expenses will be subject to the budget and financial execution process and registered in the SOF. Disbursements will be made in United States dollars, mainly in the form of advances of funds. The value of the advances will be based on a financial execution projection of up to 180 days. For advances after the first, the rendering of accounts for at least 60% of the accumulated balance of unjustified advances will be necessary. The financing resources disbursed by the IDB will be administered through an exclusive bank account that allows receiving and managing these resources and carrying out bank reconciliations.</p> <p>The exchange rate agreed upon with the executing agency for the accounting of expenses paid with resources from the advances of loan funds will be the internalization rate. To determine the equivalence of the expenses incurred in the local contribution or the reimbursement of the expenses charged to the loan, the agreed exchange rate will be the purchase rate set by the Central Bank of Brazil in force on the effective date of payment of the expenses. eligible for the project.</p>
<input checked="" type="checkbox"/>	Accounting, information systems and reporting	<p>The SIGMA system of the Cooperar Project is an integrated computer tool to support the implementation of the Project, in which it is possible to manage information on various related topics, such as the management of contracts for goods, works, services and consultancies signed with its creditors, management of subprojects and agreements with organizations of the State of Paraíba, daily management and asset management, in addition to allowing information management and the automatic generation of various documents related to the loan contract with the World Bank, such as Acquisition Plan, POA, Budgets , SOE and IFR.</p>

		<p>SIGMA, adapted from the SMI - Information Monitoring System of the Rio Grande do Norte (RN) Project, in which the information was integrated with the Integrated Financial Administration System of the State of Rio Grande do Norte (SIAF), allowing autonomously all the financial information of the Project, eliminating the possibility of typographical errors and automating the presentation of disbursement reports to the World Bank.</p> <p>In a similar way to what happened between SMI (RN) and SIGMA (PB), PROCASE seeks to partner with the Cooperar Project, through a Protocol term for the supply of the SIGMA system with the supply of the system source codes, the data of the database structure and all connections. scripts and other accessory functions for its correct functioning. The system that will be available will receive a new name (to be defined) and will be personalized according to the characteristics of the loan agreement with the IDB/IFAD.</p>
<input checked="" type="checkbox"/>	<p>Internal Control and internal audit</p>	<p>The Bank does not rely on the internal audit function of the institutions in charge of executing the project.</p>
<input checked="" type="checkbox"/>	<p>External control and financial reporting</p>	<p>The external audit of the program will be carried out by an external audit institution eligible for the Bank, preferably the State Court of Accounts. The fiscal period of the Program is between January 1 and December 31 of each year. During the execution of the program, audited financial statements will be presented annually as of December 31 of each year, no later than 120 days after the close of each fiscal period. The final Audited Financial Statements of the program will be presented no later than 120 days after the date of the last disbursement, or its extensions.</p>
<input checked="" type="checkbox"/>	<p>Financial Supervision of the operation</p>	<p>The operation requires financial supervision that will include ex post review of disbursements, annual audit and review of disbursement requests. Under the responsibility of the fiduciary team, reviews and on-site and desktop support will also be carried out with a periodicity, subject to adjustments during execution, of an annual frequency that will consist of supervision visits.</p>

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 16 Costab Costos Del Proyecto**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





BRASIL

PROYECTO de DESARROLLO RURAL SOSTENIBLE DE  
PARAIBA

PROCASE II  
BR-L1623

**COSTOS**

INFORME FINAL BORRADOR

## Introducción

1. El presente documento tiene como objetivo sintetizar las principales supuestos, hipótesis y resultados de las estimaciones de costos del Proyecto de Desarrollo Rural Sostenible de Paraíba, así como el plan de financiamiento para el período de implementación que se ha estimado en seis (6) años. La información presentada ha sido elaborada mediante la utilización del software COSTAB.
2. Los datos de costos fueron validados a partir de documentos elaborados durante el diseño del Proyecto como ser el Marco Lógico y la Matriz de Resultados y las consultas específicas al equipo de PROCASE I que ha acompañado en las misiones a los equipos del FIDA y del BID.
3. En el apéndice I se presentan las tablas detalladas de costos por componente, subcomponente y actividad con los precios unitarios utilizados en los cálculos realizados en moneda local y dólares estadounidenses con las cantidades a ejecutar durante cada año de actuación del proyecto.

### *Principales supuestos e hipótesis*

4. **Duración del Proyecto.** La duración del proyecto se ha planeado a seis (6) años, previendo su inicio para 1 de junio de 2025 y finalizando, en consecuencia, el 30 mayo de 2031.
5. **Cofinanciamiento.** El valor total del Proyecto consiste en un préstamo del Fondo Internacional de Desarrollo Agrícola (FIDA) por un monto total de USD 10 millones de dólares estadounidenses y un préstamo del Banco Interamericano de Desarrollo (BID) equivalente a USD 70 millones, sumando en total USD 80 millones como financiamiento externo (76 % de los costos totales). El Gobierno del Estado de Paraíba contribuirá con recursos propios por un valor de USD 25 millones de dólares estadounidenses que representan el 24% de los costos totales para la realización del presente Proyecto.
6. **Tasa de cambio.** La tasa de cambio proyectada para la estimación de costos fue de R\$ 5,00/USD 1,00, valor en conformidad con la variación media de cambio actual propuesta por el Banco Central de Brasil, según el Informe de Mercado Focus (Abr/24).
7. **Contingencias de precios.** La contingencia de precios no se llevó a cabo para la operación, ya que el principal agente financiador (BID) informó que no utiliza esta metodología para la provisión de recursos ante el riesgo de inversión a los cambios en los precios a lo largo del tiempo.

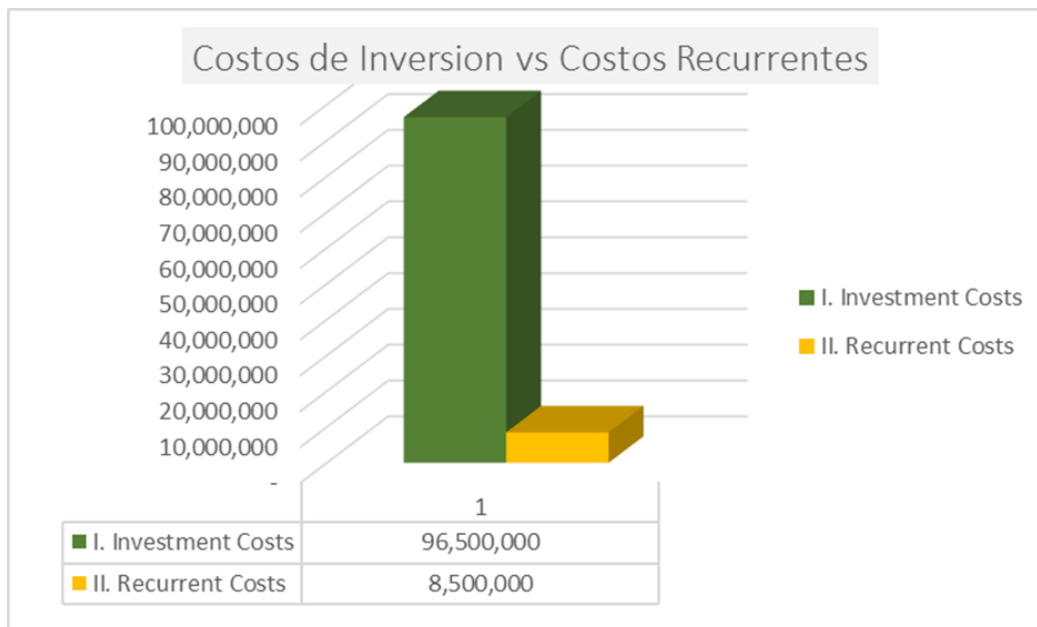
8. **Costos unitarios.** La estimación de costos unitarios se basa en las actividades de recolección de datos realizadas por el equipo del FIDA y el BID durante las misiones de diseño con la colaboración del equipo del proyecto PROCASE I para elaborar las hojas de cálculo iniciales y alimentar el software COSTAB. También se utilizó como referencia el marco lógico del proyecto y documentos complementarios.

9. **Impuestos y tarifas.** Los costos se presentan con todos los impuestos incluidos según las referencias disponibles y en el cálculo se incorporaron diferentes tasas, tarifas e impuestos que eventualmente inciden sobre las actividades financiadas por el Proyecto dentro de Brasil.

***Resumen de las principales tablas de costos del proyecto.***

10. **Costos Totales.** El costo total del proyecto para un período de implementación de seis (6) años se calculó en USD 105 millones de costo base. Los costos de inversión ascienden a un total USD 96,5 millones (91.9% del total de Recursos), mientras que los costos recurrentes en salarios y costos operativos son equivalentes a USD 8,5 millones. (8,1 %). En el Grafico I se observa la proporción de forma ilustrativa:

**Gráfico I. Costos de Inversión vs Costos Recurrentes**



11. **Costos por componente.** El Proyecto Desarrollo Rural Sostenible de Paraíba -PROCASE II- se estructura mediante 2 componentes de inversión y un componente para la gestión, seguimiento y evaluación del proyecto. El Componente 1: Sistemas productivos resilientes para reducir la pobreza rural tiene un valor calculado de USD 63,416 millones (60,4 % de los costos totales). El Componente 2: Fortalecimiento organizacional y de capacidades y gestión del conocimiento cuenta con aproximadamente USD 31,3 millones que representa el 29.8 % de los costos totales presupuestados. Los costos del Componente 3, “Gestión, seguimiento y evaluación del proyecto” se estimaron en USD 10,2 millones (9,8 % de los costos totales) como se observa en la Tabla 1.

**Tabla 1. Costos totales por Componente en divisa estadounidenses (USD) y en moneda local (R\$)**

Brasil			
Projeto para el Desarrollo Rural Sustentable de Paraiba	Total (R\$)	Total (USD)	%
<b>Components Project Cost Summary</b>			
1. Sistemas productivos resilientes para reducir la pobreza rural	317,080,000	63,416,000	<b>60.4%</b>
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	156,514,000	31,302,800	<b>29.8%</b>
3. Gestión, seguimiento y evaluación del proyecto	51,406,000	10,281,200	<b>9.8%</b>
<b>Total BASELINE COSTS</b>	525,000,000	105,000,000	<b>100.0%</b>
Physical Contingencies	-	-	<b>0%</b>
Price Contingencies	-	-	<b>0%</b>
<b>Total PROJECT COSTS</b>	525,000,000	105,000,000	<b>100%</b>

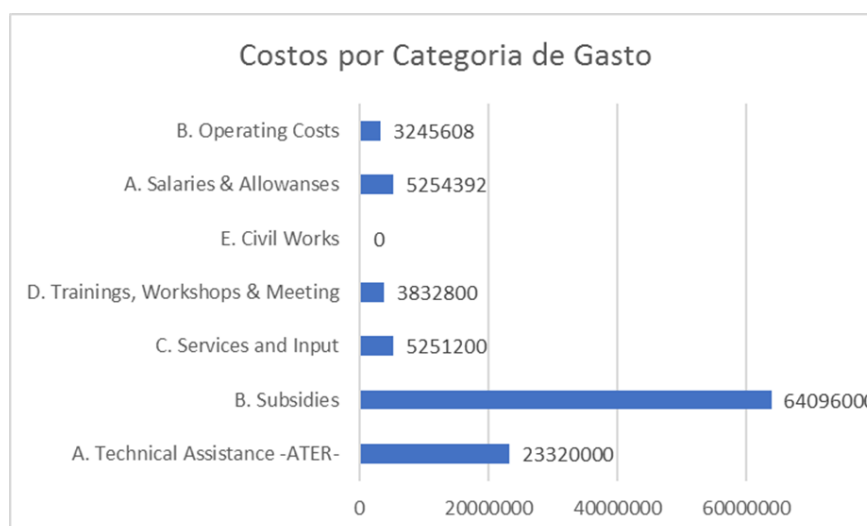
12. **Costos por categoría de gastos.** Los costos detallados del proyecto fueron clasificados mediante las categorías de gasto recomendadas por el área financiera del FIDA las cuales se enumeran a continuación: (i) Asistencia Técnica -ATER-, (ii) Subsidios, Insumos y Servicios, (iii) Capacitación, talleres y reuniones, y (iv) Obras Civiles; estas categorías se utilizaron para detallar los costos de inversión y (v) Salarios y (vi) costos operativos para los costos recurrentes. En la tabla 2 se puntualizan los costes del proyecto por componente y categoría de gasto:

**Tabla 2. Costos totales por Componente y Categoría de Gasto (USD)**

Expenditure Accounts by Components (u\$d)	1. Sistemas productivos resilientes para reducir la pobreza rural	%	2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	%	3. Gestión, seguimiento y evaluación del proyecto	%	Total	%
<b>I. Investment Costs</b>								
A. Technical Assistance -ATER-	120,000	0.5%	23,200,000	99.5%	-	0.0%	23,320,000	22.2%
B. Subsidies	63,296,000	98.8%	800,000	1.2%	-	0.0%	64,096,000	61.0%
C. Services and Input	-	0.0%	3,920,000	74.6%	1,331,200	25.4%	5,251,200	5.0%
D. Trainings, Workshops & Meeting	-	0.0%	3,382,800	88.3%	450,000	11.7%	3,832,800	3.7%
E. Civil Works	-	-	-	-	-	-	-	-
<b>Total Investment Costs</b>	<b>63,416,000</b>	<b>65.7%</b>	<b>31,302,800</b>	<b>32.4%</b>	<b>1,781,200</b>	<b>1.8%</b>	<b>96,500,000</b>	<b>91.9%</b>
<b>II. Recurrent Costs</b>								
A. Salaries & Allowances	-	-	-	-	5,254,392	100.0%	5,254,392	5.0%
B. Operating Costs	-	-	-	-	3,245,608	100.0%	3,245,608	3.1%
<b>Total Recurrent Costs</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8,500,000</b>	<b>100.0%</b>	<b>8,500,000</b>	<b>8.1%</b>
<b>Total BASELINE COSTS</b>	<b>63,416,000</b>	<b>60.4%</b>	<b>31,302,800</b>	<b>29.8%</b>	<b>10,281,200</b>	<b>9.8%</b>	<b>105,000,000</b>	<b>100.0%</b>
Physical Contingencies	-	-	-	-	-	-	-	-
<b>Price Contingencies</b>								
Subtotal Inflation	-	-	-	-	-	-	-	-
Devaluation	-	-	-	-	-	-	-	-
Subtotal Price Contingencies	-	-	-	-	-	-	-	-
<b>Total PROJECT COSTS</b>	<b>63,416,000</b>	<b>60.4%</b>	<b>31,302,800</b>	<b>30%</b>	<b>10,281,200</b>	<b>9.8%</b>	<b>105,000,000</b>	<b>100.0%</b>

13. Los costos totales se han categorizado como grafica la Tabla 2 donde se observa que el 22,2% de ellos se destinará a la inversión en Asistencia Técnica -ATER-, el 61% en Subsidios (PIR y PN), el 5 % en Insumos y Servicios y el 3,7% en Capacitación, talleres y reuniones. No se invertirá en Obras Civiles en el marco de los costos de inversión planificados. Respecto a los costos recurrentes los salarios representan el 5% y los costos operativos un 3,1% del total de los gastos, totalizando un 8,1% del total. El Grafico II ilustra esta descripción:

**Gráfico II. Costos Totales del proyecto por Categoría de Gasto (USD).**



14. La ejecución del presupuesto presenta una forma acampanada para sus seis (6) años planificados, en los cuales durante el año 1 se planea ejecutar solo el 2% del presupuesto, incrementándose levemente hasta un 5% para el

año dos (2), pasando una alta demanda del 21% al año de tres (3) de iniciada la actividad del proyecto, para alcanzar durante el año cuatro (4) su máxima demanda de fondos y pico de ejecución con USD 36,2 millones que representan el 34% del presupuesto total.

15. Para el año cinco la demanda se reduce y se estima será del 25% de los fondos para llegar al año seis (6) con la necesidad presupuestaria de USD 12,663 millones (12%) para realizar las últimas actividades de inversión y el cierre del proyecto. En la tabla 3 se observan las demandas de fondo por año y componente.

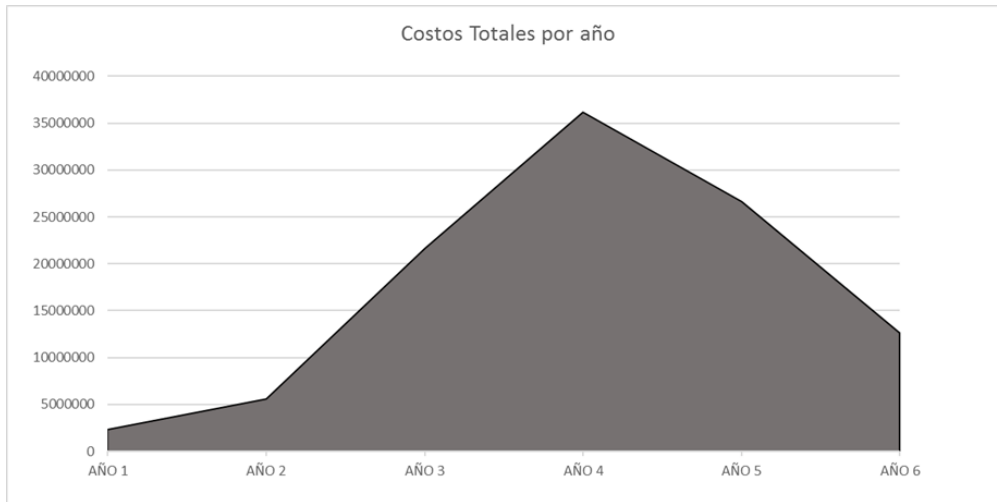
**Tabla 3. Costos totales por Componente y año de implementación (USD)**

Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (u\$d)												
	AÑO 1	%	AÑO 2	%	AÑO 3	%	AÑO 4	%	AÑO 5	%	AÑO 6	%	Total
1. Sistemas productivos resilientes para reducir la pobreza rural	-	0%	40,000	0%	9,242,400	15%	21,695,600	34%	23,025,600	36%	9,412,400	15%	63,416,000
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	222,500	1%	4,348,800	14%	10,770,000	34%	12,650,000	40%	1,916,000	6%	1,395,500	4%	31,302,800
3. Gestión, seguimiento y evaluación del proyecto	2,131,204	21%	1,163,996	11%	1,610,000	16%	1,860,000	18%	1,660,000	16%	1,856,000	18%	10,281,200
<b>Total PROJECT COSTS</b>	<b>2,353,704</b>	<b>2%</b>	<b>5,552,796</b>	<b>5%</b>	<b>21,622,400</b>	<b>21%</b>	<b>36,205,600</b>	<b>34%</b>	<b>26,601,600</b>	<b>25%</b>	<b>12,663,900</b>	<b>12%</b>	<b>105,000,000</b>

16. En el Grafico III se ilustra la curva de la demanda de fondos del Proyecto, mostrando gráficamente su forma de “campana”, llegando al pico de demanda para el año cuatro (4), comenzando durante los primeros años con necesidades menores, cambiando la pendiente al año tres (3), llegando al pico al año cuatro (4) donde cambia la tendencia y comienza la reducción de demanda de fondos, aunque permanece muy elevada durante el año cinco (5) y desciende para el año seis (6).

17. Para una eficaz y eficiente ejecución de las actividades del proyecto, es fundamental que los organismos financiadores y el Gobierno de Paraíba tomen las medidas necesarias para poder atender esas demandas respecto a los techos presupuestarios y los topes máximos para los adelantos de fondos.

### Gráfico III. Curva de ejecución por año de implementación

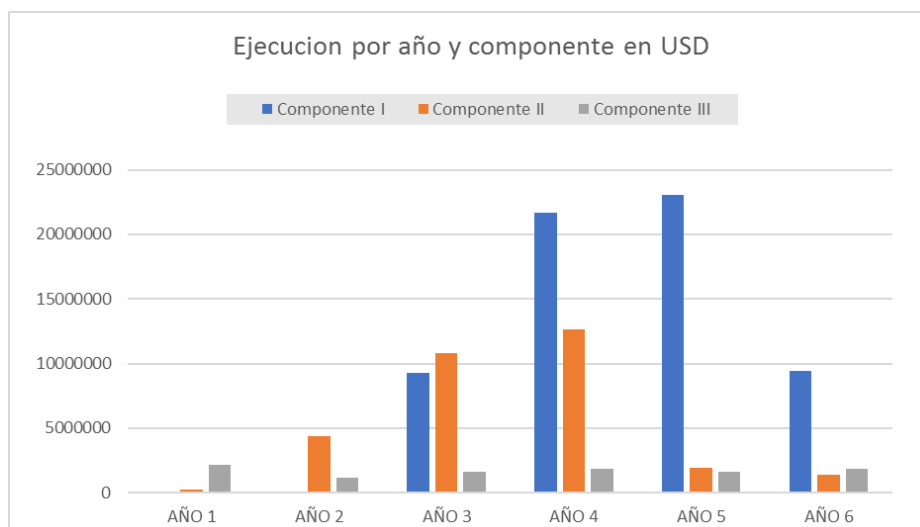


18. En el Gráfico IV se ilustra la demanda de fondos del proyecto desagregada por año y por componente, dejando en claro los diferentes periodos de solicitudes que presenta cada componente para cumplimentar con sus objetivos específicos y poder cumplir con el objetivo general del proyecto.

19. El componente 3, presenta su máxima demanda al año uno (1), destinada a la compra de equipamiento, estudios de base y puesta en marcha del proyecto y luego una demanda homogénea a lo largo del proyecto; el componente 2 congruente con sus objetivos de mejoras en las capacidades de los beneficiarios y sus organizaciones, incrementa proporcionalmente desde el año uno al año cuatro donde se reduce su demanda; y, finalmente las barras del componente 1 ilustran que la totalidad de sus fondos destinados a la inversión productiva y a la mejora comercial mediante los PNs y los PIRs y al apoyo en innovación de tecnologías, comienza su ejecución recién al año tres (3), con las capacidades de los beneficiarios fortalecidas e incrementa sus demandas hasta el año cinco(5) inclusive, colocando fondos durante el último año del proyecto inclusive.



## Gráfico IV. Costos por año por componente



20. **Plan de financiamiento.** El Proyecto Desarrollo Rural Sostenible de Paraíba será financiado mediante un préstamo del BID, por el valor de USD 70 millones (66,7 % de los costos totales); un préstamo del FIDA, por el valor de USD 10 millones (9,5 % de los costos totales) y un aporte del Gobierno de Paraíba equivalente a USD 25 millones (23,8%).

21. El plan de financiamiento fue elaborado según lo acordado entre los representantes de los organismos financiadores, de modo que los recursos se distribuyan de manera proporcional entre los tres (3) componentes según participación de cada financiador sobre el valor total del Proyecto. La distribución de recursos para cada componente resultó la siguiente:

**Tabla 4. Distribución de recursos por componente según organismo financiador. (USD)**

Components by Financiers (u\$d)	Fida		BID		Governo do Estado do Paraíba		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
	1. Sistemas productivos resilientes para reducir la pobreza rural	6,024,520	9.5	42,235,056	66.6	15,156,424	23.9	63,416,000
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	2,973,766	9.5	20,847,665	66.6	7,481,369	23.9	31,302,800	29.8
3. Gestión, seguimiento y evaluación del proyecto	1,001,714	9.7	6,917,280	67.3	2,362,207	23.0	10,281,200	9.8
<b>Total PROJECT COSTS</b>	<b>10,000,000</b>	<b>9.5</b>	<b>70,000,000</b>	<b>66.7</b>	<b>25,000,000</b>	<b>23.8</b>	<b>105,000,000</b>	<b>100.0</b>

22. En la Tabla 5 se desagregan los aportes de cada organismo financiador del proyecto según las categorías de gasto estipuladas, donde se observan la proporcionalidad en todas las categorías.

**Tabla 5. Costos del proyecto por categoría de gasto y organismo financiador (dólares).**

Expenditure Accounts by Financiers (u\$d)	Governo do Estado do							
	Fida		BID		Paraíba		Total	
	Monto	%	Monto	%	Monto	%	Monto	%
<b>I. Investment Costs</b>								
A. Technical Assistance -ATER-	2,215,400	9.5	15,531,120	66.6	5,573,480	23.9	23,320,000	22.2
B. Subsidies	6,089,120	9.5	42,687,936	66.6	15,318,944	23.9	64,096,000	61.0
C. Services and Input	498,864	9.5	3,497,299	66.6	1,255,037	23.9	5,251,200	5.0
D. Trainings, Workshops & Meeting	364,116	9.5	2,552,645	66.6	916,039	23.9	3,832,800	3.7
E. Civil Works	-	-	-	-	-	-	-	-
<b>Total Investment Costs</b>	<b>9,167,500</b>	<b>9.5</b>	<b>64,269,000</b>	<b>66.6</b>	<b>23,063,500</b>	<b>23.9</b>	<b>96,500,000</b>	<b>91.9</b>
<b>II. Recurrent Costs</b>								
A. Salaries & Allowances	481,968	9.2	3,378,850	64.3	1,393,574	26.5	5,254,392	5.0
B. Operating Costs	350,532	10.8	2,352,151	72.5	542,926	16.7	3,245,608	3.1
<b>Total Recurrent Costs</b>	<b>832,500</b>	<b>9.8</b>	<b>5,731,000</b>	<b>67.4</b>	<b>1,936,500</b>	<b>22.8</b>	<b>8,500,000</b>	<b>8.1</b>
<b>Total PROJECT COSTS</b>	<b>10,000,000</b>	<b>9.5</b>	<b>70,000,000</b>	<b>66.7</b>	<b>25,000,000</b>	<b>23.8</b>	<b>105,000,000</b>	<b>100.0</b>

23. A continuación, en el apéndice 1 del presente documento se ilustran mediante tablas (6, 7 y 8) los costos detallados de cada uno de los tres (3) Componentes que estructuran el proyecto, en las cuales se describen las líneas de gasto, las unidades, la demanda por cantidad anual, los precios unitarios en Reales Brasileños y Dólares Estadounidenses, los costos totales por año, la categoría de gasto de cada línea y el organismo financiador.

APENDICE 1 –

**Tabla 6: Costos detallados del Componente I: “Sistemas productivos resilientes para reducir la pobreza rural”**

Brazil																			
Projeto de Desenvolvimento Rural Sustentável da Paraíba																			
Table 1. Sistemas productivos resilientes para o enfrentamento da pobreza rural																			
Detailed Costs	Unit	Quantities						Unit Cost	Unit Cost	Totals Including Contingencies (u\$d '000)						Disb. Acct.	Fin. Rule		
		año 1	año 2	año 3	año 4	año 5	año 6	Total	(R\$)	(u\$d)	año 1	año 2	año 3	año 4	año 5			año 6	Total
<b>I. Investment Costs</b>																			
<b>A. Implantação de sistemas productivos biodiversos resilientes</b>																			
1. Plano de Investimento Resiliente (PIR) Conveniado	planos	-	30	80	90	-	-	200	5,000	1,000	-	30	80	90	-	-	200	SUBSIDIES	BID (66.6%), FIDA (9.5%)
2. Plano de Investimento Resiliente (PIR) executados com mais de 75% de contas	Planos	-	-	30	70	70	30	200	1,405,400	281,080	-	-	8,432	19,676	19,676	8,432	56,216	SUBSIDIES	BID (66.6%), FIDA (9.5%)
<b>Subtotal</b>											-	30	8,512	19,766	19,676	8,432	56,416		
<b>B. Fortalecimento e diversificação da Comercialização</b>																			
1. Plano de Negócios para estruturação de cooperativas/unidades de beneficiamento conveniados	planos	-	5	20	30	5	-	60	10,000	2,000	-	10	40	60	10	-	120	ATER	BID (66.6%), FIDA (9.5%)
2. Plano de Negócios para estruturação de cooperativas/unidades de beneficiamento executados com mais de 75% de prestação de	planos	-	-	5	15	30	10	60	490,000	98,000	-	-	490	1,470	2,940	980	5,880	SUBSIDIES	BID (66.6%), FIDA (9.5%)
<b>Subtotal</b>											-	10	530	1,530	2,950	980	6,000		
<b>C. Incentivo à inovações</b>																			
1. Tecnologias inovadoras desenvolvidas ou adaptadas	unidades	-	-	5	10	10	-	25	200,000	40,000	-	-	200	400	400	-	1,000	SUBSIDIES	BID (66.6%), FIDA (9.5%)
<b>Total</b>											-	40	9,242	21,696	23,026	9,412	63,416		

**Tabla 7: Costos detallados del Componente II: “Fortalecimiento organizacional y de capacidades y gestión del conocimiento “**

Brazil																			
Projeto de Desenvolvimento Rural Sustentável da Paraíba																			
Table 2. Fortalecimiento organizacional e das capacidades dos agricultores familiares																			
Detailed Costs	Unit	Quantities						Total	Unit Cost (R\$)	Unit Cost (u\$d)	Totals Including Contingencies (u\$d '000)						Total	Disb. Acct.	Fin. Rule
		año 1	año 2	año 3	año 4	año 5	año 6				año 1	año 2	año 3	año 4	año 5	año 6			
<b>I. Investment Costs</b>																			
<b>A. Fortalecimiento das capacidades dos Agricultores Familiares</b>																			
1. Eventos de capacitação para entidades de ATER Agroecológica	eventos	6	10	2	2	-	-	20	75,000	15,000	90	150	30	30	-	-	300	TWM	BID ( 66.6%), FIDA ( 9.5%)
2. Familias atendidas por ATER Agroecológica	familias	-	2,700	7,200	8,100	-	-	18,000	5,250	1,050	-	2,835	7,560	8,505	-	-	18,900	ATER	BID ( 66.6%), FIDA ( 9.5%)
3. Eventos de capacitações e intercambios de agricultores realizad	eventos	-	12	50	50	20	-	132	2,000	400	-	5	20	20	8	-	53	TWM	BID ( 66.6%), FIDA ( 9.5%)
4. Eventos de capacitações para acesso às Políticas Públicas e Ou	eventos	5	30	100	150	80	35	400	12,500	2,500	13	75	250	375	200	88	1,000	TWM	BID ( 66.6%), FIDA ( 9.5%)
<b>Subtotal</b>											103	3,065	7,860	8,930	208	88	20,253		
<b>B. Fortalecimento das capacidades das organizações para cor</b>																			
1. Cooperativas e Organizações de produtores atendidas com CTE	Coop/Org	-	5	20	30	5	-	60	100,000	20,000	-	100	400	600	100	-	1,200	ATER	BID ( 66.6%), FIDA ( 9.5%)
2. Feiras locais e Centros de Comercialização criadas/melhoradas	instalações	-	5	10	15	12	8	50	80,000	16,000	-	80	160	240	192	128	800	SUBSIDIES	BID ( 66.6%), FIDA ( 9.5%)
3. Serviços de Inspeção Sanitaria em funcionamento	Und	-	-	-	1	1	-	2	750,000	150,000	-	-	-	150	150	-	300	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
4. Piloto de Sistemas certificação participativa em funcionamento	piloto	-	2	5	5	3	-	15	10,000	2,000	-	4	10	10	6	-	30	TWM	BID ( 66.6%), FIDA ( 9.5%)
<b>Subtotal</b>											-	184	570	1,000	448	128	2,330		
<b>C. Diversidade,Gênero,Nutrição e Segurança Alimentar</b>																			
1. Plano de Genero elaborado	plano	1	-	-	-	-	-	1	125,000	25,000	25	-	-	-	-	-	25	ATER	BID ( 66.6%), FIDA ( 9.5%)
2. Fases anuais do Plano de Genero e diversidade implementado	plano	-	1	1	1	1	1	5	1,000,000	200,000	-	200	200	200	200	200	1,000	TWM	BID ( 66.6%), FIDA ( 9.5%)
3. Plano de juventude elaborado	plano	1	-	-	-	-	-	1	125,000	25,000	25	-	-	-	-	-	25	ATER	BID ( 66.6%), FIDA ( 9.5%)
4. Fases anuais do Plano de juventude implementadas	plano	-	1	1	1	1	1	5	500,000	100,000	-	100	100	100	100	100	500	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
5. Plano de Fortalecimento dos PCT elaborado	plano	1	-	-	-	-	-	1	125,000	25,000	25	-	-	-	-	-	25	ATER	BID ( 66.6%), FIDA ( 9.5%)
6. Fases anuais do Plano de Fortalecimento dos PCT implementadas	plano	-	1	1	1	1	1	5	400,000	80,000	-	80	80	80	80	80	400	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
7. Plano de Nutrição e Segurança alimentar elaborado	plano	1	-	-	-	-	-	1	125,000	25,000	25	-	-	-	-	-	25	ATER	BID ( 66.6%), FIDA ( 9.5%)
8. Fases anuais de Nutrição e Segurança alimentar implementadas	plano	-	1	1	1	1	1	5	600,000	120,000	-	120	120	120	120	120	600	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
9. Agentes de Desenvolvimento Local contratados	jovenes	-	30	80	90	-	-	200	50,000	10,000	100	800	800	900	-	-	2,000	ATER	BID ( 66.6%), FIDA ( 9.5%)
<b>Subtotal</b>											100	800	1,300	1,400	500	500	4,600		
<b>D. Regularização Fundiária e Ambiental</b>																			
1. Familias beneficiadas pela regularização fundiária e ambiental	familias	-	500	1,500	2,000	600	400	5,000	2,000	400	-	200	600	800	240	160	2,000	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
<b>E. Gestão do Conhecimento (GC), Cooperação Sul-Sul e Triang</b>																			
1. Sistematizações e estudos em Gestão do Conhecimento elabora	estudios	-	2	3	5	5	10	25	200,000	40,000	-	80	120	200	200	400	1,000	ATER	BID ( 66.6%), FIDA ( 9.5%)
2. Fases anuais de Comunicação e Divulgação em Gestão de Conh	fases	1	1	1	1	1	1	6	100,000	20,000	20	20	20	20	20	20	120	SERVICE_AND_INPU	BID ( 66.6%), FIDA ( 9.5%)
3. Eventos de intercâmbios de Cooperação Sul-Sul realizados	eventos	-	-	3	3	3	1	10	500,000	100,000	-	-	300	300	300	100	1,000	TWM	BID ( 66.6%), FIDA ( 9.5%)
<b>Subtotal</b>											20	100	440	520	520	520	2,120		
<b>Total</b>											223	4,349	10,770	12,650	1,916	1,396	31,303		

### Tabla 8: Costos detallados del Componente III: “Gestión, seguimiento y evaluación del proyecto”

Brazil Projeto de Desenvolvimento Rural Sustentável da Paraíba Table 3. Administração, gestão e avaliação		Quantities						Unit Cost (R\$)	Unit Cost (u\$d)	Totals Including Contingencies (u\$d)						Other Accounts		
Unit	añ1	añ2	añ3	añ4	añ5	añ6	Total		añ1	añ2	añ3	añ4	añ5	añ6	Total	Disb. Acct.	Fin. Rule	
<b>I. Investment Costs</b>																		
<b>A. Monitoramento &amp; Avaliação (M&amp;A)</b>																		
Sistema de Monitoramento	sistema	1	1	1	1	1	1	6	166,666.667	33,333.333	150,000	10,000	10,000	10,000	10,000	200,000	SERVICE_AND_INPUT	BID (66.6% ), FIDA (9.5% )
Estudo de Avaliação de impacto	estudio	1	-	-	1	-	1	3	1,000,000	200,000	200,000	-	-	200,000	600,000	SERVICE_AND_INPUT	BID (66.6% ), FIDA (9.5% )	
Estudos e avaliações temáticas /a	estudio	2	-	1	2	2	3	10	250,000	50,000	100,000	-	50,000	100,000	100,000	SERVICE_AND_INPUT	BID (66.6% ), FIDA (9.5% )	
<b>Subtotal</b>										450,000	10,000	60,000	310,000	110,000	360,000			
B. Capacitações para agencia executora e sub-executoras	consultorias	3	3	1	1	1	-	9	250,000	50,000	150,000	150,000	50,000	50,000	-	450,000	TWM	BID (66.6% ), FIDA (9.5% )
C. Equipamentos diversos	lumpsum	1	-	-	-	-	-	1	156,000	31,200	31,200	-	-	-	-	31,200	SERVICE_AND_INPUT	BID (66.6% ), FIDA (9.5% )
<b>Total Investment Costs</b>										631,200	160,000	110,000	360,000	160,000	360,000		1.781.200	
<b>II. Recurrent Costs</b>																		
<b>A. Funcionarias/os Unidad de Gestão do Projeto</b>																		
Coordenadoria do projeto	remuneração anual	1	1	1	1	1	1	6	150,870	30,174	30,174	30,174	30,174	30,174	30,174	181,044	SAL_CO_FIN	GOVT
Coordenadoria técnica do projeto (CLT)do projeto	remuneração anual	1	1	1	1	1	1	6	220,420	44,084	44,084	44,084	44,084	44,084	44,084	264,504	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )
Coordenadoria administrativa financeira (CLT)	remuneração anual	1	1	1	1	1	1	6	220,420	44,084	44,084	44,084	44,084	44,084	264,504	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Coordenador Operacional no Componente I	remuneração anual	1	1	1	1	1	1	6	116,055	23,211	23,211	23,211	23,211	23,211	139,266	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessor Operacional no Componente I	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessor Operacional no Componente I	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Coordenador Operacional no Componente II	remuneração anual	1	1	1	1	1	1	6	116,055	23,211	23,211	23,211	23,211	23,211	139,266	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessoria Operacional no Componente II	remuneração anual	1	1	1	1	1	1	6	92,980	18,596	18,596	18,596	18,596	18,596	111,576	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessoria Operacional no Componente II	remuneração anual	1	1	1	1	1	1	6	92,980	18,596	18,596	18,596	18,596	18,596	111,576	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Financeiro e Contabilidade -Sênior	remuneração anual	1	1	1	1	1	1	6	116,055	23,211	23,211	23,211	23,211	23,211	139,266	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Financeiro e Contabilidade -Junior	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Aquisições e Contratos -Sênior	remuneração anual	1	1	1	1	1	1	6	116,055	23,211	23,211	23,211	23,211	23,211	139,266	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Aquisições e Contratos - Junior	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Gestão de Contratos e Convenios	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em genero e diversidade	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em juventude	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em nutrição	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em povos e comunidades tradicionais (PCTs)	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em gestão do conhecimento, comunicação e CSST	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Salvaguardas (Sociais e Ambientais)	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em M&A -Sênior	remuneração anual	1	1	1	1	1	1	6	116,055	23,211	23,211	23,211	23,211	23,211	139,266	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em M&A -Junior	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Especialista em Tecnologia da Informação	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessoria Jurídica	remuneração anual	1	1	1	1	1	1	6	92,845	18,569	18,569	18,569	18,569	18,569	111,414	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessoria à Coordenação	remuneração anual	1	1	1	1	1	1	6	81,240	16,248	16,248	16,248	16,248	16,248	97,488	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Assessoria à Coordenação Técnica	remuneração anual	1	1	1	1	1	1	6	81,240	16,248	16,248	16,248	16,248	16,248	97,488	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Técnicos de campo I - Técnicos em campo em Contabilidade (5 funcionarios)	remuneração anual	5	5	5	5	5	5	30	58,025	11,605	58,025	58,025	58,025	58,025	58,025	348,150	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )
Técnicos de campo II - Técnicos Ponto focal C1 - Responsável pela URGP (5 funcionarios)	remuneração anual	5	5	5	5	5	5	30	92,845	18,569	92,845	92,845	92,845	92,845	557,070	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Técnicos de campo II - Técnicos Ponto focal C2 (URGP) (5 funcionarios)	remuneração anual	5	5	5	5	5	5	30	81,240	16,248	81,240	81,240	81,240	81,240	487,440	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Coordenação de Logística - Apoio UGP/ Transporte) (CLT)	remuneração anual	1	1	1	1	1	1	6	119,335	23,867	23,867	23,867	23,867	23,867	143,202	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )	
Apoio UGP / (8 funcionarios: Patrimonio, Secretária e Serviços Gerais) bolsistas	remuneração anual	8	8	8	8	8	8	48	34,815	6,963	55,704	55,704	55,704	55,704	55,704	334,224	SAL_CO_FIN	BID (66.6% ), FIDA (9.5% )
<b>Subtotal</b>										875,732	875,732	875,732	875,732	875,732	5,254,392			
B. Custos IICA	lumpsum	1	1	1	1	1	1	6	368,225	73,645	79,645	79,645	71,645	71,645	67,645	441,870	OPERATING_COST	BID ( 68.75677% ), FIDA ( 10.27026% )
C. Custos Operativos a la Gestão	lumpsum	1,26	0,11	1,27	1,16	1,16	1,04	6	2,169,782	433,956	544,627	48,619	552,623	502,623	452,623	2,603,738	OPERATING_COST	BID ( 73.05729% ), FIDA ( 10.8837% )
D. Estratégia de Saída	lumpsum	-	-	-	-	1	2	4	250,000	50,000	-	-	-	50,000	50,000	200,000	OPERATING_COST	BID ( 73.05729% ), FIDA ( 10.8837% )
<b>Total Recurrent Costs</b>										1,500,004	1,003,996	1,500,000	1,500,000	1,496,000	8,500,000			
<b>Total</b>										2,131,204	1,163,996	1,610,000	1,860,000	1,660,000	1,856,000	10,281,200		
la Estudos de 1)avaliación da ater, 2) Género, 3) Juventude, 4) PCT, 5) Segurança alimentar																		

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 17 Efa Analisis Economico Ex Ante**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



BRASIL

PROYECTO PROCASE II  
BR-L1623

**Análisis Económico Ex-Ante**  
INFORME FINAL BORRADOR



INTRODUCCIÓN.....	3
METODOLOGIA Y SUPUESTOS DEL ANÁLISIS .....	12
ESTIMACIÓN DE BENEFICIOS DEL PROYECTO .....	21
COSTOS DEL PROYECTO .....	33
RESULTADOS DE VIABILIDAD SOCIOECONÓMICA.....	42
ANÁLISIS DE SENSIBILIDAD.....	43
DOCUMENTACIÓN Y FUENTES DE INFORMACIÓN UTILIZADAS .....	45

## INTRODUCCIÓN

El presente documento tiene como objetivo exponer la metodología y resultados del análisis económico ex-ante del Proyecto PROCASE II, financiado por el Banco Interamericano de Desarrollo (BID) y por el Fondo Internacional de Desarrollo Agrícola (FIDA) y el Estado de Paraíba de la República Federal de Brasil.

El objetivo de este documento es el de analizar los potenciales efectos de los recursos presupuestados para la financiación del proyecto y la estimación de los impactos deseados a partir de la evaluación de los potenciales beneficios que generarían las inversiones planificadas.

Para ello, el análisis se realiza, por un lado, desde la perspectiva de los participantes individuales (los beneficiarios) a través de un análisis financiero, y por otro, a partir de su agregación total de los beneficios, evaluando el impacto del Proyecto en la economía de Brasil y de Paraíba en su conjunto (análisis económico) al que se le adicionan las externalidades entre las cual se le incluyeron las estimaciones de los impactos sociales y ambientales.

El presupuesto total estimado del Proyecto asciende a US\$ 105 millones y contará con la financiación del BID por US\$ 70 millones (66,7 %), del FIDA, por valor de US\$ 10 millones (9,5%), y del Estado de Paraíba como contraparte por un total de US\$ 25 millones.

El objetivo general del proyecto es: “Reducir los niveles de pobreza rural, mejorar la seguridad alimentaria y nutricional y adaptar a la población rural al cambio climático”.

Los objetivos específicos son: (i) Aumentar la adopción de tecnologías agrícolas, incluidas las de adaptación y mitigación del cambio climático; (ii) Mejorar la inclusión productiva y social de los agricultores familiares, dando prioridad a las mujeres, los jóvenes, los Pueblos y Comunidades Tradicionales (PCT) y las personas con discapacidad (PcD) y (iii) Mejorar las condiciones medioambientales de las comunidades rurales y su entorno.

El presente documento se divide en tres secciones fundamentales: (i) el análisis financiero, donde se calcula la rentabilidad privada de los participantes y se desarrollan las principales hipótesis para su cálculo; (ii) el análisis económico, sobre la rentabilidad global del proyecto y sus respectivos beneficios sociales y ambientales; y (iii) el análisis de sensibilidad de los resultados globales obtenidos para evaluar los potenciales riesgos de la presente inversión, tanto para los organismos financiadores como para los Gobiernos interesados.

Este análisis fue realizado utilizando con un enfoque de Análisis Económica y Financiera (AEF) por ser interpretarla como la herramienta más adecuada para evaluar la conveniencia de ejecutar un proyecto con estas características, tanto para sus beneficiarios directos como para la economía nacional brasileña en su conjunto.

La metodología utilizada fue un Análisis Costo Beneficio (ACB) mediante el cual se determinó la alternativa del “mantenimiento del statu quo” (SQ) o situación “sin el proyecto” de los

potenciales beneficiarios del proyecto y a continuación se la comparó con las opciones de intervención propuestas por el proyecto. Se analizó el valor agregado (enfoque incremental) del proyecto aplicando a las respectivas “técnicas de descuento” y se cuantificaron los potenciales beneficios que resultarían en la implementación.

En paralelo se estimaron los costos de todos los recursos necesarios para la efectiva ejecución del proyecto (Inversiones en Planes de Inversión Resilientes (PIRs) y Planes de Negocio para Estructuración de Cooperativas (PNs), Asistencia Técnica Especializada (ATER), Capacitación, Fortalecimiento organizacional y/o comercial, compra de insumos operativos, costos administrativos, operacionales, de gestión, personal y recurrentes) y los costos necesarios para la sostenibilidad de los beneficios durante un período consistente con las inversiones planificadas.

Luego se convirtieron los flujos de beneficios y costos totales a precios económico y se calcularon los indicadores para la toma de decisiones, para finalmente someter estas hipótesis a un análisis de sensibilidad adaptado a las condiciones del entorno en el cual se desarrollaría el proyecto.

Los resultados obtenidos fueron positivos respecto a la potencialidad de llevar a cabo el presente proyecto, resultando en una tasa interna de retorno económico (TIRe) de **26,6%**, un valor actual neto económico (VANE) de **R\$ 262.817.658** equivalente a **USD 52.563.531** y una ratio beneficio-costos (B/C) equivalente a **2,5**. El análisis de sensibilidad mostró fuerte estabilidad de los indicadores frente a los diferentes escenarios planteados.

#### Componentes del Proyecto

Para alcanzar los objetivos planteados se prevé el financiamiento de actividades e inversiones agrupadas bajo dos (2) componentes de inversión e intervención y un componente de gestión, administración y seguimiento. Los mismos se describen a continuación:

#### **Componente I: Sistemas productivos resilientes para reducir la pobreza rural (USD 63,416,000).**

Este componente financiará la preparación e implementación de los 200 Planes de Inversión Resilientes (PIRs) que facilitarán a los beneficiarios el incremento en sus ingresos mediante el aumento de la productividad, la calidad y/o acceso a mejores mercados para la producción que impacten en la mejora de la calidad de vida en el ámbito rural mediante la adopción de tecnologías agrícolas adecuadas utilizando tecnologías para la adaptación y la mitigación del cambio climático; fomentando la inclusión productiva y social de los agricultores familiares, dando prioridad a mujeres, jóvenes, pueblos y comunidades tradicionales (PCT) y personas con discapacidad, mejorando las condiciones medioambientales de las comunidades rurales y su entorno. En el mismo sentido, mediante la financiación de 60 Planes de Negocio para estructurar cooperativas y/o unidades de transformación para reforzar y diversificar la comercialización de productos con valor agregado. Los PIRs y los PNs incluirán asistencia técnica especializada e inversiones para facilitar la adopción de tecnologías y mejorar las condiciones de comercialización de los productos de la agricultura familiar.

Adicionalmente, mediante estos instrumentos, el componente financiará tecnologías sociales para mejorar el acceso al agua para consumo humano como ser cisternas domiciliarias, pozos equipados, sistemas para la reutilización de aguas residuales, unidades de producción de energías renovables, ecotecnologías de gestión de la energía doméstica, hornos ecoeficientes y/o biodigestores. Este componente también financiará el fomento a la innovación mediante el apoyo al desarrollo de tecnologías innovadoras y/o adaptaciones de tecnología existente al medio específico de intervención del proyecto.

**Componente II: Fortalecimiento organizacional y de capacidades y gestión del conocimiento: (USD 31,302,800)** Este componente financiará inversiones para el fortalecimiento de las capacidades de los agricultores familiares mediante la realización de eventos de formación para organizaciones Agroecológicas ATER y CTE y asistencia directa de ATER Agroecológico para el apoyo a las familias beneficiarias. En el mismo sentido se han planeado actividades de capacitación e intercambios entre agricultores con la intención de ampliar redes de relaciones y aprender de experiencias entre pares. Mediante actividades del componente se capacitará en formas para el acceso a las políticas públicas vigentes y otros programas de desarrollo rural, con el objetivo de reducir las barreras de acceso a estos instrumentos.

Con el objetivo de fortalecer las capacidades de comercialización de las organizaciones de la agricultura familiar se asistirán a 60 cooperativas y/o organizaciones de productores en técnicas para el desarrollo comercial de sus organizaciones. Asimismo, se ha planeado dar apoyo para en la creación de nuevas ferias y/o el mejoramiento de cincuenta (50) estructuras/espacios comerciales existentes. Se apoyará la mejora de los servicios de inspección sanitaria para su correcto funcionamiento y se realizará un piloto de certificación participativa para los productores beneficiarios como experiencia para la generación de valor agregado.

Mediante el Subcomponente 2.3 del proyecto se llevarán adelante las acciones orientadas a el apoyo a la diversidad, género, juventud, nutrición y seguridad alimentaria y se apoyarán la creación y ejecución de un plan de género y diversidad, un plan para la juventud y su correcta ejecución, un plan para el Fortalecimiento del PCT y un plan de nutrición y seguridad alimentaria. Parte del presupuesto del subcomponente será utilizado para contratar a Agentes de Desarrollo Local que acompañaran desde el segundo año de ejecución a los beneficiarios del proyecto. Se plantea comenzar con treinta agentes (30) y arribar al año seis con doscientos (200) agentes trabajando en el territorio. Otro tema fundamental a ser apoyado por el subcomponente 2.4 es el apoyo a la regularización de la tenencia de la tierra de los beneficiarios. Se estima poder apoyar a aproximadamente 5000 familias en tenencia de la tierra informacion medioambiente. Finalmente, mediante las actividades planeadas en el componente se apoyará la elaboración y publicación de sistematizaciones y estudios sobre gestión del conocimiento, se realizarán acciones y reuniones anuales de comunicación y difusión en la gestión del conocimiento y se financiarán acciones de intercambio de Cooperación Sur-Sur que se evalúen de alto impacto para el público objetivo del proyecto.

**Componente III: Gestión, seguimiento y evaluación del proyecto (USD 10,281,200)** Financiará las necesidades de equipamientos, personal y otros gastos de administración y gestión del Proyecto. Representará el 9,8% de los fondos totales a ser invertidos por el Proyecto. Mediante este componente se financiarán las oficinas territoriales que generarán capilaridad en el territorio para mejorar la llegada del proyecto a los beneficiarios. Asimismo, se financiarán las actividades de Seguimiento y Evaluación (SyE) y los estudios de línea de base, revisión de medio término (RMT) e impacto del proyecto y sus respectivas auditorías.

Objetivos del análisis económico-financiero ex ante

El objetivo del análisis económico y financiero (AEF) fue el de asegurar la asignación eficiente del gasto público. El AEF de los proyectos de inversión como el analizado mediante este documento resulta esencial para la toma de decisiones tanto por parte de los inversionistas (BID, FIDA y el Gobierno de Paraíba, en este caso) como por parte de los beneficiarios del proyecto para incorporarse al mismo.

Resulta una herramienta crítica para tomar una decisión sobre si es prioritaria la financiación de un proyecto e imparten directrices en ese sentido a los gobiernos beneficiarios. Este análisis es indispensable para una correcta evaluación ex ante del valor global de un proyecto e incluso puede estimar la probabilidad de que los beneficiarios adopten las intervenciones propuestas.

Un buen AEF proporciona información fundamental para comprender la conveniencia de las inversiones privadas desde el punto de vista de los beneficiarios objetivo (Análisis Financiero) y a su vez mostrar a los gobiernos como se asignarán los recursos públicos, su eficiencia y su eficacia para el logro de los impactos buscados (Análisis Económico). El AEF proporciona indicadores claros y sencillos para asegurar que las inversiones de un proyecto generen los beneficios previstos en los hogares y en la zona de influencia de un proyecto.

A partir de esta premisa, para la realización del presente AEF, lo primero que se hizo fue determinar cuál es la alternativa del “mantenimiento del statu quo” (SQ) o situación “sin el proyecto” de los potenciales beneficiarios del proyecto, y a continuación compararla con las opciones propuestas mediante el diseño de diferentes modelos de intervención que representen las actividades más frecuentes y con potencialidad de desarrollo en el territorio definido y a partir de ahí se analizó el valor agregado (enfoque incremental) del proyecto.

El AEF utiliza el análisis de costo – beneficio y dado que los costos y los beneficios no tienen lugar al mismo tiempo (por lo general, los costos preceden y sobrepasan a los beneficios durante los primeros años del proyecto y los beneficios se materializan gradualmente durante un período más largo) la comparación no es directa por lo tanto se aplican “técnicas de

descuento” para poder realizar el análisis.

A partir de este enfoque se han llevado a cabo el presente AEF mediante la identificación y cuantificación de los potenciales beneficios que resultarían en la implementación del Proyecto. Con este objetivo se estimaron los costos de todos los recursos necesarios para llevar adelante las actividades planeadas (inversiones, asistencia técnica, insumos operativos, costos administrativos, operacionales, de gestión, mano de obra, etc.) que serán necesarios durante la ejecución y para la continuidad de los beneficios del Proyecto durante el período de análisis.

En los siguientes apartados se resume la teoría de cambio del proyecto y cómo se han monetizado los resultados esperados del Proyecto. Asimismo, se describe la metodología empleada para llevar a cabo el análisis económico ex-ante del Proyecto, los principales supuestos contemplados, así como las estimaciones de los beneficios y costos incrementales y el cálculo de los indicadores de desempeño y los resultados obtenidos en su escenario base y en los escenarios alternativos del análisis de sensibilidad.

#### Teoría del cambio de la intervención

El Proyecto pretende reducir la pobreza y la inseguridad alimentaria y nutricional mediante inversiones en agricultura familiar, garantizando el desarrollo y fortalecimiento de sistemas alimentarios sostenibles. Esto mejorará la resiliencia y los ingresos de los agricultores, tratando de reducir así las desigualdades del grupo objetivo en relación con el resto de la población. El Proyecto ampliará las iniciativas de éxito y las soluciones innovadoras llevadas a cabo mediante el PROCASE I y con el objetivo de extenderlas a todo el estado de Paraíba.

Actualmente, los sistemas de producción locales se caracterizan por su baja productividad, escasa diversificación, baja adopción de prácticas agroecológicas, altos niveles de degradación de los recursos naturales y elevados niveles de vulnerabilidad al cambio climático, especialmente a las sequías. Existen pocas oportunidades de acceso a la tierra, los servicios y los mercados adaptados que fomenten la producción sostenible de alimentos y la creación de nuevos empleos.

Para abordar estos retos, el Proyecto trabajará en dos líneas de actuación. En la primera, el resultado esperado es garantizar que las familias y comunidades rurales mejoren sus sistemas alimentarios y de producción accediendo a nuevos mercados y aumentando las ventas con soluciones sostenibles adaptadas y resilientes al clima. Estos resultados se lograrán a través de: Inversiones a través de los Planes de Inversión Resilientes, para mejorar los sistemas de producción diversificados, resilientes y nutritivos con una gestión sostenible de los recursos naturales, orientados a la intensificación de la producción y al aumento de los ingresos; Tecnologías Sociales para la captación y almacenamiento de agua de lluvia; Infraestructuras de

saneamiento doméstico a pequeña escala; Tecnologías e innovaciones en maquinaria, herramientas o estructuras para producir energía renovable y/o más eficiente; Inversiones a través de los Planes de Negocio (PNs) para mejoras/adaptaciones de pequeñas unidades de procesamiento para diversificar y fortalecer el acceso al mercado. Un enfoque territorial participativo integrado con asistencia técnica adaptada a los grupos destinatarios será la base para lograr un impacto más significativo y permitir una restauración más amplia de los recursos naturales y los servicios ecosistémicos. Esto, a su vez, contribuirá a una producción agroecológica diversificada y productiva, mejorando la nutrición y el empoderamiento de los beneficiarios. La asistencia técnica y el apoyo a las organizaciones de productores tienen como objetivo mejorar el acceso a mercados agroecológicos y crear más oportunidades para el incremento en las ventas de los beneficiarios.

En la segunda línea de acción se mejorarán las capacidades de las familias rurales, en particular de los grupos destinatarios y de sus organizaciones, para que adopten prácticas climáticas resilientes y amplíen su acceso a la tierra y a otras políticas públicas. Se fortalecerán los servicios y las capacidades de los técnicos, extensionistas y se prestará Asistencia Técnica Especializada (ATER) para difundir las mejores prácticas para la producción agroecológica que mejor se adapten al cambio climático y fortalezcan la seguridad alimentaria de las familias beneficiarias.

Se apoyarán metodologías participativas que respondan a las necesidades específicas de los grupos destinatarios, valorando la biodiversidad, la generación de innovaciones y/o adaptaciones de tecnologías al entorno, el uso de tecnologías sociales que mejoren la calidad de vida rural y las acciones claves para facilitar el acceso a mejores mercados.

Se trabajará en la promoción del empoderamiento transversal, especialmente con los grupos destinatarios del proyecto, mediante sesiones de formación, información, sensibilización e intercambios. El apoyo a la titulación de tierras y a la regularización medioambiental estará en la agenda del Proyecto, así como la difusión de las políticas públicas existentes para promover y garantizar el acceso a las mismas.

Otro factor clave será la identificación e implementación de innovaciones tecnológicas para maquinaria adaptada a la agricultura familiar. El proyecto pretende ir generando materiales de Gestión del Conocimiento a lo largo de su ejecución y realizar actividades para ampliar el intercambio de conocimientos en los países del Sur Global a través de intercambios entre sus protagonistas.

Los beneficios estimados del proyecto vendrán asociados al incremento directo de los ingresos de las familias beneficiarias de los PIRs y los PNs que se han estimado en aproximadamente 23.040 familias, las cuales generarán incrementos en la actividad económica de sus comunidades generando impactos indirectos. Entre las externalidades producidas por estas actividades, contemplando el enfoque de la asistencia técnica del proyecto se prevé una reducción de las emisiones CO<sub>2</sub> y un incremento en el secuestro de los gases de efecto

invernadero. Este es uno de los beneficios esperados y fue cuantificados en el presente trabajo. En el cuadro 1 se representa esquemáticamente la teoría de cambio del proyecto:

**Cuadro 1: Esquema de la Teoría del cambio PROCASE II**

PROYECTO PROCASE II TEORÍA DEL CAMBIO				
Objetivo: Reducir los niveles de pobreza rural, mejorando la seguridad alimentaria y nutricional, y la adaptación de la población rural al cambio climático.				
Insumos	Actividades	Productos	Resultados	Impactos
Apoyo técnico	<b>C1. Sistemas productivos resilientes para reducir la pobreza rural</b>	<b>C1. Sistemas productivos resilientes para reducir la pobreza rural</b>	<b>OE1. Incrementar la adopción de tecnologías agrícolas, incluidas aquellas para la adaptación y mitigación del cambio climático.</b>	Índice de Pobreza Multidimensional (Headcount ajustado)
	1.1. Implantación de sistemas de producción biodiversos resilientes	Planes de Inversión Resiliente (PIR) acordados Planes de Inversión Resiliente (PIR) ejecutados con más del 75% de rendición de cuentas	Porcentaje de familias que utilizan insumos, tecnologías o prácticas sostenibles o climáticamente inteligentes Agricultores con mejor acceso a inversiones y servicios agrícolas	
	1.2. Fortalecimiento y diversificación de la comercialización	Planes de negocios para la estructuración de cooperativas/unidades de procesamiento acordadas Planes de Negocios para la estructuración de cooperativas/unidades de procesamiento ejecutados con más del 75% de responsabilidad		
1.3. Incentivos a la innovación	Tecnologías innovadoras desarrolladas o adaptadas			
Materiales de construcción	<b>C2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento</b>	<b>C2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento</b>	<b>OE2. Mejorar la inclusión productiva y social de los agricultores familiares, priorizando a las mujeres, los jóvenes, los Pueblos y Comunidades Tradicionales (PCT) y las personas con discapacidad (PcD)</b>	Agricultores que aumentan su producción agrícola
Financiamiento	2.1. Fortalecimiento de las capacidades de los agricultores familiares	Eventos de capacitación realizados para entidades ATER Agroecológicas y CTE Familias atendidas por ATER Agroecológica Se realizaron eventos de capacitación e intercambios de agricultores. Eventos de capacitación para el acceso a Políticas Públicas y Otros Programas	Porcentaje de agricultores familiares que venden su producción en los mercados Organizaciones apoyadas por PN aumentan sus ventas	Número de toneladas de emisiones de gases de efecto invernadero (CO2e) evitadas y/o secuestradas
	2.2. Fortalecimiento de las capacidades de las organizaciones para comercialización	Cooperativas y organizaciones de productores atendidas con CTE Ferias locales y centros de marketing creados/mejorados. Servicios de Inspección Sanitaria en funcionamiento Piloto de sistemas participativos de certificación en funcionamiento	Porcentaje de mujeres que ocupan puestos directivos en organizaciones rurales Cambio en el porcentaje de personas que reportaron estar empoderadas en relación con la línea de base Personas con nuevos trabajos	
Equipamiento técnico e informático	2.3. Diversidad, género, juventud, nutrición y seguridad alimentaria	Plan de género y diversidad elaborado Fases anuales del Plan de Género y Diversidad implementadas Plan de juventud elaborado Fases anuales del Plan Juventud implementadas Plan de Fortalecimiento del PCT elaborado Fases anuales del Plan de Fortalecimiento del PCT implementadas Plan de Nutrición y Seguridad Alimentaria elaborado Fases anuales del Plan de Nutrición y Seguridad Alimentaria implementadas Agentes de Desarrollo Local contratados	<b>OE3. Mejorar las condiciones ambientales de las comunidades rurales y su entorno.</b>	
	2.4 Regularización de tierra y ambiental	Familias beneficiadas por la regularización fundiaria y ambiental	Superficie de propiedades rurales registradas en el CAR Comunidades con título de regularización territorial y ambiental entregado	
	2.5 Gestión del conocimiento y cooperación sur-sur y triángula	Sistematizaciones y estudios en Gestión del Conocimiento elaborados y publicados Implementadas fases anuales de Comunicación y Difusión en Gestión del Conocimiento Realizados eventos de intercambio de Cooperación Sur-Sur		



## Beneficiarios del Proyecto

El PROCASE II abarcará las áreas rurales de los doscientos veintitrés (223) municipios del Estado de Paraíba, sin embargo las intervenciones priorizarán las comunidades en función de los criterios técnicos definidos, a saber: i) incidencia de la pobreza rural (Registro Único); ii) presencia de Pueblos y Comunidades Tradicionales (PCTs); iii) incidencia en la inseguridad alimentaria y nutricional; iv) concentración de mujeres y jóvenes rurales; v) acceso limitado al agua para consumo humano y producción; vii) evitar solapamientos con otras intervenciones de desarrollo como el PROCASE I, Sertão Vivo y PDHC III.

Se ha estimado que unas 60.000 familias (210.000 personas) de la agricultura familiar se beneficiarán directamente con el Proyecto, de las cuales el 50% serán mujeres, el 20% jóvenes, el 5% PCT y el 2% personas con discapacidad.

Los principales grupos destinatarios del Proyecto son: i) agricultores familiares en situación de pobreza y extrema pobreza, ii) mujeres rurales, iii) jóvenes rurales, iv) PCTs, v) Personas con Discapacidad (PcD), y v) LGBTQIABP+.

El principal grupo objetivo está formado por agricultores familiares en situación de pobreza y vulnerables a la inseguridad alimentaria y nutricional, cuyos sistemas de producción se caracterizan por una baja productividad y vulnerabilidad medioambiental y climática.

Las mujeres rurales se enfrentan hoy a restricciones en el control y el acceso a los recursos naturales, sociales y monetarios. Las mujeres dirigen el 24% de las unidades de agricultura familiar, pero sólo poseen el 15% de la superficie total de las zonas de agricultura familiar. Sólo el 15% de las agricultoras familiares reciben asistencia técnica, frente al 17% de los hombres.

Los principales retos a los que se enfrenta la juventud rural son: i) la falta de oportunidades de empleo e ingresos, ii) la falta de acceso y control sobre los recursos, insumos, bienes y tecnologías, y iii) la escasa participación y poder de decisión en las organizaciones rurales y comunitarias. Esta situación promueve un intenso proceso de migración de la juventud rural a las zonas urbanas.

Los pueblos indígenas y otras comunidades tradicionales (PCT) son especialmente vulnerables debido a dinámicas históricas de exclusión (incluso en la formulación de políticas públicas), a la gran dependencia de los recursos naturales, a la marginación de las formas de vida y al escaso acceso a los servicios esenciales. Un 68% de las quilombolas y un 73% de los pueblos indígenas de la zona del Proyecto viven en la pobreza o en la extrema pobreza.

Las personas LGBTQIAPN+ emigran a zonas urbanas y tienen dificultades para permanecer en el entorno escolar debido a los fuertes prejuicios de la sociedad, tienen ingresos y oportunidades de empleo muy limitados y son víctimas de discriminación y violencia.

Las personas con discapacidad (PCD) tienen menores tasas de éxito escolar y un acceso más

limitado a las actividades económicas, factores importantes que contribuyen a la pobreza familiar. En Paraíba, el 89% de las personas con discapacidad no trabajan, y el 74% ganan menos del salario mínimo.

El Registro Único se utilizará como mecanismo de focalización directa del proyecto. Alrededor del 70% de las familias beneficiarias de cualquier organización rural participante deberán tener “perfil” en el Registro Único (pobreza y/o pobreza extrema). La focalización directa se combinará con otras medidas: la auto focalización (por ejemplo, trabajando a través de grupos para abordar necesidades específicas), la focalización en el desarrollo de capacidades y las medidas operativas (por ejemplo, especialista en género e inclusión social; promoción de la paridad de género y sensibilización del equipo del Proyecto y de los socios ejecutores en cuestiones de género, edad, raza e identidad).

Se ha calculado que el Proyecto, mediante sus diferentes actividades y estrategias de intervención, tendrá un alcance para 60.000 familias de la agricultura familiar mediante la ejecución de sus componentes de inversión. Mediante el cuadro 2 que se adjunta a continuación se representa la distribución de los mismos por actividad reservando cuando los beneficiarios pueden encontrarse duplicados, ósea, ser beneficiarios de más de una de las actividades del Proyecto:

**Cuadro 2: Estimación de los beneficiarios del proyecto por actividad**

Actividades de impacto directo en las Familias Beneficiarias	Beneficiarios con repetición	Beneficiarios sin repetición
<b>Componente I: Sistemas productivos resilientes para reducir la pobreza rural</b>		
<b>Subcomponente 1.1: Implantación de sistemas de producción biodiversos resilientes</b>		
Producto 1.1.1 Planes de inversión resilientes (PIR) acordados	0	18000
Producto 1.1.2 Planes de inversión resilientes (PIR) ejecutados con una responsabilidad superior al 75	18000	0
<b>Subcomponente 1.2: Fortalecimiento y diversificación de la comercialización</b>		
Producto 1.2.1 Planes empresariales para estructurar cooperativas/unidades de transformación con acuerdos	5000	3000
Producto 1.2.2 Planes empresariales para la estructuración de cooperativas/unidades de transformación ejecutados con una responsabilidad superior al 75	5000	0
<b>Subcomponente 1.3: Incentivos a la innovación</b>		
Producto 1.3.1 Tecnologías innovadoras desarrolladas o adaptadas	3000	1500
<b>Componente II: Fortalecimiento organizacional y de capacidades y gestión del conocimiento</b>		
<b>Subcomponente 2.1: Fortalecimiento de las capacidades de los agricultores familiares</b>		
Producto 2.1.2 Familias atendidas por ATER Agroecológico	18000	0
Producto 2.1.3 Actos de formación e intercambios de agricultores celebrados	3960	1000
Producto 2.1.4 Actos de formación para el acceso a políticas públicas y otros programas	0	32000
<b>Subcomponente 2.2: Fortalecimiento de las capacidades de las organizaciones para</b>		
Producto 2.2.1 Cooperativas y organizaciones de productores asistidas con ETC	5000	0
Producto 2.2.2 Ferias locales y centros de comercialización creados/mejorados	0	1000
Producto 2.2.4 Sistemas piloto de certificación participativa en funcionamiento	0	500
<b>Subcomponente 2.3: Diversidad, género, juventud, nutrición y seguridad alimentaria</b>		
Producto 2.3.2 Fases anuales del Plan de Género y Diversidad implementadas.	30000	
Producto 2.3.4 Fases anuales del Plan de Juventud ejecutadas	12000	
Producto 2.3.6 Fases anuales del Plan de Fortalecimiento del PCT ejecutadas	3000	
Producto 2.3.8 Fases anuales del Plan de Nutrición y Seguridad Alimentaria ejecutado	60000	
<b>Subcomponente 2.4: Regularización de tierra y ambiental</b>		
Producto 2.4.1 Familias beneficiarias de la regularización de tierras y medioambiental	5000	3000
<b>Total Subcomponente 2.4</b>		
<b>TOTAL FAMILIAS BENEFICIARIAS</b>		<b>60000</b>

## METODOLOGIA Y SUPUESTOS DEL ANÁLISIS

### Aspectos Generales Metodológicos

El análisis realizado ha adoptado la metodología del ACB ajustada a dos factores condicionantes: (i) la información primaria y secundaria disponible en relación con las actividades e inversiones dentro del ámbito del Proyecto debido a su experiencia previa y (ii) la cadena causal o teoría del cambio generada por las intervenciones de cada uno de los componentes que producirá impactos socioeconómicos cuantificables.

En primera instancia se ha realizado un análisis estructural del diseño del proyecto y su teoría del cambio de la cual se desprende que sus componentes presentan una intensa interacción y complementariedad siendo extremadamente complejo y arbitrario dividir los beneficios estimados de manera independiente y aislada por componente. El Componente I, a través de los modelos de intervención diseñados, presenta facilidad para el cálculo de los retornos monetizables, cuantificables y mensurables pero su impacto total está fuertemente solapado con los impactos de las acciones del componente II pudiendo afirmar que el análisis de los modelos de inversión captura los beneficios de ambos componentes.

Las actividades de apoyo directo y de asistencia técnica y formación del Componente II resultan fundamentales para el “éxito” del Componente I y son absolutamente necesarias para que sean alcanzados los efectos deseados. Por esta razón, para el análisis de beneficios totales del proyecto se realizó un análisis integral del proyecto y no se un análisis discriminando los beneficios por componente y/o subcomponente.

Con esta finalidad se han realizado los cálculos para el presente ACB tomando como beneficios incrementales los ingresos de los PIRs y de los Planes de Negocio para estructurar cooperativas/unidades de transformación, cuantificando a los costos de asistencia técnica, capacitación, formación y administración y gestión del proyecto como costos integrales del Proyecto, lo cual equivale a restarle al Costo Total del proyecto los fondos destinados al financiamiento de los PIRs y los PNs y definir ese resultado como el Costo del Proyecto incrementales en el flujo de caja económico del mismo.

De conformidad con la metodología habitualmente utilizada en los ACB de proyectos de desarrollo rural, se han planteado dos alternativas o escenarios comparables: (i) Alternativa Sin Proyecto y (ii) Alternativa Con Proyecto. La primera alternativa corresponde a las proyecciones económicas futuras de no llevarse a cabo el Proyecto, es decir, un escenario de continuidad en la situación actual o business as usual (BAU) de las familias de Agricultores Familiares beneficiarios; la misma será “comparada” con la segunda alternativa que incluye los impactos económicos estimados que serían generados por la ejecución eficaz del Proyecto.

Con la información recogida mediante fuentes altamente confiables y el apoyo de técnicos del equipo que ejecutó el PROCASE I se modelizaron cinco (5) Planes de inversión resilientes (PIRs) y dos (2) Planes de Negocios para la estructuración de cooperativas/unidades de

transformación con el objeto de estimar los beneficios potenciales que generaría la ejecución del proyecto. Con este horizonte, los modelos fueron diseñados representando las actividades con potencialidad de desarrollo en el territorio en el cual se ejecutaría el Proyecto.

Con el equipo técnico del PROCASE I se ha evaluado que los modelos representan las actividades con mayor moda y simbolizan aproximadamente el 60% del total de actividades que desarrollan efectivamente los agricultores familiares en estos territorios. Para cada uno de los modelos se realizaron estimaciones y cálculos de los impactos financieros de las potenciales inversiones y se calcularon los indicadores claves para concluir sobre la capacidad y la voluntad de los productores rurales para participar e implicarse en los riesgos del proyecto. Se trata de verificar el impacto positivo de las actividades de las familias rurales modeladas mediante el cálculo de (i) la producción física; (ii) el empleo o mano de obra solicitada; (iii) el flujo de caja; (iv) el beneficio; (v) el ingreso neto familiar (beneficio + valor de la mano de obra familiar), (vi) la tasa interna de retorno (TIRf); y (vii) el valor actualizado de los beneficios (VANf).

A continuación, se realizó el Análisis Económico del Proyecto para lo cual fue necesario realizar un ajuste a valores de precios económico de los costos de insumos, mano de obra, utilización de factor de conversión a precio sombra del tipo de cambio y el valor de la tasa social de descuento correspondiente. Se realizó la agregación de los beneficios de las inversiones y se adicionaron los beneficios sociales y ambientales monetizables del proyecto, para realizar el flujo de caja económico del Proyecto y calcular el Valor Actual Neto económico ("VANe"), la Tasa Interna de Retorno económica ("TIRE") y la ratio Beneficio-Costo (B/C) del Proyecto.

Finalmente se realizó un análisis de sensibilidad de los retornos económicos del Proyecto ante cambios en las variables críticas del Análisis costo Beneficio (ACB) y en su caso las variables sujetas a un mayor grado de variabilidad. El análisis económico-financiero tiene como base los objetivos y supuestos plasmados en la teoría de cambio y en la matriz de resultados, monetizando los resultados esperados y cuantificando los costos en que se incurrirá para alcanzarlos.

#### Supuestos Generales

El horizonte temporal considerado para el análisis corresponde al ciclo económico o de vida útil de las inversiones o activos más relevantes que irían a implementarse mediante la ejecución de los PIRs y los PNs y que han sido objeto del análisis cuantitativo de beneficios. La duración de este ciclo se determina considerando las proyecciones durante la cual se espera que se generen los beneficios económicos incrementales del Proyecto y se ha estimado en veinte (20) años.

La tasa de descuento utilizada de referencia tanto para el análisis financiero como para el análisis económico fue del 12%, ya que es la tasa usada habitualmente en este tipo de evaluaciones y es consistente con la actual tasa de interés del Banco Central de Brasil. Esta tasa es una referencia como factor temporal de los impactos socioeconómicos esperados en

el futuro, sin embargo, no pretende reflejar el costo temporal de los recursos, sino un costo de oportunidad comparativamente homogéneo de los fondos empleados en el desarrollo del Proyecto.

Se han analizado las inversiones productivas agroecológicas y de tecnologías sociales, así como las pequeñas mejoras en infraestructura y se ha considerado conveniente contemplar un periodo de análisis máximo de 20 años para evaluar el retorno de la inversión del proyecto.

Para la cuantificación de los impactos socioeconómicos, la unidad de medida ha sido el Dólar Americano, en términos constantes de 2024, es decir, deflactado de cualquier efecto generado por la inflación de precios corrientes.

Las hipótesis estimadas inicialmente fueron tomadas en moneda local, el Real Brasileño (BRL) en función de la metodología de levantamiento de precios y se ha convertido a USD a una tasa de cambio constante de 5 BRL por USD, la tasa vigente al momento de diseño del proyecto (mayo de 2024).

Para la conversión de los modelos financieros al flujo de caja económicos los costos han sido ponderados, en su caso, de acuerdo con el porcentaje impositivo de 17% correspondiente al Impuesto sobre la Circulación de Mercancías y Servicios en Brasil (ICMS). Este impuesto indirecto no supone un costo incremental para la economía del país sino una transferencia de recursos entre sus distintos actores. Asimismo, se ha corregido los valores de la mano de obra usando el factor de conversión 0,68 para trabajo de baja calificación y de 0,78 para trabajo especializado. Estos coeficientes han sido calculados para el noreste de Brasil por el Instituto de Investigación Económica Aplicada en un estudio con el objetivo de subsidiar análisis de costo beneficio de proyectos de inversión en Brasil.

Outputs del ACB: parámetros de rentabilidad financiera y económica

Para cada uno de los siete (7) modelo ilustrativo de posibles inversiones (cinco (5) PIR y dos (2) PNs del proyecto se han calculado indicadores de desempeño financiero: como el margen neto, el incremento del ingreso familiar, el rendimiento del trabajo por familia y el aumento de la ocupación generada. Asimismo, se han construido sus respectivos flujos de caja incremental a 10 años para cada modelo analizando la situación sin y con proyecto y se calcularon la tasa interna de retorno (TIRf), valor actual neto (VANf) a precios de mercado y el benéfico costo (B/C) de cada posible intervención.

**Para el análisis económico** se han calculado la TIRe, la VANE y el índice de beneficio/costo (B/C) de la agregación de los flujos de caja de todos los modelos a precios económicos ponderados a una tasa de adopción del 67% que fue la tasa de adopción efectiva PROCASE I<sup>1</sup>. La agregación se ha realizado teniendo en cuenta el año estimado de incorporación de los beneficiarios al Proyecto.

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<sup>1</sup> AVALIAÇÃO DO PROJETO DE DESENVOLVIMENTO RURAL SUSTENTÁVEL DO CARIRI, SERIDÓ E CURIMATAÚ: LIÇÕES APRENDIDAS E PERSPECTIVAS PARA O FUTURO DA GESTÃO AMBIENTAL NO ÂMBITO DA AGRICULTURA FAMILIAR DO SEMIÁRIDO PARAIBANO À LUZ DA CONCERTAÇÃO Autor: Thiago Cesar Farias da Silva Orientador: Professor Dr. Bartolomeu Israel de Sousa, Universidade Federal da Paraíba (UFPB) Buscar la bibliografía del análisis ex post del PROCASE I

**El Valor Actual Neto (“VAN”)** también conocido como valor actualizado neto o valor presente neto corresponde al valor presente de los flujos de caja netos (ingresos - egresos) originados por una inversión<sup>2</sup>. Su valor se calcula de la siguiente forma:

$$VAN = \sum_{t=1}^n \frac{F_t}{(1+d)^t} - I_0$$

Donde:

$F_t$  representa los flujos de caja en cada periodo t.

$I_0$  es el valor del desembolso inicial de la inversión.

$n$  es el número de periodos considerado.

$d$  es la tasa de descuento.

Para el análisis de PROCASE II:

$F_t$  = Beneficios anuales incrementales agregados de los modelos financieros a precios económicos

$I_0$  = Costos anuales futuros en términos constantes

$n$  = horizonte de tiempo del análisis (20 años)

$d$  = Tasa de descuento (12%).

Mediante el cuadro 4 se ilustra una matriz para la toma de decisiones en función del valor de la VAN de un Proyecto de Desarrollo Rural:

**Cuadro 4: Tabla de decisión en base a la VAN**

Tabla de decisión en base a la VAN		
Valor	Significado	Decisión a tomar
VAN > 0	La inversión produciría ingresos por encima de la rentabilidad exigida por la tasa de descuento .	El proyecto puede aceptarse
VAN = 0	La inversión no produciría ingresos superiores a una inversión alternativa con una rentabilidad exigida por la tasa de descuento. Punto de indiferencia.	Dado que el proyecto no agrega valor monetario por encima de la rentabilidad exigida ( $r=d=TIR$ en este caso), la decisión debería basarse en otros criterios que evalúen otro tipo de beneficio que no han sido incorporados en el análisis.
VAN < 0	La inversión produciría ingresos por debajo de la rentabilidad exigida por la tasa de descuento o incluso puede generar pérdidas.	El proyecto debería rechazarse

**Tasa Interna de Retorno (“TIR”)** Es la tasa de descuento que permite que el VAN de los impactos socioeconómicos netos a lo largo del horizonte temporal del análisis, se iguale a 0. Para que un proyecto sea recomendable, se espera que dicha tasa supere a la tasa de descuento de referencia del 12%, tal y como se ha señalado anteriormente.

<sup>2</sup> <https://economipedia.com/definiciones/valor-actual-neto.html>

**Ratio Beneficio/Costo** se define como el cociente de los valores actuales de beneficios y costos del Proyecto. Si la ratio Beneficio/Costo es superior a la unidad, los beneficios esperados son superiores a los costos en valor actual o actualizados lo que indica la viabilidad socioeconómica del Proyecto, y el grado de cobertura general de sus beneficios incrementales esperados por sobre los costos incrementales anticipados.

**Análisis de sensibilidad** se realiza partiendo del escenario base del ACB calculado, al cual se lo “somete” a potenciales cambio en las variables utilizadas a los efectos de analizar los movimientos de los indicadores calculados en dicho escenario. Se realiza con el objetivo de analizar la performance del proyecto ante potenciales cambios en el contexto general macroeconómico, climático, social y/o de gestión del proyecto. Se realiza un análisis de sensibilidad de los parámetros de rentabilidad y viabilidad descritos más arriba, ante cambios en las variables clave del ACB para el proyecto. Se analizaron las siguientes variables:

- a. Combinación de riesgos que afectan los precios de los productos, los rendimientos y las tasas de adopción
- b. Aumento de los precios de los costos de inversión.
- c. Atrasos o lenta capacidad de implementación del proyecto.
- d. Baja capacidad de gestión y negociación de los grupos de agricultores.
- e. Fluctuaciones de precios de mercado.
- f. El alcance del servicio del proyecto es limitado, baja en la tasa de adopción.

Beneficios Cuantificados:

(i) Beneficios económicos

Para la realización del análisis descripto se modelizaron dos (2) tipos de intervención planificados, a saber:

Los Planes de Inversión Resiliente (PIR) que consistirán en procesos de transferencia de tecnologías agropecuarias con enfoque agroecológico, inversiones sociales para la mejora en la calidad de vida en el ámbito de la agricultura familiar e inversiones ambientales específicas. Estos planes se canalizarán mediante asociaciones y/u organizaciones de productores. Esta intervención generará beneficios socioeconómicos a través de los siguientes impactos monetizables (cuantificables en moneda de curso legal): (i) incremento de los ingresos agropecuarios de los agricultores familiares (AF) derivados de una mejora en la productividad, aumento del valor de sus productos debido a mejoras en la calidad y mejor integración en las distintas cadenas de valor que catalicen un mejor acceso a mercados y la reducción de pérdidas que generen sistemas productivos más eficientes; (ii) mejora del balance de carbono generada por la recuperación de pastizales y la implantación de Sistemas Agrícola Forestales (SAF) y de conservación ambiental de las actividades desarrolladas con la mejora de uso de insumos en la producción hortícolas, (iii) mejora del balance de carbono generada por la instalación de hornos ecoeficientes que reducirán el consumo de leña de las

familias, la instalación de viveros comunitarios y la construcción de biodigestores que reducirán las emisiones de gases a la atmosfera y la instalación de cisternas para mejorar la administración y gestión del recurso agua. (impacto de las tecnologías sociales y ambientales)

Para que se pudiera cuantificar los beneficios y los costos incrementales generado por esta intervención, se han considerado cinco (5) modelos de PIR y dos (2) modelos de PN con sus respectivas inversiones, costes, beneficios esperados. Estos modelos son; (i) un modelo de “Horticultura e fruticultura irrigada” para una asociación de 90 familias; (ii) un modelo de “Crianza de Cabras en Sistema Agroforestal” para la venta de cabras en pie de 3 organizaciones que agrupan a 90 familias, (iii) un modelo para la “Avicultura Capira con SAF forrajero” para la mejora en la producción aviar de carne y huevo, que nuclea a tres organizaciones de 30 familias aproximadamente para un total de 90 familias beneficiarias. (iv) Un modelo para 90 familias que producen leche de bovinos en un sistema SAF forrajero y (v) un modelo para la mejora del sistema productivo caprino de leche también vinculado a un sistema Agro Forestal con producción forrajera.

Los dos PN para la potencialización comercial de cooperativas y/o unidades de transformación que se han modelados se vinculan uno al procesamiento de algodón agroecológico, su acopio y la generación de valor agregado para una asociación de 90 socios. El otro PN se orienta a una cooperativa más pequeña que realiza el procesamiento y fraccionamiento de miel para incrementar el valor agregado del producto. Beneficiaría a 81 familias socias de la Cooperativa.

Las referencias utilizadas en la realización del ACB para estas inversiones ha sido el proyecto PROCASE I que se ha ejecutado en el estado de Paraíba y ha sido financiado por el FIDA en la cual se han acompañado y apoyando intervenciones muy similares a las propuestas en esta modelación las cuales son altamente representativas del entorno.

Esto queda reflejado en el documento “Pesquisa de Seguimento da Avaliação de Impacto do Projeto” donde los CBA realizadas para el informe de cierre de ese proyecto a partir de encuestas aplicadas a una muestra de organizaciones de productores y de hogares que ilustraban la representatividad del esquema del análisis de este documento.<sup>3</sup> En el trabajo se tomaron los resultados promedios de costos y beneficios de estas encuestas y se construyeron modelos financieros detallados (CBA) para cada una de las principales actividades apoyadas (caprino, ovino, fruticultura, artesanías, etc.)

Los resultados de estos análisis financieros por actividad han sido comparados con los incrementos reales de producción y ventas reportados en las evaluaciones de impacto del PROCASE I y en los sistemas de monitoreo del proyecto para confirmar que los modelos producidos eran representativos del promedio de las inversiones en las cuales hubo adopción por parte de los beneficiarios.

Los resultados de estos modelos han posteriormente sido extrapolados para el total de inversión en actividades productivas, tomando en cuenta la tasa de adopción reportada por

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<sup>3</sup> <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://aksaam.ufv.br/ToolSys/Download/Publicacao/173/265>



el sistema de monitoreo de los proyectos. Este estudio ha sido de vital importancia a la hora de diseñar los modelos de intervención del presente Proyecto, generando información clave, verificable y representativa de las actividades que demanda efectivamente el territorio de intervención.

Los Planes de Negocio (PN), promovidos a través de cooperativas de productores, podrán incluir una gama de actividades en torno principalmente a la implementación de infraestructuras e instalaciones de apoyo productivo, procesamiento y valor agregado y a la asistencia técnica especializada en comercialización y conexión a mercados.

Su diseño responderá al diagnóstico de la cadena de valor identificada como prioritaria en cada una de las cooperativas beneficiarias. Los beneficios generados monetizables, así como los costos de inversión y operación de esta intervención son de la misma naturaleza que los identificados para los PIRs (con excepción de la instalación de hornos a gas que no ocurre en estos casos). Para su cuantificación se ha recurrido a dos (2) modelos de PNs a los cuales se le realizó su respectivo análisis de costo beneficio, un modelo fue diseñado para el procesamiento y adecuación post cosecha de algodón agroecológico y el otro para el procesamiento y fraccionamiento de productores de miel o con variedades mejoradas e inversión en postcosecha gestionada por una cooperativa que será la responsable de las por la venta.

#### (ii) Beneficios ambientales

Para el cálculo monetizables de los beneficios ambientales del Proyecto, se deben realizar estimaciones sobre el balance de carbono atribuible al proyecto. Este balance genera un número que nos indicará, entre todas las actividades que lleva a cabo el proyecto, cuantas secuestran o reducen las emisiones y cuantas producen elementos que perjudican el medio ambiente.

Este balance se realizó mediante la herramienta Ex Ante Carbon-Balance Tool (EXACT), basada en la metodología del Grupo Intergubernamental de Expertos sobre el Cambio Climático (IPCC) de las Naciones Unidas.

La herramienta calcula los cambios en las reservas de carbono y las emisiones de GEI, incluidos el dióxido de carbono (CO<sub>2</sub>), el metano (CH<sub>4</sub>) y el óxido nitroso (N<sub>2</sub>O), que una vez convertidos en CO<sub>2</sub> equivalente se utilizan para derivar el balance de carbono que indica el impacto del proyecto.

Así como el análisis económico en general, el EX-ACT diferencia entre fase de implementación del proyecto y fase de capitalización. La fase de implementación es de seis años, pero el período cubierto por el análisis es de 20 años (implementación y capitalización), siguiendo las recomendaciones del IPCC. En el anexo III del presente trabajo se observan los resultados expresados por la herramienta y su valuación monetaria correspondiente.

La evaluación valoró los impactos de las intervenciones en comparación con el escenario habitual (BAU) para los tres (3) Sistemas Agroforestales (SAF), el modelo de producción frutihortícola en parcelas de 1000m<sup>2</sup> por beneficiario y la instalación de 500m<sup>2</sup> de riego por

goteo por beneficiario, y otra evaluación para la producción de aves para huevos y carne en sistemas SAF, en los cuales se implantan 1000m<sup>2</sup> en cada hogar beneficiario para mejorar la dieta de las aves criadas de manera agroecológica.

El análisis también se aplica a ambos PNs modelos, en los cuales, a pesar de hacer foco en el acopio, procesamiento y generación de valor agregado de la producción y en el desarrollo de una estrategia de desarrollo comercial, es posible realizar balances analizando las formas de funcionamiento del sistema productivo y los impactos en el entorno que pueden generar la instalación de nuevos espacios de valor agregado.

Los supuestos establecidos para la cuantificación de los beneficios ambientales son los mismos que han sido considerados para la cuantificación de los beneficios económicos. Estos sistemas generan cambios a nivel de biomasa aérea y subterránea (sistemas agroforestales y regeneración de manantiales) y de emisiones por el uso de insumos en 10.260 hectáreas relativas a los sistemas agrícolas y agroforestales apoyados por el proyecto. Los cambios en el stock de carbono derivados de las acciones sociales, productivas y ambientales derivadas de la instalación de 135 pozos de agua equipados con bombas solares, 750 cisternas de 56.000 litros para la mejora en el almacenamiento de agua de lluvia, la instalación de 3485 sistemas de reciclaje de aguas grises, la instalación de 8680 hornos ecológicos, 3485 biodigestores y 600 viveros comunitarios para la producción de plantines con doble propósito; la sostenibilidad de los SAF y la producción de plantines para las huertas familiares, diversificando las variedades de alimentos y mejorando la nutrición de las familias beneficiarias.

Este balance de carbono se ha monetizado siguiendo las directrices más recientes del Banco Mundial<sup>4</sup> con un supuesto conservador utilizando como costo social del carbono el más bajo (LCP) (51 USD/tCO<sub>2</sub>-eq) (ver ANEXO III).

En el Cuadro 3 a continuación se desagregan las inversiones sociales y ambientales a llevar adelante por cada uno de los PIR modelizados.

**Cuadro 3: Inversiones Sociales y Ambientales de los PIRs**

PIRs	Inversiones Sociales y ambientales por PIR												
	Cantidad de PIRs	Pozos equipados	Total	Cisternas de producción	Total	Sistemas de reuso de aguas cinzas	Total	Hornos Ecológicos	Total	Biodigestor	Total	Vivero para producción de plantines (colectivo)	Total
Horticultura y Fruticultura Bajo Riego	45	3	135	3	135	12	540	54	2430	12	540	3	135
Crianza de Cabras en Sistema Agroforestal	50	0	0	9	450	16	800	26	1300	16	800	3	150
Avicultura Campera con SAF forrajero	50	0	0	0	0	30	1500	63	3150	30	1500	3	150
Bovino para Leche con SAF Forrajero	15	0	0	3	45	3	45		0	3	45	3	45
Caprinos para leche con SAF Forrajero	40	0	0	3	120	15	600	45	1800	15	600	3	120
<b>Total</b>	<b>200</b>	<b>Pozos</b>	<b>135</b>	<b>Cisternas</b>	<b>750</b>	<b>Sistemas</b>	<b>3485</b>	<b>Hornos Ecológicos</b>	<b>8680</b>	<b>Biodigestor</b>	<b>3485</b>	<b>Viveros</b>	<b>600</b>

<sup>4</sup> Guidance note on shadow price of carbon in economic analysis. World Bank, September, 2017

## Beneficios no cuantificados

La evaluación económica realizada no consideró beneficios intangibles o de compleja medición como son determinados beneficios sociales que se generarán por la gran cantidad de inversiones que se realizarán en este sentido, pero se quieren dejar explicitados mediante este apartado.

Los beneficios de las actividades de regularización de la tenencia de tierras y algunos ambiental suele diferir según los casos y países, siendo el catastro ambiental una particularidad en la República de Brasil. Por este motivo no ha sido posible encontrar una referencia pertinente que se pudiera usar para estimar los beneficios económicos atribuibles a algunas de estas inversiones. Sin embargo, dada su participación dentro del conjunto de actividades y el hecho de que es una motivación concreta para la generación/conservación ambiental – tierras con catastro ambiental son monitoreadas y penalizadas con multas si no cumplen con las áreas mínimas de preservación ambiental definidas por ley – se considera como una inversión complementaria a la adopción de las nuevas prácticas y tecnologías promovidas para la adaptación al cambio climático.

La titulación de tierras puede también servir de incentivo a invertir en Sistemas Agroforestales y en mantenimiento de pasturas naturales y cultivos perenes.

Otros ejemplos evidentes son la mejora del acceso al agua y tratamiento de efluentes, que generan mejoras en la salud de las familias, con sus consecuentes impactos en ahorros por movilidad a los nosocomios y la compra de medicamentos.

La implantación de viveros para el mantenimiento de las SAF, pero con el doble propósito de generar plantines para las huertas familiares también son relevantes pero difícil de mensurar. En el mismo sentido el incremento de la oferta de diferentes productos saludables, acompañados de formación nutricional, seguramente irán mejorando la nutrición y alimentación de los beneficiarios directos e indirectos, generando empleo genuino y apoyando la inclusión social de los usuarios del proyecto.

Es clara la alta probabilidad de que las inversiones sociales generen beneficios monetarios como el incremento en el valor de la vivienda anualizados, incrementos en el rendimiento del trabajo del hogar y (disminuciones de costos de internamiento hospitalario atribuibles al abastecimiento de agua de calidad y en mayor volumen, así como a la existencia de saneamiento básico.

Otro ejemplo es el caso del PN para el valor agregado de algodón agroecológico, no fue posible estimar con precisión el impacto potencial de los proveedores de la planta que probablemente podrían realizarían la transición agroecológica en sus parcelas productivas debido a la instalación de la planta, con el objeto de incorporarse a la nueva cadena de valor generada por el PN. Para el modelo de la miel los impactos positivos a nivel ambiental serían más complejos de capturar mediante la herramienta utilizada, aunque sus beneficios son evidentes, no es posible cuantificar variables de manera confiable.

## ESTIMACIÓN DE BENEFICIOS DEL PROYECTO

De acuerdo con la teoría del cambio y el marco lógico del proyecto, los impactos contemplados en la estimación de los beneficios económicos se han cuantificado como se describe a continuación.

### BENEFICIOS NETOS

Como se ha indicado anteriormente, los beneficios socioeconómicos de las inversiones y actividades del proyecto han sido cuantificados mediante el impacto monetario de 2 tipos de intervención: (i) Los Planes de Inversión Resilientes (PIR) y (ii) Los Planes de Negocio (PN). Se han producido cinco (5) modelos ilustrativos de PIR y dos de PN, basado básicamente en la experiencia del PROCASE I y de acciones similares en el estado de Paraíba y nordeste de Brasil<sup>5</sup>. Las mismas fueron adaptables al incremento en la extensión del territorio del PROCASE II respecto al PROCASE I y a características diferenciales de suelo, clima y régimen hídrico de la heterogénea región nordestina. Todos los casos ilustrativos han obtenido resultados financieros positivos, producen un incentivo a la adopción de las prácticas y tecnologías promocionadas por el proyecto demostrando así que la estrategia técnica propuesta para el proyecto es sostenible. A continuación, se hacen breves descripciones de los casos ilustrativos considerados. En el cuadro 4 se observan los flujos de fondos financieros de los modelos.

**Cuadro 4: Beneficios Incrementales de los modelos de PIR y PN analizados**

ESTADO DE PARAIBA- BRASIL -PROCASE II-								
A N A L I S I S		Beneficios incrementales netos de los modelos						
		Horticultura y Fruticultura Bajo Riego	Crianza de Cabras en Sistema Agroforestal	Avicultura Campera con SAF forrajero	Bovino para Leche con SAF Forrajero	Caprinos para leche con SAF Forrajero	Algodón Agroecológico	Apicultura
F I N A N C I E R O	PY1	-829384	-1639194	-1268678	-1808780	-1571953	-221248	-348353
	PY2	533164	375412	370116	469102	553292	165861	110902
	PY3	578396	512821	343979	731736	553292	207750	136294
	PY4	605862	512820	456305	620453	976133	207750	158098
	PY5	605862	619944	425950	1447128	664277	207750	158098
	PY6	605862	619943	531027	1574309	809672	207750	158098
	PY7	605862	619942	497169	1574309	809672	207750	158098
	PY8	605862	619940	607328	1574309	809672	207750	158098
	PY9	605862	619939	575688	1574309	809672	207750	158098
	PY10	605862	619937	691370	1574309	809672	207750	158098
	VAN (f)	2,064,283	1,146,461	1,108,249	3,715,431	2,084,791	757,407	387,957
	TIR (f)	68%	29%	31%	46%	42%	85%	38%

A continuación, se realiza una descripción de los modelos y sus resultados como casos ilustrativos y ejemplificadores de la potencialidad de desarrollo e impacto que presenta el proyecto en el territorio de intervención.

**Modelo I -PIR-: “Horticultura e fruticultura irrigada”** mediante el cual se beneficiarían a 90

<sup>5</sup> Notas de otros proyectos en el NordEste brasileiro

familias de una comunidad que producen hortalizas con muy escasa tecnología y sin asesoramiento técnico adecuado. El plan contempla la instalación de estructuras de riego eficientes (500m<sup>2</sup>/beneficiario) que permitan desarrollar la actividad sin derrochar agua; introducir prácticas de producción agroecológicas que conserven el suelo, preserven la biodiversidad y se adapten al cambio climático, sobre todo para reducir las pérdidas por evapotranspiración.

Asimismo, se van a implantar tecnologías sociales que garanticen un ahorro económico a las familias, así como una mejora del bienestar y calidad de vida permitiendo un menor impacto en el medio ambiente.

Las inversiones se orientan a la construcción de sistemas de plataformas de hormigón como tecnología para cosecha de agua con desagüe dirigido a cisterna (reutilización), se piensa instalar seis (6) estructura con sus respectivos depósitos de agua de 10.000 litros a en altura para presurizar riego, se planea la provisión de Kit de riego por goteo para las noventa familias (500 m<sup>2</sup>/familia), por gravedad, con depósito de agua de 1.000 L y Tubería completa. Se van a instalar de tres (3) sistemas de energía solar fotovoltaica, un (1) kit de herramientas hortícolas para los beneficiarios, seis (6) depósito de agua de 10.000 litros, compra de 12 pulverizadores manuales de 20 litros de uso cooperativo, 720 contenedores de plástico para transportar cuidado de verduras, la compra de seis (6) remolques para moto, la compra de 21 puesto de mercado plegable (2,0 x 1,0 m), seis (6) moto cultivadores de unos comunitario.

Como inversiones sociales se van a situar tres (3) pozos equipados con sus bombas, sus respectivas cisternas para producción, doce (12) sistemas de reutilización de aguas grises en casas de familias beneficiarias, cincuenta y cuatro (54) cocinas ecoeficientes para reducir el consumo de leña y tres (3) biodigestores en los predios de los (3) viveros comunitarios que se instalarán para el sostenimiento de la producción de plantines de hortalizas y frutales.

Los ingresos incrementales provendrán del incremento en el volumen de las ventas de lechugas, cebollín, cilantro, guindilla, bananos y acerolas con presencia en ferias asesorados en producción AgroEcológica. La inversión total estimada es de R\$ 1,486,657 equivalente a USD 297331, generando los siguientes indicadores:

Retorno del trabajo Familiar	92.84
Discount rate	0.12
NPV @ 0.12	2,064,282.57
IRR	68%
NPVb	9,209,370.12
NPVc	8,019,910.06
<b>B/C ratio</b>	<b>1.15</b>

Las familias beneficiarias incrementaran sus ingresos anuales en R\$ 6,732.

**Modelo II -PIR- “Crianza de Cabras en Sistema Agroforestal”** se ha diseñado para organizaciones de 90 familias que son productores de cabras con elementos y capacidades

rudimentarias. Se espera mediante el PIR reforzar y profesionalizará la cría familiar de cabras para carne mediante la estructuración de unidades de producción familiares, la promoción de la adopción de prácticas de convivencia con la región semiárida y el fomento de la transición agroecológica, con el objetivo de garantizar la seguridad alimentaria del rebaño, conservar el medio ambiente y mejorar los ingresos familiares.

La profesionalización genera mejora en la calidad de la carne producida que se verá reflejado en el precio/ cabeza estimado. Para esto se plantea promover la implantación de sistemas agroforestales para la producción de forraje adaptados a la región semiárida que se ha estimado en una (1) hectárea por familia y generar un banco de proteínas para complementar la alimentación animal y se proporcionará orientación para mejorar la calidad genética del rebaño existente.

La asistencia técnica trabajará en mejorar las capacidades de los beneficiarios en prácticas de manejo sanitario y nutricional de las cabras y gestión de sistemas agroforestales. Se asistirá en la mejora para el acceso a mercados de forma más directa, acortando la cadena de intermediarios. Se fomentará la aplicación de tecnologías sociales adecuadas para mejorar la coexistencia con la región semiárida y desarrollar acciones encaminadas a la conservación del medio ambiente.

Con esta finalidad se va a invertir en Servicios de preparación del suelo en aproximadamente 122 ha, la adquisición de 4 moto ensiladoras, 3 picadoras de forraje, 3 mezcladores de pienso de 1000 kg, y 3 enfardadoras. Se invertirá en la compra de material para la implantación del SAF como Palma resistente a la cochinilla del carmín, Gliricidia, Leucena, Moringa, Abono orgánico - Estiércol bovino (1 ha SAF-F), material para alambrado de 5 hilos y la adquisición de materiales e insumos colectivos como forraje, 9 cortadora colectivas, la adquisición de perforadora colectiva de palmeras. En cuanto a las inversiones sociales se ha planteado la compra de 9 cisternas para producción y bebida de los animales, la instalación de 26 cocina ecoeficiente y la instalación de 16 sistemas de reutilización de aguas grises. Como recurso básico para la sostenibilidad de las SAF, se administrarán e instalarán 3 viveros para la provisión de plantines de material para uso tanto en forrajes como para la diversificación nutricional (frutas y verduras) de las familias beneficiarias. Los ingresos incrementales provendrán del incremento en el precio de las cabras criadas en un ambiente de producción AgroEcológica. La inversión total estimada es de R\$ 1.242.028 equivalente a USD 240.237, generando los siguientes indicadores de impacto:

Retorno del trabajo Familiar	184
Discount rate	12%
NPV @ 0.12	1,146,461
IRR	29%
NPVb	7,616,936
NPVc	5,747,585
B/C ratio	1.33

Se ha estimado que las familias beneficiarias incrementaran sus ingresos anuales en R\$ 9,633.

**Modelo III -PIR- “Avicultura Capira con SAF forrajero”** se ha diseñado para organizaciones de 90 familias que se dedican a la producción de pollos de campo para carne y huevos. El modelo simula un refuerzo y apoyo a la cría familiar de aves de corral al aire libre mediante la estructuración de unidades de producción familiares individuales y colectivas, con el objetivo de criar aves de corral para el consumo y para la venta de huevos y carne. Con esta finalidad se van a establecer estructuras adecuadas para el desarrollo de la cría, que permitan llevar a cabo una gestión alimentaria y sanitaria adecuada, formar a los beneficiarios en prácticas de manejo de aves de corral e introducir prácticas de producción, conservación de pastos y forraje para la producción de pollos. Se estimó que esta actividad tendrá una alta tasa de absorción d emano de obra de mujeres y jóvenes.

Se plantea un trabajo de ATER no solo en la mirada colectiva sino también apuntando a que los beneficiarios acceder a mejores oportunidades para comercializar sus productos, tanto de manera individual como colectivamente. Para cumplir con estos objetivos se realizarán inversiones que fortalezcan el funcionamiento de la asociación con vistas a mejorar los servicios y el apoyo a los miembros y diversificar y mejorar la alimentación y la nutrición de las familias implicadas. Mediante el PIR accederían a la adquisición de material para instalar gallineros rústicos de 20 m<sup>2</sup> en cada hogar familiar y un espacio de cría de pollitos BB y la implantación de un sistema agro forestal para las aves. Se comprarán 45 incubadores para 48 huevos, bebederos infantiles de 5 litros, bebedero automático, comedero infantil (5 kg) Comedero tubular (20 kg), láminas de zinc para proteger y calentar a los pollitos (0,5 x 4,0 m), campana de pollitos de aluminio con varilla de soporte en todas las viviendas familiares.

En el mismo sentido, y para uso colectivo se comprarán 3 picadora de forraje diésel de 7 CV con arranque eléctrico y tres (3) mezcladoras trifásicas, motor de 2 CV, capacidad de 500 kg con los cuales se podrán fabricar alimentos de forma comunitaria para todas las familias vinculadas a la asociación. Se comprarán 3 lanzallamas, 3 garrafas de gas, 6 balanza con capacidad de 150 kg y 3 remolque para moto para agilizar el transporte y la logística de alimentos.

En paralelo a estas inversiones y la asistencia técnica planteada se adquirirá pollitos camperos de 1 día de edad para mejora de la genética, se comprarán vacunas para mejorar el aspecto sanitario y alimento específico para abordar el aspecto nutricional (raciones pre- iniciales, soja, maíz) y plantines y semillas para implantar un SAF de 900 m<sup>2</sup> que provea de nutrientes en cada unidad productiva familiares. Respecto a las inversiones sociales se prevé la instalación de 30 sistemas de reutilización de aguas grises, 63 cocinas ecoeficientes y 3 viveros para la producción de plantines de uso colectivo con el doble propósito de sostener las SAF y ampliar las variedades y las calidades de las huertas familiares. Los ingresos incrementales provendrán del incremento en la cantidad y calidad de pollos caipira producidos, la cantidad de huevo y la reducción de pérdidas y roturas gracias a las mejoras en el manejo y el equipamiento adquirido para la producción.

La inversión total estimada es de R\$ 1,209,207 equivalente a USD 241,841, generando los siguientes indicadores de impacto:

Retorno del trabajo Familiar	306
Discount rate	12%
NPV @ 0.12	1,108,249
IRR	31%
NPVb	5,266,455
NPVc	3,554,310
B/C ratio	1.48

Se ha estimado que las familias beneficiarias incrementaran sus ingresos anuales en R\$ 9,842

**Modelo IV -PIR- “Bovino de leche con SAF forrajero”** contempla el apoyo a una organización de 90 familias que producen leche de bovinos. El modelo propone fortalecer la cadena de ganado lechero a través de la producción de leche sostenible, eficaz y rentable, promoviendo alternativas para la conservación y recuperación del medio ambiente y el desarrollo socioeconómico de los productores involucrados en las actividades. Además, busca fomentar la acción en las explotaciones lecheras mediante el uso de nuevas tecnologías para mejorar y facilitar las actividades de manejo del rodeo y garantizar el apoyo forrajero mediante la implantación de un Sistema Forrajero Agroforestal (SAF-F) que agrupe especies con valor proteínico y energético, con el fin de aumentar la producción de forraje y mejorar la dieta y nutrición de los animales. La asistencia técnica especializada fomentará el uso de las prácticas de conservación y la recuperación de zonas degradadas mediante la reforestación y la construcción de un vivero para producir plantines autóctonos, forrajeros y frutales.

Se apoyará con asistencia técnica comercial a las familias tanto de la leche como de sus derivados. En paralelo, con la finalidad de mejorar la calidad de vida en el ámbito rural se aplicarán tecnologías sociales adecuadas para mejorar la coexistencia con la región semiárida.

Para cumplir con estos objetivos el PIR plantea realizar las siguientes inversiones como la adquisición de 3 moto ensiladora con remolque, 6 enfardadoras, 18 moto guadañas, Kit de vacunación para todos los rodeos, 15 tanque de refrigeración de leche de 1.500 litros y adquisición de material verde para la implantación de 1 hectárea de SAF consolidada con palma resistente a la cochinilla del carmín, Gliricidia, Leucena, Hierba elefante, Abono orgánico y alambrado con valla de 5 hilos. Para mejorar el acceso al agua para producción se invertirá en la compra de 3 Cisternas de producción y se instalarán 18 sistemas de reutilización de aguas grises y 3 biodigestores. En el mismo sentido se plantea la instalación de 3 viveros para la producción de platines con doble propósito: sostenibilidad de los SAF y mejora de la calidad de las huertas familiares y por ende de la nutrición de sus integrantes. Los ingresos incrementales provendrán del incremento en la cantidad y calidad de leche producida debido a las mejoras en el manejo y el equipamiento y a asistencia técnica para la mejora en el manejo del rodeo y la comercialización de la leche.

La inversión total estimada es de R\$ 1.314.425 equivalente a USD 262.885 generando los



siguientes indicadores de impacto:

Retorno del trabajo Familiar	93
Discount rate	12%
NPV @ 0.12	3,715,431
IRR	46%
NPVb	28,480,937
NPVc	31,809,933
B/C ratio	0.90
Switching values Benefits	0.12
Switching values Costs	-0.10

Se ha estimado que las familias beneficiarias incrementaran sus ingresos anuales en R\$ 17.492

**Modelo V -PIR- “Caprino de leche con SAF forrajero”** contempla el apoyo a una alianza de tres (3) organizaciones de productores de leche caprina, conformadas por 30 familias cada una, que se asocian para el diseño de una PIR beneficiándose así las 90 familias.

El modelo se propone fortalecer la cría familiar de cabras lecheras mediante la estructuración de unidades de producción familiares, la promoción de la adopción de prácticas de convivencia con la región semiárida y el fomento de la transición agroecológica, con el objetivo de garantizar la seguridad alimentaria del rebaño, conservar el medio ambiente y mejorar los ingresos familiares. Para mejorar la seguridad alimentaria del ganado se plantea la producción de forrajes adaptados a la región semiárida y el apoyo a la formación de un banco de proteínas para complementar la alimentación animal.

La asistencia técnica se orientará a la promoción para la gestión reproductiva y la mejora de la calidad genética del rebaño existente. Se plantea importante capacitar a los beneficiarios en prácticas de manejo del rodeo y gestión de sistemas agroforestales. La asistencia técnica también generará orientación para facilitar el acceso a los mercados públicos y privados. El PIR contendrá inversiones para la aplicación de tecnologías sociales adecuadas para mejorar la coexistencia con la región semiárida y desarrollar acciones y conciencia entre los beneficiarios para la conservación del medio ambiente y promover la generación de ingresos en la comunidad especialmente para jóvenes y mujeres.

Para cumplir con estos objetivos el PIR plantea realizar inversiones críticas como la adquisición de 6 moto ensiladoras con remolque, 3 picadoras de forraje, 3 mezcladoras de ración para 1000Kg, 6 tanques de refrigeración para la leche de 1.500 litros y la adquisición de material verde para la implantación de 1 hectárea de SAF consolidada por familia beneficiaria. Con este fin se financiará la implantación de palma resistente a la cochinilla del carmín, Gliciridia, Leucena, moringa y abono orgánico. Se adquirirán los materiales para realizar un alambrado de la parcela de 5 hilos. Para mejorar el acceso al agua para producción se invertirá en la compra de 3 Cisternas de producción y se instalarán 15 sistemas de

reutilización de aguas grises y 45 hornos ecoeficientes y 3 biodigestores.

En el mismo sentido se plantea la instalación de 3 viveros para la producción de platines con doble propósito: sostenibilidad de los SAF y mejora de la calidad de las huertas familiares y por ende de la nutrición de sus integrantes.

Los ingresos incrementales provendrán del incremento en la cantidad y calidad de leche producida debido a las mejoras en el manejo y el equipamiento y a asistencia técnica para la mejora en el manejo del rodeo y la comercialización de la leche.

La inversión total estimada ronda los R\$ 1.311.525 equivalente a USD 262.305. El análisis del PIR ha generado los siguientes indicadores de impacto:

Retorno del trabajo Familiar	181.96
Discount rate	0.1200
NPV @ 0.12	2,084,791
IRR	42%
NPVb	24,785,567.21
NPVc	15,609,406.83
B/C ratio	1.59

Se ha estimado que cada una de las familias beneficiarias del PIR incrementarían sus ingresos anuales en R\$ 8,996.

**Modelo VI -PN- “Algodón Agroecológico”** este modelo contempla el apoyo a una cooperativa constituida por 90 socios de la agricultura familiar con el objetivo de promover el fortalecimiento del cultivo de algodón agroecológico en la zona y entre sus asociados para mejorar los ingresos de los agricultores familiares.

El PN se enfocará en la promoción de la adopción de prácticas de producción y gestión sostenibles. Con esta finalidad propone la creación de una minicentral de transformación de algodón agroecológico que acopie y procese el algodón de los asociados y de productores del entorno productivo.

Se capacitará en buenas prácticas de gestión adecuadas en la minifábrica garantizando que tenga acceso a ella el mayor número posible de agricultores. Se estimó que la mini fábrica irá ampliando su capacidad de procesamiento de algodón y aumentando la escala de producción, optimizando su coste de explotación, incrementando su potencial de servicio al mercado y logrando su sostenibilidad.

Se capacitará en gestión de negocios responsables (RBA) mediante asesoramiento técnico especializado, en particular fomentando una mayor participación de las mujeres y los jóvenes. En ese sentido, se aplicará una estrategia para reforzar la estructura institucional y comercial del -RBA- y llevar a cabo medidas sostenibles eficaces para reducir los efectos

medioambientales y climáticos que interfieren en la producción de algodón y otros cultivos intercalados.

Con estos objetivos se espera poder ampliar y mejorar la generación de mano de obra e ingresos de las familias beneficiarias.

La puesta en marcha de la minifábrica contribuirá a aumentar el volumen de algodón a procesar, por lo que será la principal herramienta que determinará el potencial de expansión de la actividad en la región.

Las inversiones para la mejora de la infraestructura de transformación y el valor agregado se centrarán en la instalación de un mini molino compuesto por una desmotadora y una prensa que permitirá controlar la planificación de la actividad, tanto en el campo como en el proceso de transformación, mejorando así los servicios ofrecidos a los socios.

También permitirá controlar todas las etapas del proceso de transformación, desde el transporte de las ramas hasta el almacenamiento de la pelusa, garantizando así la calidad del producto final y una mejora en la remuneración del mismo (precio).

Un mejor control de la producción de semilla de algodón ayudará a los agricultores a obtener ingresos directos e indirectos de su utilización, ya sea vendiéndola o utilizándola como semilla. El PN contribuirá a la planificación del uso y mantenimiento de la minicentral, así como a la identificación de herramientas (software) que ayuden a llevar a cabo las actividades previstas de manera profesional.

El PN llevará a cabo las siguientes inversiones para poder cumplir con los objetivos planteados, comenzando con la mejora del espacio físico para poder almacenar en condiciones y transformar el algodón con la compra de una desmotadora y prensa, un kit de herramientas para el mantenimiento, la adquisición de paletas de plástico para zonas de almacenamiento (1,0 x 1,2 m), un kit de EPI (gafas, protectores auditivos, casco, mascarilla, etc.), un kit informático (computadora, impresora, proyector y pantalla), juego de muebles de oficina (mesa, sillas, archivador, armario), una balanza digital con capacidad para 200 kg, un medidor de humedad para el algodón, el desarrollo de un sitio web y de las redes sociales para la promoción y comercialización, así como la creación de un fondo para la mejora de maquinaria y herramientas agrícolas de los asociados.

Se ha estimado que la inversión total será de aproximadamente R\$ 355.607 equivalente a USD 71.121, generando los siguientes indicadores de impacto:

Retorno del trabajo Familiar	1,173
Discount rate	0.1200
NPV @ 0.12	757,407
IRR	85%
NPVb	5,058,359
NPVc	4,300,952
B/C ratio	1.18

Se ha realizado un cálculo que estimó que los ingresos anuales de las familias beneficiarias del PN se incrementarán aproximadamente en R\$ 2.477.

**Modelo VII -PN- “Apicultura Sostenible”** contempla el apoyo a una cooperativa constituida por 81 socios de la agricultura familiar con el objetivo de promover el fortalecimiento de la cadena productiva apícola en la zona de cobertura del Proyecto y de esta manera mejorar los ingresos de los apicultores mediante la adopción de prácticas sostenibles de producción y manejo. Se busca garantizar que las operaciones de la cooperativa cumplan con toda la normativa sanitaria, garantizando la legalidad y calidad de la miel que comercializa.

El PN promocionará la introducción de acciones innovadoras en la cadena apícola, con la instalación de una mielera móvil. Se plantea incrementar la absorción de más miel de los cooperativistas y productores cercanos para incrementar la escala de producción y procesamiento, y de esta manera poder optimizar sus costes de explotación, aumentando sus ventas y ampliando el mercado. Con esta estrategia se espera conseguir la sostenibilidad de la cooperativa.

El asesoramiento técnico especializado se realizará para todos los cooperativistas interesados, especialmente mujeres y jóvenes que deseen llevar a cabo la profesionalización para la gestión de la cooperativa en todas sus dimensiones y así fortalecer a la cooperativa institucional y comercialmente.

Todo el desarrollo del negocio se realizaría aplicando medidas sostenibles eficaces para reducir los efectos medioambientales y climáticos que interfieren en la producción apícola. De esta manera se plantea poder ampliar y mejorar la generación de mano de obra e ingresos de los asociados.

El PN busca mejorar y facilitar el acceso a volúmenes significativos de miel de calidad, cuya extracción esté garantizada en apiarios regulados. La mayor parte de la miel es producida por pequeños apicultores que no disponen de medios para recorrer largas distancias para extraer la miel en estructuras adecuadas, ni siquiera para invertir en tales estructuras.

Se elaborará un diagnóstico para identificar los principales problemas relacionados con la transformación primaria de la miel y se propondrá un plan a corto y medio plazo para reducir los problemas e impactos en la cadena de producción (abandono de la actividad, bajos precios, fuerte implicación de intermediarios, baja calidad, etc.) y, en consecuencia, aumentar el flujo de mayores volúmenes de miel a través del almacén de la cooperativa.

La propuesta del PN se relaciona con la mejora de la infraestructura de transformación y la adición de valor mediante el fraccionamiento y la mejora de la presentación del producto. La instalación de una mielera móvil con equipos de extracción que cumplan las normas sanitarias tiene importantes ventajas sobre el modelo tradicional, entre ellas una menor inversión inicial, menor complejidad y tiempo de puesta en marcha y no requerir

documentación del terreno al no tratarse de un edificio fijo, sino de un equipo que puede trasladarse a otro lugar.

Invertir en equipos para producir cera de panal dará a los apicultores acceso a este importante insumo de producción a un precio muy inferior al del mercado. Se mejorará el control de calidad de la miel invirtiendo en instrumentos y reactivos, modernizando el laboratorio del almacén y contribuyendo a que los análisis sean más fiables.

Se estima llevar adelante las siguientes inversiones para poder cumplir con los objetivos del PN las cuales se basan en financiar la construcción de base de mampostería con tejado (10 x 10 m), la compra de dos cisterna de mampostería de 16.000 litros (conectada al tejado), la instalación en el almacén de la unidad de extracción de miel formada por dos contenedores acoplados, cada uno de 6x2,44x2,59 m con paredes internas revestidas; conexiones hidráulicas y eléctricas; depósito de agua; tabiques internos, la compra de 30 baldes para miel de acero inoxidable de 25 kg, dos (2) centrifugadora eléctrica 32/48 cuadros, dos mesa de descascarillado con 48 bastidores, dos tamices para decantador 350 kg, dos tamices para baldes de acero inoxidable de 25 kg, dos decantadores de 350 kg, compra de alfombrilla sanitaria, equipo para procesar la miel en el almacén, kits de papel, dispensador de jabón líquido y cubo de basura, kit informático (2 computadoras portátiles y una impresora).

Asimismo, se financiará la compra de kits de instrumentos para el laboratorio de control de calidad que es fundamental para e control y la mejora del producto, dos fundidores de cera eléctrico de acero inoxidable, una laminadora, un cilindro eléctrico de panal y un aire acondicionado para la casa de la miel.

Para el desarrollo comercial se plantea invertir en la una página web y promoción de las actividades mediante el uno de redes sociales para la comercialización. Se ha estimado que la inversión total será de aproximadamente R\$ 440.085 equivalente a USD 88.017, generando los siguientes indicadores de impacto:

Retorno del trabajo Familiar	2,668
Discount rate	12%
NPV @ 0.12	387,957.09
IRR	38%
NPVb	2,761,676
NPVc	2,054,069
B/C ratio	1.34

Se ha realizado un cálculo que estimó que los ingresos anuales de las familias beneficiarias del PN se incrementarán aproximadamente en R\$ 1.970.

Si bien la descripción de estos modelos hipotéticos se han descriptos en detalle mediante el presente apartado, con el objetivo de profundizar la comprensión de los mismos, junto al presente documento se envía el anexo IV “EFA\_PROCASEII\_2024.xls” en el cual se encuentran

los cálculos de todos los flujos de caja, incrementos en productividad y/o precio y sus respectivos indicadores. A modo de resumen y subrayando la importancia de visualizar los beneficios en los usuarios del Proyecto mediante el cuadro 5 se resumen los beneficios socioeconómicos claves para la mejora de la calidad de vida de los agricultores familiares en el ámbito rural Parabaiense:

**Cuadro 5: Resumen de los Beneficios Socioeconómicos de los siete (7) Modelos de PIR y PN**

Modelos	Beneficio neto (R\$)				Ingreso neto familiar (R\$)				TIRf	VANf (R\$)
	SP	CP	Dif	%	SP	CP	Dif	%	%	%
Horticultura y Fruticultura Bajo Riego	(154,830)	451,033	605,862	<b>391%</b>	9,980	16,711	6,732	<b>67%</b>	<b>68%</b>	2,064,283
Crianza de Cabras en Sistema Agroforestal	127,940	747,877	619,937	<b>485%</b>	3,227	12,860	9,633	<b>298%</b>	<b>29%</b>	1,146,461
Avicultura Campera con SAF forrajero	106,880	798,250	691,370	<b>647%</b>	1,188	11,029	9,842	<b>829%</b>	<b>31%</b>	1,108,249
Bovino para Leche con SAF Forrajero	(1,246,752)	2,271,557	3,518,309	<b>282%</b>	7,747	25,240	17,492	<b>226%</b>	<b>46%</b>	3,715,431
Caprinos para leche con SAF Forrajero	2,875,060	2,064,732	(810,328)	<b>28%</b>	31,945	40,941	8,996	<b>28%</b>	<b>42%</b>	2,084,791
Algodón Agroecológico	-	207,750	207,750	<b>S/D</b>	-	2,477	2,477	<b>S/D</b>	<b>85%</b>	757,407
Apicultura	56,573	214,671	158,098	<b>279%</b>	698	2,668	1,970	<b>282%</b>	<b>38%</b>	387,957

Para la realización del flujo económico del Proyecto, en primera instancia, se aplican los coeficientes de corrección descriptos en el apartado metodológico para adaptar los modelos financieros a los precios económicos para continuar con su análisis.

En segunda instancia se trabaja sobre un supuesto de combinación posible de número de PIR y PN que serían financiados por el Proyecto, con base en la representatividad de cada una de las actividades principales desarrolladas en la región de intervención y el perfil de beneficiario y presupuesto total disponible. Es fundamental asegurándose de que los números de los planes a ejecutar y de beneficiarios son equivalentes a la meta correspondiente a la matriz de resultados.

Una vez estimada la proporción de cada modelo, se realiza una suposición sobre el período de ingreso de los beneficiarios al proyecto, ya que el flujo de fondos de cada PIR o PN comenzará a generar su impacto en el flujo agregado a partir del año en el cual se realice dicho ingreso.

No resulta equivalente el ingreso de un PIR al año 2 de inicio del proyecto, ya que el mismo, analizado a un horizonte de 20 años, generaría beneficios durante 18 años. Eso impactaría diferente si el PIR o PN ingresara al proyecto durante el año 6 ya que para los cálculos sus beneficios incrementales impactarían solo durante 14 años.

En el siguiente cuadro 6 se ilustra el ingreso estimado en el cálculo de los potenciales

beneficiarios del proyecto. Es fundamental la coherencia entre el año de ingreso de los beneficiarios al proyecto y la disponibilidad presupuestaria del ciclo financiero/presupuestario que se encuentra en el presupuesto del Proyecto

**Cuadro 6: Simulación de portafolio del proyecto**

Ingreso de Beneficiarios									
	Año 1	Año 2	Año 3	Año 4	Año 5	Año 6	Total Modelos	Total Ben/Mod	Total Ben
Horticultura y Fruticultura Bajo Riego	0	0	5	18	17	5	45	90	4050
Crianza de Cabras en Sistema Agroforestal	0	0	8	17	18	7	50	90	4500
Avicultura Campera con SAF forrajero	0	0	7	18	17	8	50	90	4500
Bovino para Leche con SAF Forrajero	0	0	3	5	5	2	15	90	1350
Caprinos para leche con SAF Forrajero	0	0	7	12	13	8	40	90	3600
Algodón Agroecológico	0	0	1	5	10	4	20	90	1800
Apicultura	0	0	4	10	20	6	40	81	3240
<b>Totales</b>	<b>0</b>	<b>0</b>	<b>35</b>	<b>85</b>	<b>100</b>	<b>40</b>	<b>260</b>		<b>23040</b>

Una vez considerado el ingreso de los beneficiarios por modelo y por año, se debe aplicar la tasa de adopción tecnológica, la cual indica la expectativa de que efectivamente los PIR y/o PN sean adoptados por la población objetivo beneficiaria del Proyecto.

En el cuadro 7 se observan los modelos que se han estimado que efectivamente generarán beneficio a partir de la tasa de adopción utilizada (67%). Las inversiones de los PIR y PN que finalmente no adopten las tecnologías promocionadas se incluirán en el flujo de caja del proyecto en la línea de costos sin adicionar beneficios al flujo de fondos del proyecto.

En el cuadro 7 se observa los PIR y PN que efectivamente han impactado en el flujo agregado de beneficios, luego de aplicada la tasa de adopción de 67%.

**Cuadro 7: Portfolio con tasa de adopción aplicada (67%)**

BENEFICIARIOS, TASAS DE ADOPCIÓN Y FASES de INGRESO								Tasa de Adopción
	PY1	PY2	PY3	PY4	PY5	PY6	Total	67%
Horticultura y Fruticultura Bajo Riego	0	0	5	18	17	5	45	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>12</i>	<i>11</i>	<i>3</i>	<i>30</i>	67%
Crianza de Cabras en Sistema Agroforestal	0	0	8	17	18	7	50	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>5</i>	<i>11</i>	<i>12</i>	<i>5</i>	<i>34</i>	67%
Avicultura Campera con SAF forrajero	0	0	7	18	17	8	50	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>5</i>	<i>12</i>	<i>11</i>	<i>5</i>	<i>34</i>	67%
Bovino para Leche con SAF Forrajero	0	0	3	5	5	2	15	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>3</i>	<i>1</i>	<i>10</i>	67%
Caprinos para leche con SAF Forrajero	0	0	7	12	13	8	40	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>5</i>	<i>8</i>	<i>9</i>	<i>5</i>	<i>27</i>	67%
Algodón Agroecológico	0	0	1	5	10	4	20	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>7</i>	<i>3</i>	<i>13</i>	67%
Apicultura	0	0	4	10	20	6	40	
<i>Ajustado (tasa de adopción)</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>7</i>	<i>13</i>	<i>4</i>	<i>27</i>	67%

Posteriormente, con los flujos ya convertido a precios económicos, se multiplican la cantidad de modelos por año neto de ingreso por los flujos de beneficios netos incrementales de cada modelo a lo largo de la vida útil del proyecto. Se adicionan los agregados de cada modelo y se obtiene el flujo de beneficios de la modelación que se debe proyectar a veinte 20 años.

A este flujo de Beneficios se le deberá restar el flujo de costos económicos totales del proyecto para obtener el flujo neto incremental del Proyecto.

En los costos económicos debieron incluir todas las acciones de asistencia técnica no incorporados en los PN y PIR , los costos de los PN y PIR que no adopten las tecnologías propuestas, las actividades de fortalecimiento de capacidades de los agricultores y de sus organizaciones para la mejora comercial, las actividades para el apoyo de la diversidad de género, nutrición y seguridad alimentaria, tareas para la regularización de tierras y ambiental, la gestión de conocimiento y la cooperación Sur-Sur y triangular, que son los costos/inversiones del componente II. En el mismo sentido se debe adicionar al flujo de costos todos aquellos gastos operativos y recurrentes del componente III que son necesarios para la correcta ejecución del proyecto, con la finalidad de ser efectivo y eficiente.

En este punto, nos encontramos con un flujo de beneficios monetarios del proyecto provenientes de los PIR y os PN a los cuales se les debe adicionar los beneficios sociales y ambientales relativos al balance de carbono de las actividades que se han podido monetizar. Respecto al flujo de costos totales económicos se le debe realizar un cálculo para su proyección a 20 años con el objeto de mantener la sostenibilidad de las inversiones llevadas adelante. Una vez consolidados los flujos, se realiza la operación para obtener el beneficio incremental mediante el cual se obtienen los indicadores de resultados finales, que deberán servir para la toma de decisiones de los organismos financiadores y/o del Gobierno beneficiario de los préstamos.

## **COSTOS DEL PROYECTO**

En este apartado se sintetizan los principales supuestos, hipótesis y resultados de las estimaciones de costos del Proyecto de Desarrollo Rural Sostenible de Paraíba, así como el plan de financiamiento para el período de implementación que se ha estimado en seis (6) años. La información presentada ha sido elaborada mediante la utilización del software COSTAB.

Los datos de costos fueron validados a partir de documentos elaborados durante el diseño del Proyecto como ser el Marco Lógico y la Matriz de Resultados y las consultas específicas al equipo de PROCASE I que ha acompañado en las misiones a los equipos del FIDA y del BID.

Principales supuestos e hipótesis

**Duración del Proyecto.** La duración del proyecto se ha planeado a seis (6) años, previendo su inicio para 1 de junio de 2025 y finalizando, en consecuencia, el 30 mayo de 2031.

**Cofinanciamiento.** El valor total del Proyecto consiste en un préstamo del Fondo



Internacional de Desarrollo Agrícola (FIDA) por un monto total de USD 10 millones de dólares estadounidenses y un préstamo del Banco Interamericano de Desarrollo (BID) equivalente a USD 70 millones, sumando en total USD 80 millones como financiamiento externo (76 % de los costos totales). El Gobierno del Estado de Paraíba contribuirá con recursos propios por un valor de USD 25 millones de dólares estadounidenses que representan el 24% de los costos totales para la realización del presente Proyecto.

**Tasa de cambio.** La tasa de cambio proyectada para la estimación de costos fue de R\$ 5,00/USD 1,00, valor en conformidad con la variación media de cambio actual propuesta por el Banco Central de Brasil, según el Informe de Mercado Focus (Abr/24).

**Contingencias de precios.** La contingencia de precios no se llevó a cabo para la operación, ya que el principal agente financiador (BID) informó que no utiliza esta metodología para la provisión de recursos ante el riesgo de inversión a los cambios en los precios a lo largo del tiempo.

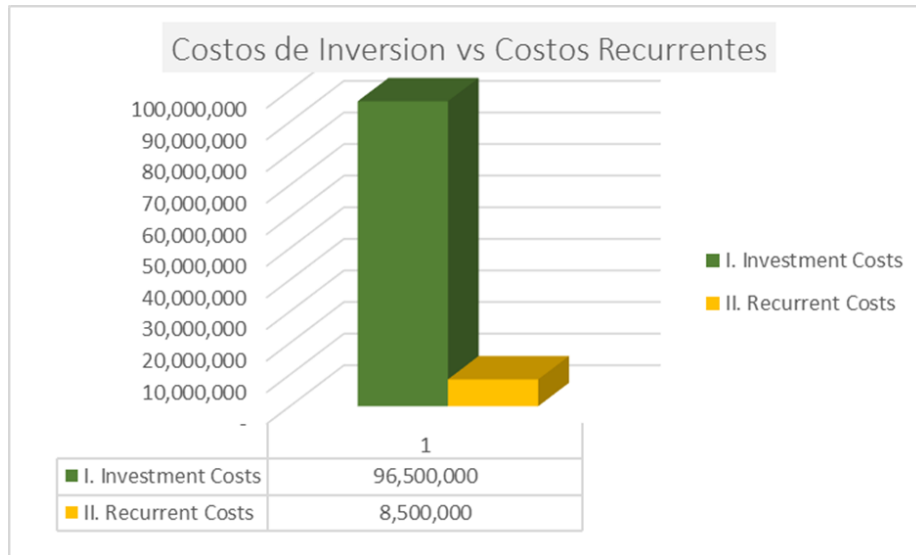
**Costos unitarios.** La estimación de costos unitarios se basa en las actividades de recolección de datos realizadas por el equipo del FIDA y el BID durante las misiones de diseño con la colaboración del equipo del proyecto PROCASE I para elaborar las hojas de cálculo iniciales y alimentar el software COSTAB. También se utilizó como referencia el marco lógico del proyecto y documentos complementarios.

**Impuestos y tarifas.** Los costos se presentan con todos los impuestos incluidos según las referencias disponibles y en el cálculo se incorporaron diferentes tasas, tarifas e impuestos que eventualmente inciden sobre las actividades financiadas por el Proyecto dentro de Brasil.

Resumen de las principales tablas de costos del proyecto.

**Costos Totales.** El costo total del proyecto para un período de implementación de seis (6) años se calculó en USD 105 millones de costo base. Los costos de inversión ascienden a un total USD 96,5 millones (91.9% del total de Recursos), mientras que los costos recurrentes en salarios y costos operativos son equivalentes a USD 8,5 millones. (8,1 %). En el Grafico I se observa la proporción de forma ilustrativa:

**Gráfico I. Costos de Inversión vs Costos Recurrentes**



**Costos por componente.** El Proyecto Desarrollo Rural Sostenible de Paraíba -PROCASE II- se estructura mediante 2 componentes de inversión y un componente para la gestión, seguimiento y evaluación del proyecto. El Componente I: Sistemas productivos resilientes para reducir la pobreza rural tiene un valor calculado de USD 63,416 millones (60,4 % de los costos totales). El Componente II: Fortalecimiento organizacional y de capacidades y gestión del conocimiento cuenta con aproximadamente USD 31,3 millones que representa el 29.8 % de los costos totales presupuestados. Los costos del Componente III, “Gestión, seguimiento y evaluación del proyecto” se estimaron en USD 10,2 millones (9,8 % de los costos totales) como se observa en la Tabla 1.

**Tabla 1. Costos totales por Componente en divisa estadounidenses (USD) y en moneda local (R\$)**

Brasil		Total (R\$)	Total (USD)	%
Projeto para el Desarrollo Rural Sustentable de Paraiba				
<b>Components Project Cost Summary</b>				
1. Sistemas productivos resilientes para reducir la pobreza rural		317,080,000	63,416,000	<b>60.4%</b>
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento		156,514,000	31,302,800	<b>29.8%</b>
3. Gestión, seguimiento y evaluación del proyecto		51,406,000	10,281,200	<b>9.8%</b>
<b>Total BASELINE COSTS</b>		<b>525,000,000</b>	<b>105,000,000</b>	<b>100.0%</b>
Physical Contingencies		-	-	<b>0%</b>
Price Contingencies		-	-	<b>0%</b>
<b>Total PROJECT COSTS</b>		<b>525,000,000</b>	<b>105,000,000</b>	<b>100%</b>

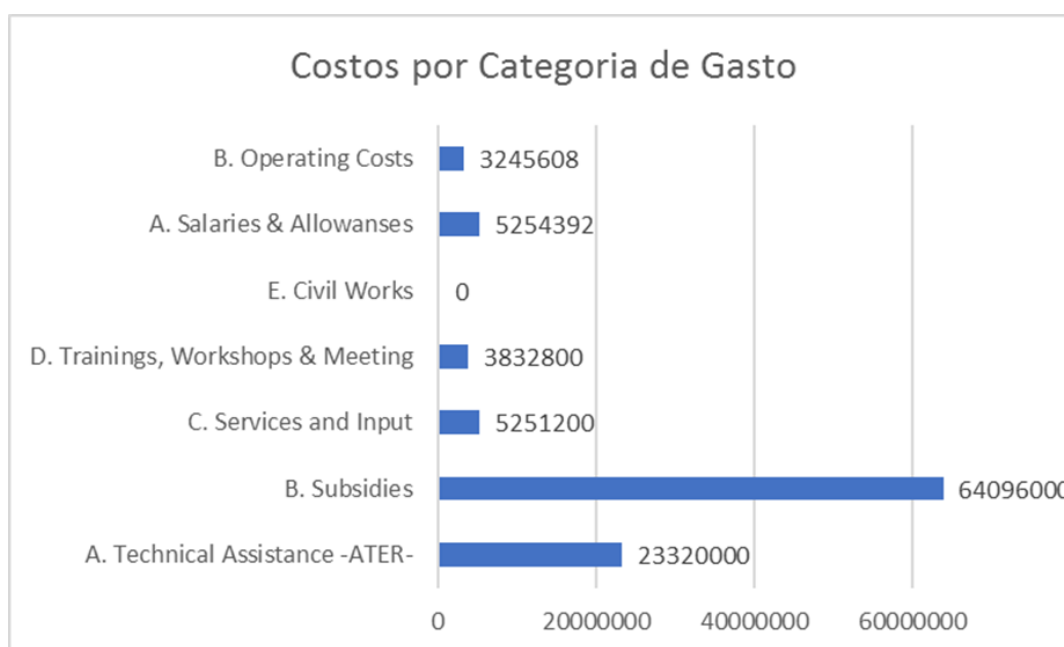
**Costos por categoría de gastos.** Los costos detallados del proyecto fueron clasificados mediante las categorías de gasto recomendadas por el área financiera del FIDA las cuales se enumeran a continuación: (i) Asistencia Técnica -ATER-, (ii) Subsidios, Insumos y Servicios, (iii) Capacitación, talleres y reuniones, y (iv) Obras Civiles; estas categorías se utilizaron para detallar los costos de inversión y (v) Salarios y (vi) costos operativos para los costos recurrentes. En la tabla 2 se puntualizan los costes del proyecto por componente y categoría de gasto:

**Tabla 2. Costos totales por Componente y Categoría de Gasto (USD)**

Expenditure Accounts by Components (u\$d)	1. Sistemas productivos resilientes para reducir la pobreza rural	%	2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	%	3. Gestión, seguimiento y evaluación del proyecto	%	Total	%
<b>I. Investment Costs</b>								
A. Technical Assistance -ATER-	120,000	0.5%	23,200,000	99.5%	-	0.0%	23,320,000	22.2%
B. Subsidies	63,296,000	98.8%	800,000	1.2%	-	0.0%	64,096,000	61.0%
C. Services and Input	-	0.0%	3,920,000	74.6%	1,331,200	25.4%	5,251,200	5.0%
D. Trainings, Workshops & Meetings	-	0.0%	3,382,800	88.3%	450,000	11.7%	3,832,800	3.7%
E. Civil Works	-	-	-	-	-	-	-	-
<b>Total Investment Costs</b>	<b>63,416,000</b>	<b>65.7%</b>	<b>31,302,800</b>	<b>32.4%</b>	<b>1,781,200</b>	<b>1.8%</b>	<b>96,500,000</b>	<b>91.9%</b>
<b>II. Recurrent Costs</b>								
A. Salaries & Allowances	-	-	-	-	5,254,392	100.0%	5,254,392	5.0%
B. Operating Costs	-	-	-	-	3,245,608	100.0%	3,245,608	3.1%
<b>Total Recurrent Costs</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8,500,000</b>	<b>100.0%</b>	<b>8,500,000</b>	<b>8.1%</b>
<b>Total BASELINE COSTS</b>	<b>63,416,000</b>	<b>60.4%</b>	<b>31,302,800</b>	<b>29.8%</b>	<b>10,281,200</b>	<b>9.8%</b>	<b>105,000,000</b>	<b>100.0%</b>
Physical Contingencies	-	-	-	-	-	-	-	-
<b>Price Contingencies</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Subtotal Inflation</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Devaluation	-	-	-	-	-	-	-	-
Subtotal Price Contingencies	-	-	-	-	-	-	-	-
<b>Total PROJECT COSTS</b>	<b>63,416,000</b>	<b>60.4%</b>	<b>31,302,800</b>	<b>30%</b>	<b>10,281,200</b>	<b>9.8%</b>	<b>105,000,000</b>	<b>100.0%</b>

Los costos totales se han categorizado como grafica la Tabla 2 donde se observa que el 22,2% de ellos se destinará a la inversión en Asistencia Técnica -ATER-, el 61% en Subsidios (PIR y PN), el 5 % en Insumos y Servicios y el 3,7% en Capacitación, talleres y reuniones. No se invertirá en Obras Civiles en el marco de los costos de inversión planificados. Respecto a los costos recurrentes los salarios representan el 5% y los costos operativos un 3,1% del total de los gastos, totalizando un 8,1% del total. El Grafico II ilustra esta descripción:

**Gráfico II. Costos Totales del proyecto por Categoría de Gasto (USD).**



La ejecución del presupuesto presenta una forma acampanada para sus seis (6) años planificados, en los cuales durante el año 1 se planea ejecutar solo el 2% del presupuesto, incrementándose levemente hasta un 5% para el año dos (2), pasando una alta demanda del 21% al año de tres (3) de iniciada la actividad del proyecto, para alcanzar durante el año cuatro (4) su máxima demanda de fondos y pico de ejecución con USD 36,2 millones que representan el 34% del presupuesto total.

Para el año cinco la demanda se reduce y se estima será del 25% de los fondos para llegar al año seis (6) con la necesidad presupuestaria de USD 12,663 millones (12%) para realizar las últimas actividades de inversión y el cierre del proyecto. En la tabla 3 se observan las demandas de fondo por año y componente.

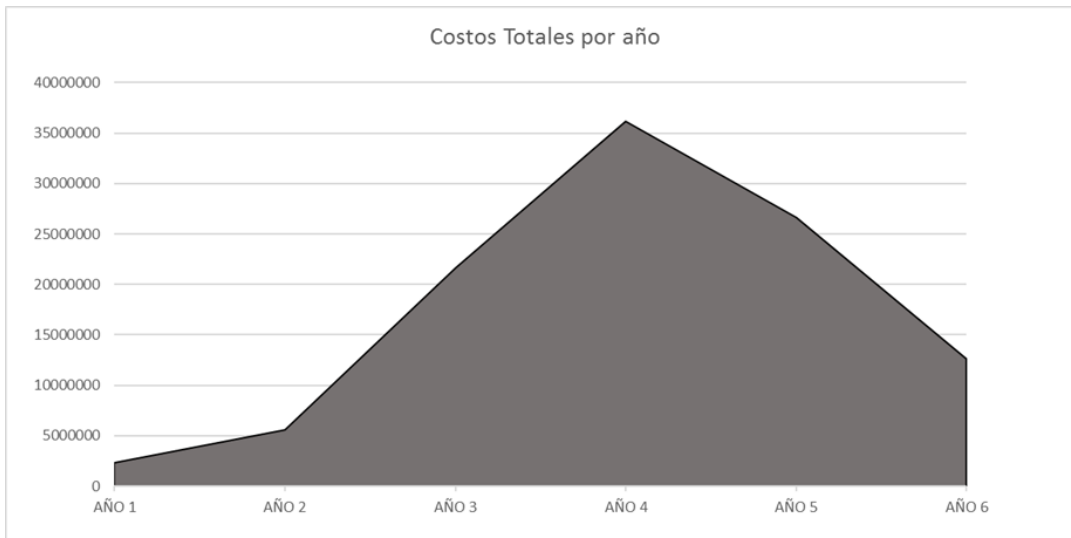
**Tabla 3. Costos totales por Componente y año de implementación (USD)**

Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (u\$d)												
	AÑO 1	%	AÑO 2	%	AÑO 3	%	AÑO 4	%	AÑO 5	%	AÑO 6	%	Total
1. Sistemas productivos resilientes para reducir la pobreza rural	-	0%	40,000	0%	9,242,400	15%	21,695,600	34%	23,025,600	36%	9,412,400	15%	63,416,000
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	222,500	1%	4,348,800	14%	10,770,000	34%	12,650,000	40%	1,916,000	6%	1,395,500	4%	31,302,800
3. Gestión, seguimiento y evaluación del proyecto	2,131,204	21%	1,163,996	11%	1,610,000	16%	1,860,000	18%	1,660,000	16%	1,856,000	18%	10,281,200
<b>Total PROJECT COSTS</b>	<b>2,353,704</b>	<b>2%</b>	<b>5,552,796</b>	<b>5%</b>	<b>21,622,400</b>	<b>21%</b>	<b>36,205,600</b>	<b>34%</b>	<b>26,601,600</b>	<b>25%</b>	<b>12,663,900</b>	<b>12%</b>	<b>105,000,000</b>

En el Grafico III se ilustra la curva de la demanda de fondos del Proyecto, mostrando gráficamente su forma de “campana”, llegando al pico de demanda para el año cuatro (4), comenzando durante los primeros años con necesidades menores, cambiado la pendiente al año tres (3), llegando al pico al año cuatro (4) donde cambia la tendencia y comienza la reducción de demanda de fondos, aunque permanece muy elevada durante el año cinco (5) y desciende para el año seis (6).

Para una eficaz y eficiente ejecución de las actividades del proyecto, es fundamental que los organismos financiadores y el Gobierno de Paraíba tomen las medidas necesarias para poder atender esas demandas respecto a los techos presupuestarios y los topes máximos para los adelantos de fondos.

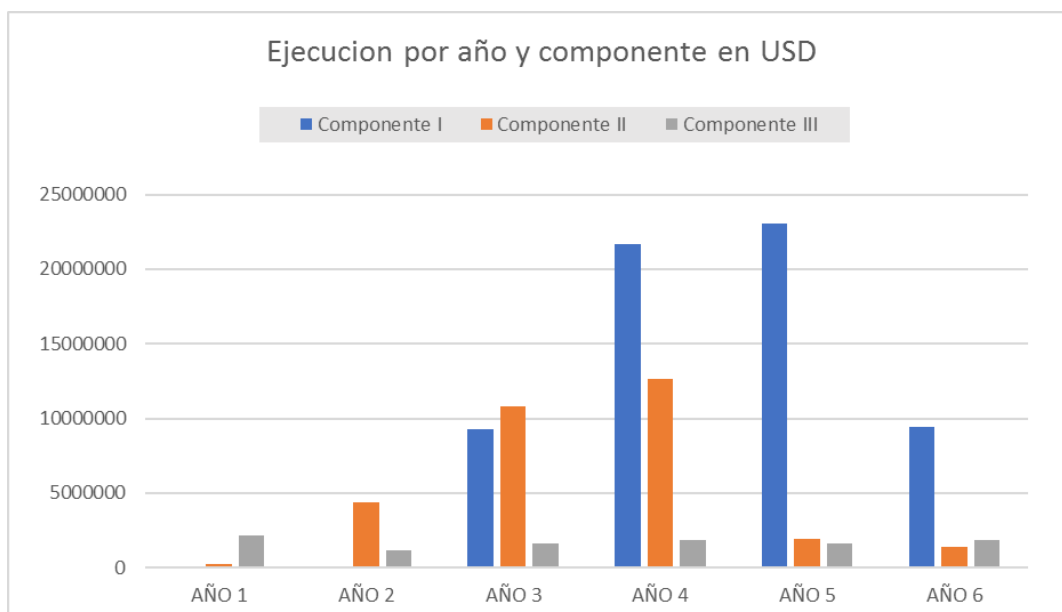
**Gráfico III. Curva de ejecución por año de implementación**



En el Grafico IV se ilustra la demanda de fondos del proyecto desagregada por año y por componente, dejando en claro los diferentes periodos de solicitudes que presenta cada componente para cumplimentar con sus objetivos específicos y poder cumplir con el objetivo general del proyecto.

El componente 3, presenta su máxima demanda al año uno (1), destinada a la compra de equipamiento, estudios de base y puesta en marcha del proyecto y luego una demanda homogénea a lo largo del proyecto; el componente 2 congruente con sus objetivos de mejoras en las capacidades de los beneficiarios y sus organizaciones, incrementa proporcionalmente desde el año uno al año cuatro donde se reduce su demanda; y, finalmente las barras del componente 1 ilustran que la totalidad de sus fondos destinados a la inversión productiva y a la mejora comercial mediante los PNs y los PIRs y al apoyo en innovación de tecnologías, comienza su ejecución recién al año tres (3), con las capacidades de los beneficiarios fortalecidas e incrementa sus demandas hasta el año cinco(5) inclusive, colocando fondos durante el último año del proyecto inclusive.

**Gráfico IV. Costos por año por componente**



**Plan de financiamiento.** El Proyecto Desarrollo Rural Sostenible de Paraíba será financiado mediante un préstamo del BID, por el valor de USD 70 millones (66,7 % de los costos totales); un préstamo del FIDA, por el valor de USD 10 millones (9,5 % de los costos totales) y un aporte del Gobierno de Paraíba equivalente a USD 25 millones (23,8%).

El plan de financiamiento fue elaborado según lo acordado entre los representantes de los organismos financiadores, de modo que los recursos se distribuyan de manera proporcional entre los tres (3) componentes según participación de cada financiador sobre el valor total del Proyecto. La distribución de recursos para cada componente resultó la siguiente:

**Tabla 4. Distribución de recursos por componente según organismo financiador. (USD)**

Components by Financiers (u\$d)	Fida		BID		Governo do Estado do Paraiba		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
	1. Sistemas productivos resilientes para reducir la pobreza rural	6,024,520	9.5	42,235,056	66.6	15,156,424	23.9	63,416,000
2. Fortalecimiento organizacional y de capacidades y gestión del conocimiento	2,973,766	9.5	20,847,665	66.6	7,481,369	23.9	31,302,800	29.8
3. Gestión, seguimiento y evaluación del proyecto	1,001,714	9.7	6,917,280	67.3	2,362,207	23.0	10,281,200	9.8
<b>Total PROJECT COSTS</b>	10,000,000	9.5	70,000,000	66.7	25,000,000	23.8	105,000,000	100.0

En la Tabla 5 se desagregan los aportes de cada organismo financiador del proyecto según las categorías de gasto estipuladas, donde se observan la proporcionalidad en todas las categorías.

**Tabla 5. Costos del proyecto por categoría de gasto y organismo financiador (dólares).**

Expenditure Accounts by Financiers (u\$d)	Fida		BID		Governo do Estado do Paraiba		Total	
	Monto	%	Monto	%	Monto	%	Monto	%
	<b>I. Investment Costs</b>							
A. Technical Assistance -ATER-	2,215,400	9.5	15,531,120	66.6	5,573,480	23.9	23,320,000	22.2
B. Subsidies	6,089,120	9.5	42,687,936	66.6	15,318,944	23.9	64,096,000	61.0
C. Services and Input	498,864	9.5	3,497,299	66.6	1,255,037	23.9	5,251,200	5.0
D. Trainings, Workshops & Meeting	364,116	9.5	2,552,645	66.6	916,039	23.9	3,832,800	3.7
E. Civil Works	-	-	-	-	-	-	-	-
<b>Total Investment Costs</b>	9,167,500	9.5	64,269,000	66.6	23,063,500	23.9	96,500,000	91.9
<b>II. Recurrent Costs</b>								
A. Salaries & Allow ances	481,968	9.2	3,378,850	64.3	1,393,574	26.5	5,254,392	5.0
B. Operating Costs	350,532	10.8	2,352,151	72.5	542,926	16.7	3,245,608	3.1
<b>Total Recurrent Costs</b>	832,500	9.8	5,731,000	67.4	1,936,500	22.8	8,500,000	8.1
<b>Total PROJECT COSTS</b>	10,000,000	9.5	70,000,000	66.7	25,000,000	23.8	105,000,000	100.0

En el anexo de Costos del documento de diseño del Proyecto se encuentran las tablas detalladas que se ilustran los costos de cada uno de los tres (3) Componentes que estructuran el proyecto, donde se describen las líneas de gasto, la demanda por cantidad anual, los precios unitarios en Reales Brasileños y Dólares estadounidenses, los costos totales por año, la categoría de gasto de cada línea y el organismo financiador.

En la estimación de los costos económicos diferenciales del ACB, se han tenido en cuenta los costos que, asociados a la ejecución del Proyecto (Alternativa Con Proyecto), permitirán generar y mantener los beneficios esperados, cuantificados en el Apartado III anterior. Esto implica que se han contemplado tanto los costos

financiados por el Proyecto como los costos de carácter privado que deberán asumir los distintos actores implicados, incluyendo los beneficiarios y también los costos de operación y mantenimiento, posteriores a la ejecución, de los activos y capacidades que serán implementados.

La estimación de costos para el cálculo del ACB se ha realizado en términos de precios de eficiencia o precios sombra, por tanto, habiendo excluido los efectos distorsionadores en los precios de mercado de factores como los impuestos indirectos que gravan los bienes y servicios presupuestados, así como los mismos subsidios asociados a la ejecución del Proyecto.

Es decir, se ha considerado el costo de toda la inversión en el Componente I independientemente de que el 80% de la misma será subsidiada por el Proyecto, e incluyendo el 10% y 20% restantes a cargo de las asociaciones y cooperativas de productores beneficiarias de los PIR y los PN, respectivamente. Por otra parte, a los importes de mercado de bienes y servicios que previsiblemente serán adquiridos por el Proyecto, se les ha deducido como transferencia el 17%, correspondiente al Impuesto sobre Circulación de Mercancías y Servicios (ICMS).

Por otra parte, se han considerado los costos recurrentes anuales asociados a la operación y mantenimiento de la funcionalidad de las inversiones, así como el mantenimiento de los elementos materiales provistos a través de los mecanismos de transferencia financiados por el Proyecto como son las tecnologías productivas y agroecológicas, y las instalaciones y equipos relacionados con el procesamiento de productos agropecuarios.

Todos los costos en insumos, gastos de mantenimiento y operativos de los modelos de los PIRs y los PNs se incluyen en los flujos respectivos analizados y fueron incorporados mediante el análisis de los modelos. En este sentido y con la finalidad de acompañar la sostenibilidad de las acciones apoyadas por el proyecto, se incorporaron al flujo de caja económico del Proyecto a partir del año seis (6) y hasta el año veinte (20) del flujo, los costos de asistencia técnica residual que fue calculado mediante el equivalente al 50% de lo invertido en promedio por cada año durante la ejecución del proyecto. Este monto puede ver reflejado en el anexo II del presente documento dentro del flujo de caja del proyecto.

Todos estos costos recurrentes serán necesarios, posteriormente a la ejecución del Proyecto, para que se mantengan los beneficios diferenciales cuantificados a lo largo del periodo del ACB.

Beneficio económico neto incremental total del Proyecto



Para realizar el cálculo del beneficio neto incremental del Proyecto, se han utilizado los beneficios monetizables de los modelos ilustrativos de los cinco (5) PIR y de los dos (2) PN descriptos financieramente en el apartado ut supra y se ha realizado una extrapolación con el fin de calcular el beneficio total del Proyecto.

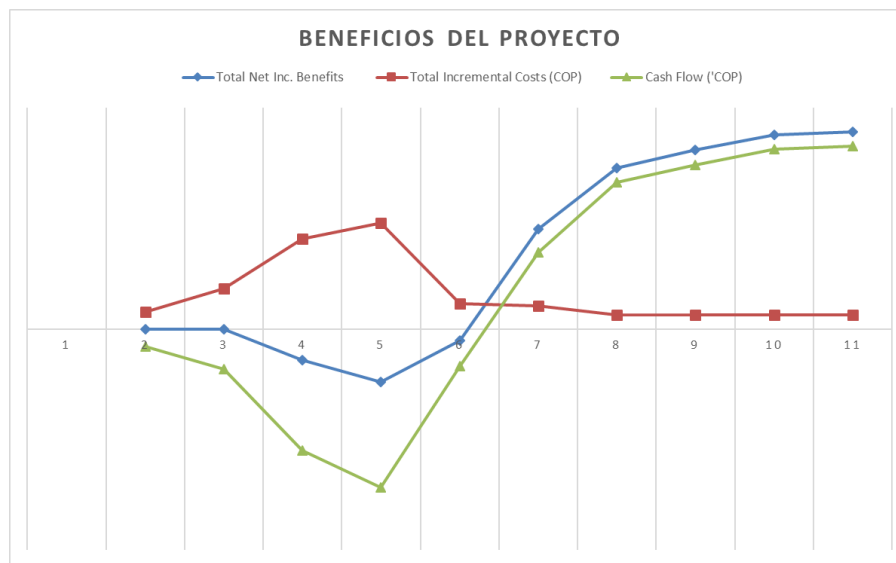
De toda la hipótesis desarrollada mediante el presente ejercicio y sus correspondientes proyecciones descritas anteriormente el Proyecto a resultado con una TIR de un 26,6 %, una VANe de R\$ 262.817.658 equivalente a USD 52.563.531 y un B/C equivalente a 2,5.

## RESULTADOS DE VIABILIDAD SOCIOECONÓMICA

Resultados del conjunto del ACB

Observando los indicadores socioeconómicos se observa claramente que la VANe de R\$ 262.817.658 equivalente a USD 52.563.531 es > 0 y la TIR del Proyecto de 26,6% es holgadamente superior a la tasa de descuento utilizada del 12%. Por tanto, podemos confirmar que el Proyecto es viable desde un punto de vista socioeconómico. En el mismo sentido, la ratio Beneficio/Costo, cociente de los valores actuales de beneficios y costos del Proyecto, es mayor a 1 (uno) e igual a 2,5 para el escenario de carbono a USD 51 /ton CO<sub>2</sub>eq, siendo otro indicador positivo para la evaluación socioeconómica del proyecto. En el Grafico V se observan las curvas de beneficios incrementales y costos económicos del Proyecto.

**Gráfico V Beneficios del Proyecto PROCASE II**



El Grafico V ilustra los beneficios incrementales económicos, los costos económicos y los beneficios totales del proyecto con un horizonte a 20 años. En el siguiente cuadro 8 se

observan los valores que generaron el gráfico citado con los beneficios económicos de los siete (7) modelos y de los servicios ambientales del proyecto.

**Cuadro 8: Flujos de beneficios de los modelos agregados, costos económicos y beneficios incrementales del Proyecto PROCASE II**

E C O N O M I C  A N A L I S I S	NET INCREMENTAL BENEFITS											
	Year	Mod 1	Mod 2	Mod 3	Mod 4	Mod 5	Mod 6	Mod 7	Serv_Amb	Total Net Inc. Benefits	Total Incremental Costs (COP)	Cash Flow ('COP)
PY1	0	0	0	0	0	0	0	0	0	0	11768520	-11768520
PY2	0	0	0	0	0	0	0	0	0	0	27213980	-27213980
PY3	-2222390	-7025479	-4823153	-3250682	-6370352	-131026	-841953	3524213	-21140824	61300000	-82440824	
PY4	-6098107	-12547570	-10190882	-4177113	-7726483	-543352	-1800018	7048425	-36035101	71650000	-107685101	
PY5	1336287	-7655428	-3922010	-1507633	-3160898	-611362	-3075596	10572638	-8024002	16970000	-24994002	
PY6	13741525	15018085	7902424	4581012	9383742	1433726	1621294	14096850	67778658	15617500	52161158	
PY7	18690034	17161611	16910867	9918404	22329087	2687232	3821908	17621063	109140206	9716667	99423539	
PY8	19156306	18324392	18233423	13077797	24260914	2800147	4211977	21145276	121210231	9716667	111493564	
PY9	19251998	19555574	19646886	16245947	25008818	2800147	4298783	24669488	131477641	9716667	121760974	
PY10	19251998	19555536	20840906	17841100	24587454	2800147	4298783	24669488	133845412	9716667	124128746	
	<b>VANe 12% \$R</b>		<b>262,817,658</b>									
	<b>TIRe</b>		<b>26.6%</b>									

## ANÁLISIS DE SENSIBILIDAD

El análisis de sensibilidad ha consistido en repetir las proyecciones del ACB realizando variaciones en determinadas hipótesis o supuestos clave para poder evaluar el potencial impacto de dichas variables en los indicadores respecto a la hipótesis de base.

El análisis de sensibilidad muestra que los indicadores de factibilidad económica del Proyecto son muy sólidos respecto a diferentes variaciones del contexto ya que en ninguno de los casos en los cuales se han realizado variaciones de diferente intensidad de las hipótesis los indicadores se han presentado con VAN negativa y/o con TIR menor a la tasa de descuento utilizada. (12%)

El análisis se ha realizado previendo diferentes riesgos de variables independientes como las reducciones de los beneficios, los incrementos en los costes de producción, los posibles atrasos en la implementación de los PIR y los PN o la baja capacidad de negociación de las OPP para fijar precios justos, o las fluctuaciones de precios “naturales” de mercado y finalmente las variaciones posibles en las tasas de adopción tecnológica por parte de los productores y productoras organizados.

Los indicadores económicos calculados suministran tanto a los organismos financiadores como al Gobierno de Paraíba los valores de referencia necesarios para comparar la inversión en el Proyecto con otras inversiones posibles llevar a cabo.

El presente documento presenta un anexo I con el flujo de fondos agregado de los modelos

y un anexo con el archivo EFA\_PROCASEII\_2024.xls en el cual se incorporan todos los modelos con los detalles de las inversiones, los costos operativos y los precios tanto financieros como económicos.

En el cuadro 9 podemos observar la tabla con los indicadores y sus respectivas variaciones de las hipótesis de escenario base:

**Cuadro 9: Análisis de Sensibilidad del proyecto PROCASE II**

<b>ANALISIS DE SENSIBILIDAD</b>					
<b>Efectos</b>	<b>Δ%</b>	<b>Enlace con la matriz de riesgos</b>	<b>Δ%</b>	<b>IRR</b>	<b>NPV (R\$)</b>
<b>Base escenario</b>				<b>26.6%</b>	<b>262,817,658</b>
Beneficios del Proyecto	-10%	Combinación de riesgos que afectan los beneficios del Proyecto	6%	<b>24.9%</b>	<b>130,859,446</b>
Beneficios del Proyecto	-20%		14%	<b>23.0%</b>	<b>97,259,520</b>
Beneficios del Proyecto	-30%		22%	<b>20.9%</b>	<b>63,659,594</b>
Costos del Proyecto	10%	Aumento de los precios de los costos	4%	<b>25.6%</b>	<b>166,749,820</b>
Costos del Proyecto	20%		11%	<b>23.7%</b>	<b>130,151,395</b>
1 año de atraso		Atrasos en la implementación del Proyecto	14%	<b>23.0%</b>	<b>117,693,693</b>
2 años de atraso			25%	<b>20.0%</b>	<b>75,938,622</b>
Precios de venta	-5%	Baja capacidad de gestión y negociación de los beneficiarios	2%	<b>25.9%</b>	<b>151,019,402</b>
Precios de venta	-10%		6%	<b>25.1%</b>	<b>134,219,439</b>
Precios de insumos	10%	Fluctuaciones de precios de mercado	5%	<b>25.2%</b>	<b>148,677,703</b>
Precios de insumos	20%		10%	<b>23.9%</b>	<b>132,896,033</b>
Tasa de adopcion	-10%	Baja tasa de adopcion de las sluciones tecnologias propuestas	21%	<b>21.09%</b>	<b>142,005,716</b>
Tasa de adopcion	-20%		31%	<b>18.47%</b>	<b>91,856,573</b>

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## ANEXO 1: PRECIOS FINANCIEROS, FC Y ECONOMICOS

A continuación, se presentan los precios financieros y económicos utilizados para el análisis de desarrollado para el presente documento:

Precios	Preços financieros	Factores de conversão	Preços economicos
<b>M1</b>	R\$	R\$	
Venda Alface	R\$ 2.0	1.04	R\$ 2.1
Venda Cebolinha	R\$ 1.8	1.04	R\$ 1.87
Venda Coentro	R\$ 1.8	1.04	R\$ 1.87
Venda Pimentão	R\$ 4.0	1.04	R\$ 4.16
Venda Banana	R\$ 3.5	1.04	R\$ 3.64
Venda Acerola	R\$ 5.0	1.04	R\$ 5.20
<b>M2</b>			
Cabras sem	R\$ 250.0	1.04	R\$ 260.00
Cabras con	R\$ 320.0	1.04	R\$ 332.80
<b>M3</b>			
Frango Caipira	R\$ 45.0	1.04	R\$ 46.80
Ovos	R\$ 16.0	1.04	R\$ 16.64
Galinha caipira descarte	R\$ 27.0	1.04	R\$ 28.08
<b>M4</b>			
Venda de litros de leite	R\$ 2.3	1.04	R\$ 2.39
<b>M5</b>			
Produccion total de leite de cabra del grupo	R\$ 3.59	1.04	R\$ 3.73
			R\$ -
			R\$ -
<b>M6</b>			
Serviço de beneficiamento de algodão	R\$ 350.0	1	R\$ 350.00
Pluma de algodão	R\$ 20.0	1	R\$ 19.95
Anuidade dos sócios	R\$ 100.0	1	R\$ 100.00
<b>M7</b>			
Venda de Mel de abelha em tambor de 300kg	R\$ 3,900.0	1.04	R\$ 4,056.00
Venda Mel de abelha em balde de 25Kg	R\$ 325.0	1.04	R\$ 338.00
Venda Mel de abelha sachê 5g en caixa (120g)	R\$ 288.0	1.04	R\$ 299.52
Venda Mel de abelha bisnaga 300g (29 unid) (9kg)	R\$ 3.9	1.04	R\$ 4.06
Cera alveolada 1kg	R\$ 48.0	1.04	R\$ 49.92
			R\$ -
			R\$ -
<b>Investimentos</b>			
<b>M1</b>			
Piso em concreto com acabamento rústico (5 x 10 m) com sistema	R\$ 500.0	0.93	R\$ 465.00
Estrutura para instalação de caixa d'água 10.000 L c/ 4-5 m de altura	R\$ 6,435.0	0.93	R\$ 5,984.55
Kit irrigação por gotejamento, 500 m2/familia, por gravidade, com	R\$ 1,800.0	0.93	R\$ 1,674.00
Auditora completa	R\$ 15.5	0.93	R\$ 14.42
Implantação de usina/sistema de geração de energia solar fotovoltaica	R\$ 112,325.0	0.93	R\$ 104,462.25
Kit de ferramentas para horticultura composto por: 01 Enxada c/ r	R\$ 565.0	0.93	R\$ 525.45
Caixa d'água 10.000 L	R\$ 4,500.0	0.93	R\$ 4,185.00
Pulverizador costal de 20 L	R\$ 420.0	0.93	R\$ 390.60
Contentores plásticos para transporte de hortaliças	R\$ 39.0	0.93	R\$ 36.27
Reboque para motocicleta	R\$ 2,800.0	0.93	R\$ 2,604.00
Barraca de feira livre desmontável (2,0 x 1,0 m)	R\$ 2,300.0	0.93	R\$ 2,139.00
Moto cultivador	R\$ 6,800.0	0.93	R\$ 6,324.00
<b>M2</b>			
Serviços de preparação de solo	R\$ 990.0	0.93	R\$ 920.70
Motoensiladeira com reboque	R\$ 26,200.0	0.93	R\$ 24,366.00
Triturador	R\$ 6,800.0	0.93	R\$ 6,324.00
Misturador de ração 1000kg	R\$ 12,500.0	0.93	R\$ 11,625.00
Enfardadeira	R\$ 7,000.0	0.93	R\$ 6,510.00
Palma resistente a cochonilha do carmim (1 ha SAF-F)	R\$ 0.5	0.93	R\$ 0.47
Gliricídia (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Leucena (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Moringa (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)	R\$ 300.0	0.93	R\$ 279.00

Cerca com 05 fios de arame (1 ha SAF-F)	R\$	10,000.0	0.93	R\$	9,300.00
Forragem coletiva	R\$	368.0	0.93	R\$	342.24
Cortador Coletivo	R\$	137.0	0.93	R\$	127.41
Palm Spudger Coletivo	R\$	410.0	0.93	R\$	381.30
Piercing coletivo adaptado	R\$	87.0	0.93	R\$	80.91
Viveiro para produção de mudas (coletivo)	R\$	532.0	0.93	R\$	494.76
<b>M3</b>					
Material p/ instalação de aviários rústicos de 4 x 5m = 20 m <sup>2</sup>	R\$	3,109.6	0.93	R\$	2,891.89
Material p/ instalação de pinteiros 2 x 1,5m = 3 m <sup>2</sup>	R\$	820.0	0.93	R\$	762.64
Material p/ instalação do SAF-F	R\$	1,744.9	0.93	R\$	1,622.73
Chocadeira completa 48 ovos	R\$	680.0	0.93	R\$	632.40
Bebedouro infantil (05 litros)	R\$	21.5	0.93	R\$	20.00
Bebedouro automático	R\$	34.0	0.93	R\$	31.62
Comedouro infantil (5 kg)	R\$	25.0	0.93	R\$	23.25
Comedouro tubular (20 kg)	R\$	59.0	0.93	R\$	54.87
Folha de zinco para proteção e aquecimento dos pintos (0,5 x 4,0m)	R\$	65.0	0.93	R\$	60.45
Campanula de alumínio para pintos com haste de sustentação	R\$	75.0	0.93	R\$	69.75
Picador Forrageiro a Diesel 7HP Partida Elétrica	R\$	12,800.0	0.93	R\$	11,904.00
Misturadores Trifásico, Motor 2 CV, Capacidade 500 Kg	R\$	8,500.0	0.93	R\$	7,905.00
Lança chamas	R\$	172.0	0.93	R\$	159.96
Botijão de gás	R\$	235.0	0.93	R\$	218.55
Balanças com capacidade para 150 kg	R\$	900.0	0.93	R\$	837.00
Carreta para moto	R\$	2,400.0	0.93	R\$	2,232.00
kit de informática	R\$	6,000.0	0.93	R\$	5,580.00
Placa indicativa do PIR	R\$	800.0	0.93	R\$	744.00
Aquisição pintos caipiras de 1 dia	R\$	4.0	0.93	R\$	3.72
Vacina Newcastle (Frasco com 1000 doses)	R\$	26.0	0.93	R\$	24.18
Vacina Gumboro (Frasco com 1.000 doses)	R\$	26.0	0.93	R\$	24.18
Diluyente vacina	R\$	26.0	0.93	R\$	24.18
Ração pre-Inicial (saco 40kg)	R\$	130.8	0.93	R\$	121.64
Farelo de Soja (saco 50kg)	R\$	122.5	0.93	R\$	113.93
Milho grão (saco 60kg)	R\$	65.0	0.93	R\$	60.45
Mudas variadas e sementes para a implementação de SAF-F 900 m2	R\$	5.0	0.93	R\$	4.65
<b>M4</b>					
Motoensiladeira com Reboque	R\$	26,200	0.93	R\$	24,366.00
Enfardadeira	R\$	5,650	0.93	R\$	5,254.50
Roçadeira	R\$	2,800	0.93	R\$	2,604.00
Estojo para vacinação	R\$	580	0.93	R\$	539.40
Tanque de Resfriamento de Leite 1.500 litros	R\$	23,000	0.93	R\$	21,390.00
Placa indicativa do PIR	R\$	800	0.93	R\$	744.00
Palma resistente a cochonilha do carmim (1 ha SAF-F)	R\$	0.30	0.93	R\$	0.28
Gliricídia (1 ha SAF-F)	R\$	3.00	0.93	R\$	2.79
Leucena (1 ha SAF-F)	R\$	1.00	0.93	R\$	0.93
Capim elefante -Colmos (1 ha SAF-F)	R\$	0.25	0.93	R\$	0.23
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)	R\$	200	0.93	R\$	186.00
Cerca com 05 fios de arame (1 ha SAF-F)	R\$	10,000	0.93	R\$	9,300.00
Cisternas de produção	R\$	19,800	0.93	R\$	18,414.00
Sistemas de reuso de águas cinzas	R\$	7,425	0.93	R\$	6,905.25
Biodigestor	R\$	14,850.0	0.93	R\$	13,810.50
Viveiro para produção de mudas (coletivo)	R\$	14,850.0	0.93	R\$	13,810.50
<b>M5</b>					
Motoensiladeira com reboque	R\$	26,200.0	0.93	R\$	24,366.00
Triturador	R\$	6,800.0	0.93	R\$	6,324.00
Misturador de ração 1000kg	R\$	12,500.0	0.93	R\$	11,625.00
Enfardadeira	R\$	7,000.0	0.93	R\$	6,510.00
Tanque de resfriamento 1500 litros	R\$	24,000.0	0.93	R\$	22,320.00
Placa indicativa do PIR	R\$	800.0	0.93	R\$	744.00

Palma resistente a cochonilha do carmim (1 ha SAF-F)	R\$ 0.5	0.93	R\$ 0.47
Gliricídia (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Leucena (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Moringa (1 ha SAF-F)	R\$ 4.0	0.93	R\$ 3.72
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)	R\$ 300.0	0.93	R\$ 279.00
Cerca com 05 fios de arame (1 ha SAF-F)	R\$ 10,000.0	0.93	R\$ 9,300.00
Cisternas de produção	R\$ 19,800.0	0.93	R\$ 18,414.00
Sistemas de reuso de águas cinzas	R\$ 7,425.0	0.93	R\$ 6,905.25
Fogão ecoeficiente	R\$ 1,980.0	0.93	R\$ 1,841.40
Biodigestor	R\$ 14,850.0	0.93	R\$ 13,810.50
Viveiro para produção de mudas (coletivo)	R\$ 14,850.0	0.93	R\$ 13,810.50
<b>M6</b>			
Mini usina para beneficiamento de algodão composta máquina de d	R\$ 250,000.0	0.93	R\$ 232,500.00
Kit de ferramentas para manutenção de máquinas	R\$ 1,127.0	0.93	R\$ 1,048.11
Paletes de plástico para áreas de estocagem (1,0 x 1,2 m)	R\$ 285.0	0.93	R\$ 265.05
Kit EPIs (óculos proteção, protetor auricular, capacete, máscara, etc)	R\$ 250.0	0.93	R\$ 232.50
Kit informática (computador, impressora, projetor e tela)	R\$ 7,500.0	0.93	R\$ 6,975.00
Conjunto de mobiliário para escritório (mesa, cadeiras, arquivo, arr	R\$ 3,980.0	0.93	R\$ 3,701.40
Balança digital capacidade 200 kg	R\$ 2,480.0	0.93	R\$ 2,306.40
Medidor de umidade para algodão	R\$ 1,170.0	0.93	R\$ 1,088.10
Desenvolvimento de site e redes sociais para comercialização	R\$ 12,000.0	0.93	R\$ 11,160.00
Máquinas e implementos agrícolas	R\$ 72,000.0	0.93	R\$ 66,960.00
Melhoria do espaço físico para beneficiamneto de algodão	R\$ 120,393.0	0.93	R\$ 111,965.49
<b>M7</b>			
Construção da base de alvenaria com cobertura (10 x 10 m)	200	0.93	R\$ 186.00
Cisterna alvenaria 16.000 L (conectada ao telhado)	8000	0.93	R\$ 7,440.00
Unidade de extração de mel composta por dois containers acoplado	R\$ 180,000.0	0.93	R\$ 167,400.00
Balde inox para mel 25 kg	R\$ 550.0	0.93	R\$ 511.50
Centrífuga elétrica 32/48 quadros	R\$ 13,000.0	0.93	R\$ 12,090.00
Mesa desoperculadora 48 quadros	R\$ 4,300.0	0.93	R\$ 3,999.00
Peneira para decantador 350 kg	R\$ 800.0	0.93	R\$ 744.00
Peneira para balde inox 25 kg	R\$ 400.0	0.93	R\$ 372.00
Tanque decantador 350 kg	R\$ 4,100.0	0.93	R\$ 3,813.00
Tapete sanitário	R\$ 350.0	0.93	R\$ 325.50
Kit papeleira, dispenser sabão líquido e lixeira	R\$ 450.0	0.93	R\$ 418.50
Kit informática (2 notebook, 1 impressora)	R\$ 4,500.0	0.93	R\$ 4,185.00
Kit instrumentos para laboratório de controle de qualidade	R\$ 10,000.0	0.93	R\$ 9,300.00
Derretedor de cera elétrico em aço inoxidável	R\$ 5,150.0	0.93	R\$ 4,789.50
Laminador	R\$ 1,800.0	0.93	R\$ 1,674.00
Cilindro alveolador elétrico	R\$ 2,985.0	0.93	R\$ 2,776.05
Ar condicionado para casa de mel	R\$ 1,700.0	0.93	R\$ 1,581.00
Desenvolvimento de site e redes sociais para comercialização	R\$ 12,000.0	0.93	R\$ 11,160.00
Equipamentos para beneficiamento de mel do entreposto	R\$ 45,000.0	0.93	R\$ 41,850.00
	0	0.93	R\$ -
<b>Costos e insumos operativos</b>			
<b>M1</b>			
Tela de Sombreamento (Sombrite) 70%, em polietileno de alta den:	R\$ 18.00	0.93	R\$ 16.74
Mudas frutíferas para perímetro do terreno p/ quebra vento (Manga	R\$ 6.00	0.93	R\$ 5.58
Tela de Sombreamento (Sombrite) 70%, em polietileno de alta den:	R\$ 18.00	0.93	R\$ 16.74
Sementes de hortaliças	R\$ 3,600.00	0.93	R\$ 3,348.00
Mudas de banana	R\$ 3.00	0.93	R\$ 2.79
Mudas de acerola	R\$ 6.00	0.93	R\$ 5.58
Insumos gerais para produção anual de canterios de alface	R\$ 102.93	0.93	R\$ 95.72
Insumos gerais para produção anual de canterios de cebolinha	R\$ 85.23	0.93	R\$ 79.26
Insumos gerais para produção anual de canterios de coentro	R\$ 111.23	0.93	R\$ 103.44
Insumos gerais para produção anual de canterios de Pimentão	R\$ 85.63	0.93	R\$ 79.64
Insumos gerais para produção anual de canterios de banana	R\$ 115.00	0.93	R\$ 106.95
Insumos gerais para produção anual de canterios de acerola	R\$ 45.00	0.93	R\$ 41.85



M2				
Plantaciones	R\$	3,519.0	0.93	R\$ 3,272.67
Fertilizantes Naturales	R\$	688.0	0.93	R\$ 639.84
Sal	R\$	13.8	0.93	R\$ 12.83
Sal mineral	R\$	165.0	0.93	R\$ 153.45
Bolsas de alimento para animales	R\$	52.3	0.93	R\$ 48.64
Vacunas	R\$	2.8	0.93	R\$ 2.56
Otros medicamentos	R\$	1.4	0.93	R\$ 1.30
				R\$ -
				R\$ -
M3				
Vacina Newcastle (Frasco com 1000 doses)	R\$	26.0	0.93	R\$ 24.18
Vacina Gumboro (Frasco com 1.000 doses)	R\$	26.0	0.93	R\$ 24.18
Diluyente vacina	R\$	26.0	0.93	R\$ 24.18
Ração pre-Inicial (saco 40kg )	R\$	130.8	0.93	R\$ 121.64
Farelo de Soja (saco 50kg )	R\$	122.5	0.93	R\$ 113.93
Milho grão (saco 60kg )	R\$	65.0	0.93	R\$ 60.45
Mudas variadas e sementes para a implementação de SAF-F 900				
m2	R\$	5.0	0.93	R\$ 4.65
Ração das pintinhas (pré-inicial) - 1 a 2 semanas p/Ovos	R\$	3.3	0.93	R\$ 3.04
Ração caseira para frangos - até 8ª semana p/ Ovos	R\$	1.3	0.93	R\$ 1.23
Ração caseira postura - 09 semana até o abate p/Ovos	R\$	1.3	0.93	R\$ 1.23
Aquisição de pintainhas p/Ovos	R\$	4.0	0.93	R\$ 3.72
Maravalha (para todo o plantel) p/Ovos	R\$	7.0	0.93	R\$ 6.51
Vacinas diversas p/Ovos	R\$	26.0	0.93	R\$ 24.18
Custos diversos (energia elétrica, diesel, cal, etc)- ovos	R\$	30.0	0.93	R\$ 27.90
M4				
Medicamentos e vacinas	R\$	234.0	0.93	R\$ 217.62
Manutenção anual do SAF (tratos culturais, adubação, mão de obra,	R\$	2,400.0	0.93	R\$ 2,232.00
Produtos de limpeza	R\$	350.0	0.93	R\$ 325.50
Combustível (transporte do leite, moto forrageira, etc)	R\$	720.0	0.93	R\$ 669.60
Energia elétrica	R\$	600.0	0.93	R\$ 558.00
Ração / animal	R\$	2.7	0.93	R\$ 2.51
Manutenção anual nas pastagens de Pisoteio	R\$	3,000.0	0.93	R\$ 2,790.00
Otros custos de administracion y comercializacion	R\$	6,000.0	0.93	R\$ 5,580.00
M5				
Ração	R\$	1.6	0.93	R\$ 1.49
Medicamentos e vacinas	R\$	100.0	0.93	R\$ 93.00
Manutenção do SAF (tratos culturais, adubação, mão de obra, etc)	R\$	200.0	0.93	R\$ 186.00
Produtos de limpeza	R\$	40.0	0.93	R\$ 37.20
Combustível (transporte do leite, ordenha mecânica, etc)	R\$	200.0	0.93	R\$ 186.00
Energia elétrica	R\$	100.0	0.93	R\$ 93.00
Manutenção anual nas pastagens de Pisoteio	R\$	3,000.0	0.92	R\$ 2,760.00
M6				
Telefone celular	R\$	360.0	1	R\$ 360.00
Material de Consumo	R\$	120.0	1	R\$ 120.00
Contabilidade	R\$	720.0	0.93	R\$ 669.60
Manutenção do site	R\$	240.0	0.93	R\$ 223.20
Manutenção maquinaria	R\$	600.0	0.93	R\$ 558.00
Energia elétrica produção	R\$	1,790.0	1	R\$ 1,790.00
Água produção/Limpieza	R\$	600.0	0.92	R\$ 552.00
Custos serviço de beneficiamento de algodão	R\$	275.0	0.93	R\$ 255.75
Custos Pluma de algodão	R\$	15.5	0.93	R\$ 14.42
M7				
Telefone celular	R\$	1.0	1	R\$ 1.00
Material de Consumo	R\$	1.0	0.93	R\$ 0.93
Contabilidade	R\$	1.0	0.93	R\$ 0.93
Serviços Técnicos Terceirizados	R\$	1.0	0.93	R\$ 0.93
Emissor nota fiscal	R\$	1.0	1	R\$ 1.00
Internet	R\$	1.0	1	R\$ 1.00
Código de barras	R\$	1.0	1	R\$ 1.00
Despesas com Viagens e Deslocamentos	R\$	1.0	0.93	R\$ 0.93
Propaganda	R\$	1.0	1	R\$ 1.00
Frete Compra	R\$	1.0	1.08	R\$ 1.08
Frete Venda	R\$	1.0	1.08	R\$ 1.08

Alvará Sanitário	R\$	1.0	1.08	R\$	1.08
Energia elétrica produção	R\$	1.0	1.08	R\$	1.08
Fardamento	R\$	1.0	1.08	R\$	1.08
Material de limpeza	R\$	1.0	1.08	R\$	1.08
Custos Mel de abelha em tambor	R\$	2,907.10	1.08	R\$	3,139.67
Custos Mel de abelha em balde	R\$	242.35	1.08	R\$	261.74
Custos Mel de abelha bisnaga 300g	R\$	99.58	1.08	R\$	107.54
Custos Mel de abelha sachê 5g	R\$	1.79	1.08	R\$	1.93
Custos Cera alveolada 1kg	R\$	0.15	1.08	R\$	0.16
<b>Asistencia Tecnica y Jornales</b>					
Manutenção	R\$	65.0	0.68	R\$	44.20
Colheita	R\$	65.0	0.68	R\$	44.20
plantações	R\$	65.0	0.68	R\$	44.20
Manutenção do rebanho	R\$	65.0	0.68	R\$	44.20
Trabajo calificado (remunerado) (S)	R\$	250.0	0.78	R\$	195.00
Trabajo familiar (F)	R\$	65.0	0.68	R\$	44.20
Mão de obra para manutenção de cerca no terreno (300 x 100 m)	R\$	10.0	0.68	R\$	6.80
Mão de obra para implantação do PIR	R\$	80.0	0.68	R\$	54.40
Mão-de-obra - Pedreiro construção do aviário (3 dias/beneficiário)	R\$	120.0	0.78	R\$	93.60
Imposto mão-de-obra de pedreiro para construção do aviário (40%)	R\$	48.0	0.68	R\$	32.64
Mão-de-obra - Servente construção do aviário (6 dias/beneficiário)	R\$	80.0	0.68	R\$	54.40
Mão-de-obra - Pedreiro para construção do pinteiro (2 dias/beneficiário)	R\$	120.0	0.78	R\$	93.60
Imposto mão-de-obra de pedreiro para construção do pinteiro (40%)	R\$	48.0	0.68	R\$	32.64
Mão-de-obra - Servente construção do pinteiro (4 dias/beneficiário)	R\$	60.0	0.68	R\$	40.80
Mão-de-obra - Construção da cerca (6 dias/beneficiário)	R\$	60.0	0.68	R\$	40.80
Mão-de-obra - Limpeza local do SAF (1 dia/beneficiário)	R\$	60.0	0.68	R\$	40.80
Mão-de-obra - Plantio SAF (1 dia/beneficiário)	R\$	60.0	0.68	R\$	40.80
Salario Minimo	R\$	1,420.0	0.68	R\$	965.60
Plantio	R\$	70.0	0.68	R\$	47.60
Preparo do Solo	R\$	200.0	0.78	R\$	156.00
Mão de obra para conduzir a atividade	R\$	80.0	0.92	R\$	73.60
Plantio	R\$	80.0	0.68	R\$	54.40
Preparo do Solo	R\$	200.0	0.78	R\$	156.00
Mão de obra para conduzir a atividade	R\$	80.0	0.68	R\$	54.40
Mão de Obra Indireta	R\$	120.0	0.78	R\$	93.60
Administrativa	R\$	120.0	0.78	R\$	93.60
Diárias Unidade de extração de mel	R\$	80.0	0.68	R\$	54.40
Mão de obra para manutenção de cerca no terreno (300 x 100 m)	R\$	65.0	0.68	R\$	44.20
Mão de obra (canteiro, plantio, tratamentos culturais, colheita, etc)	R\$	70.0	0.68	R\$	47.60
<b>Seção Tecnologia Social (acesso à água, reúso de descarte e energias renováveis)</b>					
- Acesso à água para consumo humano					
Cisternas domiciliares	R\$	10,890.0	0.92	R\$	10,018.80
Poços equipados	R\$	14,850.0	0.92	R\$	13,662.00
- Acesso à água para produção agrícola e criação animal					
Cisternas de produção	R\$	19,800.0	0.92	R\$	18,216.00
Construção e reforma de pequenas barragens	R\$	346,500	0.92	R\$	318,780
Barragens subterrâneas	R\$	4,950.0	0.92	R\$	4,554.00
Barreiros e tanques de pedra	R\$	17,325.0	0.92	R\$	15,939.00
- Reutilização de descartes					
Sistemas de reúso de águas cinzas	R\$	7,425.0	0.92	R\$	6,831.00
Bacias de evapotranspiração – BETs ('fossas verdes')	R\$	3,465.0	0.92	R\$	3,187.80
Iniciativas piloto de manejo de resíduos sólidos no meio rural	R\$	7,425.0	0.92	R\$	6,831.00
- Unidades de produção de energia renovável					
- Ecotecnologias domésticas de manejo energético					
Fogão ecoeficiente	R\$	1,980.0	0.92	R\$	1,821.60
Biodigestor	R\$	14,850.0	0.92	R\$	13,662.00
<b>Seção Ambiental</b>					
Viveiro para produção de mudas (coletivo)	R\$	14,850.0	0.92	R\$	13,662.00

## ANEXO II- FLUJOS DE CAJA DEL PROYECTO Y MODELOS PRODUCTIVOS -PIRs- y COMERCIALES -PNs-

### Flujo de caja Económico del Proyecto PROCASE II

Flujo de caja del Proyecto "PROCASE II" Republica Federal de Brasil en Reales (R\$)											
Cash flow Economico	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10-A20	
<b>Modelos</b>											
Agregacion M1	-	-	2,222,390	6,098,107	1,336,287	13,741,525	18,690,034	19,156,306	19,251,998	19,251,998	
Agregacion M2	-	-	7,025,479	12,547,570	7,655,428	15,018,085	17,161,611	18,324,392	19,555,574	19,555,536	
Agregacion M3	-	-	4,823,153	10,190,882	3,922,010	7,902,424	16,910,867	18,233,423	19,646,886	20,840,906	
Agregacion M4	-	-	3,250,682	4,177,113	1,507,633	4,581,012	9,918,404	13,077,797	16,245,947	17,841,100	
Agregacion M5	-	-	6,370,352	7,726,483	3,160,898	9,383,742	22,329,087	24,260,914	25,008,818	24,587,454	
Agregacion M6	-	-	131,026	543,352	611,362	1,433,726	2,687,232	2,800,147	2,800,147	2,800,147	
Agregacion M7	-	-	841,953	1,800,018	3,075,596	1,621,294	3,821,908	4,211,977	4,298,783	4,298,783	
<b>Total Agregado de beneficios netos incrementales modelos</b>	-	-	24,665,036	43,083,526	18,596,640	53,681,807	91,519,143	100,064,955	106,808,153	109,175,924	
<b>Total Flujo de Caja Servicios Ambientales (RS)</b>	-	-	3,524,213	7,048,425	10,572,638	14,096,850	17,621,063	21,145,276	24,669,488	24,669,488	
<b>Total Beneficios Economicos PROCASE II</b>	-	-	21,140,824	36,035,101	8,024,002	67,778,658	109,140,206	121,210,231	131,477,641	133,845,412	
<b>Total Economic project Costs (a)</b>	11,768,520	27,213,980	61,300,000	71,650,000	16,970,000	15,617,500	9,716,667	9,716,667	9,716,667	9,716,667	
<b>Flujo de caja economico</b>	- 11,768,520	- 27,213,980	- 82,440,824	- 107,685,101	- 24,994,002	52,161,158	99,423,539	111,493,564	121,760,974	124,128,746	
(a) Costo Economico Total - Fondos de Inversion, Asistencia Tecnica y Capacitacion que se encuentran incluidos en los Modelos											
NPVc	171,539,890		VANE			262,817,658		Tasa de descuento		12%	
NPVb	434,357,547		TIR e			26.6%		B/C		2.5	





## Flujo de Caja Financiero del Modelo II "Crianza de Cabras en Sistema Agroforestal -SAF-"

PRESUPUESTO FINANCIERO			SIN PROYECTO	CON PROYECTO									
	Unidad	precio	0	1	2	3	4	5	6	7	8	9	10
<b>Ingresos de la producción principales</b>													
Cabras sem			R\$ 1,008,000.0	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Cabras con			R\$ -	R\$ 1,290,240	R\$ 1,312,000	R\$ 1,353,600	R\$ 1,353,600	R\$ 1,376,000	R\$ 1,376,000	R\$ 1,376,000	R\$ 1,376,000	R\$ 1,376,000	R\$ 1,376,000
	Ventas		1,008,000	1,290,240	1,312,000	1,353,600	1,353,600	1,376,000	1,376,000	1,376,000	1,376,000	1,376,000	1,376,000
Pérdidas durante la fabricación			0	0	0	0	0	0	0	0	0	0	0
<b>Ingresos Totales</b>			1,008,000	1,290,240	1,312,000	1,353,600	1,353,600	1,376,000	1,376,000	1,376,000	1,376,000	1,376,000	1,376,000
<b>Inversiones</b>													
Serviços de preparação de solo			R\$ -	R\$ 120,780	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Motoensiladeira com reboque			R\$ -	R\$ 104,800	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Triturador			R\$ -	R\$ 20,400	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Misturador de ração 1000kg			R\$ -	R\$ 37,500	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Enfardadeira			R\$ -	R\$ 21,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Palma resistente a cochonilha do carmim (1 ha SAF-F)			R\$ -	R\$ 22,500	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Gliricidia (1 ha SAF-F)			R\$ -	R\$ 72,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Leucena (1 ha SAF-F)			R\$ -	R\$ 72,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Moringa (1 ha SAF-F)			R\$ -	R\$ 72,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)			R\$ -	R\$ 27,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Cerca com 05 fios de arame (1 ha SAF-F)			R\$ -	R\$ 270,000	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Forragem coletiva			R\$ -	R\$ 3,312	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Cortador Coletivo			R\$ -	R\$ 1,233	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Palm Spudger Coletivo			R\$ -	R\$ 3,690	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Piercing coletivo adaptado			R\$ -	R\$ 783	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Cisternas de produção			R\$ -	R\$ 178,200	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Fogão ecoeficiente			R\$ -	R\$ 51,480	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Sistemas de reuso de águas cinzas			R\$ -	R\$ 118,800	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
Viveiro para produção de mudas (coletivo)			R\$ -	R\$ 44,550	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
<b>Sub-total costos de inversion</b>			R\$ -	R\$ 1,242,028	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -	R\$ -
<b>Insumos Operativos</b>													
Plantaciones			0	316,710	0	0	0	0	0	0	0	0	0
Fertilizantes Naturales			0	61,920	61,920	0	0	0	0	0	0	0	0
Sal			9,660	14,904	14,904	14,904	14,904	14,904	14,904	14,904	14,904	14,904	14,904
Sal mineral			66,000	89,100	89,100	89,100	89,100	89,100	89,100	89,100	89,100	89,100	89,100
Bolsas de alimento para animales			627,600	169,452	203,342	169,452	169,452	84,726	84,726	84,726	84,726	84,726	84,726
Vacunas			14,300	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800
Otros medicamentos			0	10,080	10,081	10,083	10,084	10,086	10,087	10,088	10,090	10,091	10,093
<b>Sub-total insumos operativos</b>			717,560	681,966	399,148	303,339	303,340	218,616	218,617	218,618	218,620	218,621	218,623
<b>Labores</b>													
Trabajo calificado (remunerado) (S)			0	0	0	0	0	0	0	0	0	0	0
Trabajo familiar (F)			162,500	877,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500
<b>Sub-total Costos laborales</b>			162,500	877,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500	409,500
<b>Total Costos de Produccion</b>			880,060	2,801,494	808,648	712,839	712,840	628,116	628,117	628,118	628,120	628,121	628,123
<b>Ingresos despues de los costos laborales</b>			127,940	-1,511,254	503,352	640,761	640,760	747,884	747,883	747,882	747,880	747,879	747,877
<b>Ingresos netos incrementales</b>				-1,639,194	375,412	512,821	512,820	619,944	619,943	619,942	619,940	619,939	619,937
<b>Ingresos antes de los costos laborales</b>			290,440	-633,754	912,852	1,050,261	1,050,260	1,157,384	1,157,383	1,157,382	1,157,380	1,157,379	1,157,377







<b>Insumos Operativos</b>													
Ração das pintinhas (pré-inicial) - 1 a 2 semanas p/ Frango Caipira	0	30,531	30,531	30,531	30,531	30,531	30,531	30,531	30,531	30,531	30,531	30,531	30,531
Ração caseira para frangos - até 8ª semana p/ FC	0	49,297	49,297	49,297	49,297	49,297	49,297	49,297	49,297	49,297	49,297	49,297	49,297
Ração caseira acabamento - 09 semana até o abate p/FC	0	61,622	61,622	61,622	61,622	61,622	61,622	61,622	61,622	61,622	61,622	61,622	61,622
Aquisição de pintainhas p /FC	0	17,784	0	0	0	0	0	0	0	0	0	0	0
Maravalha (para todo o plantel) p/FC	0	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450
Vacinas diversas p/FC	0	250	250	250	250	250	250	250	250	250	250	250	250
Custos diversos (energia elétrica, gás, cal, etc) /FC	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920	25,920
Ração das pintinhas (pré-inicial) - 1 a 2 semanas p/Ovos	0	1,090	0	1,090	0	1,090	0	1,090	0	1,090	0	1,090	0
Ração caseira para frangos - até 8ª semana p/ Ovos	0	9,390	0	9,390	0	9,390	0	9,390	0	9,390	0	9,390	0
Ração caseira postura - 09 semana até o abate p/Ovos	0	27,543	0	27,543	0	27,543	0	27,543	0	27,543	0	27,543	0
Aquisição de pintainhas p/Ovos	0	4,446	0	0	0	0	0	0	0	0	0	0	0
Maravalha (para todo o plantel) p/Ovos	0	1,890	0	1,890	0	1,890	0	1,890	0	1,890	0	1,890	0
Vacinas diversas p/Ovos	0	62	62	62	62	62	62	62	62	62	62	62	62
Custos diversos (energia elétrica, diesel, cal, etc)- ovos	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480	6,480
<b>Sub-total insumos operativos</b>		<b>32,400</b>	<b>245,755</b>	<b>183,611</b>	<b>223,525</b>	<b>183,611</b>	<b>223,525</b>	<b>183,611</b>	<b>223,525</b>	<b>183,611</b>	<b>223,525</b>	<b>183,611</b>	<b>223,525</b>
<b>Labores</b>													
Mão-de-obra - Pedreiro construção do aviario (3	0	32,400	0	0	0	0	0	0	0	0	0	0	0
Imposto mão-de-obra de pedreiro para construção do	0	12,960	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Servente construção do aviario (6	0	43,200	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Pedreiro para construção do pinteiro (2	0	21,600	0	0	0	0	0	0	0	0	0	0	0
Imposto mão-de-obra de pedreiro para construção do	0	8,640	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Servente construção do pinteiro (4	0	21,600	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Construção da cerca (6 dias/beneficiário)	0	32,400	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Limpeza local do SAF (1 dia/beneficiário)	0	5,400	0	0	0	0	0	0	0	0	0	0	0
Mão-de-obra - Plantio SAF (1 dia/beneficiário)	0	5,400	0	0	0	0	0	0	0	0	0	0	0
Mano de obra Frago Caipira	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520	155,520
Mano de obra Ovos	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880	38,880
Sub-total labores	0	199,200	0	0	0	0	0	0	0	0	0	0	0
Trabajo calificado (remunerado) (S)	0	219,000	194,400	194,400	194,400	194,400	194,400	194,400	194,400	194,400	194,400	194,400	194,400
<b>Sub-total Costos laborales</b>		<b>0</b>	<b>418,200</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>	<b>194,400</b>
<b>Total Costos de Produccion</b>		<b>32,400</b>	<b>1,873,161</b>	<b>378,011</b>	<b>417,925</b>	<b>378,011</b>	<b>417,925</b>	<b>378,011</b>	<b>417,925</b>	<b>378,011</b>	<b>417,925</b>	<b>378,011</b>	<b>417,925</b>
<b>Ingresos despues de los costos laborales</b>		<b>106,880</b>	<b>-1,161,798</b>	<b>476,996</b>	<b>450,859</b>	<b>563,185</b>	<b>532,830</b>	<b>637,907</b>	<b>604,049</b>	<b>714,208</b>	<b>682,568</b>	<b>798,250</b>	<b>798,250</b>
<b>Ingresos netos Incrementales</b>			<b>-1,268,678</b>	<b>370,116</b>	<b>343,979</b>	<b>456,305</b>	<b>425,950</b>	<b>531,027</b>	<b>497,169</b>	<b>607,328</b>	<b>575,688</b>	<b>691,370</b>	<b>691,370</b>
<b>Ingresos antes de los costos laborales</b>		<b>106,880</b>	<b>-743,598</b>	<b>671,396</b>	<b>645,259</b>	<b>757,585</b>	<b>727,230</b>	<b>832,307</b>	<b>798,449</b>	<b>908,608</b>	<b>876,968</b>	<b>992,650</b>	<b>992,650</b>



<b>Insumos Operativos</b>														
Ração das pintinhas (pré-inicial) - 1 a 2 semanas p/ Frango C	kg	R\$	3.3	0	9,337	9,337	9,337	9,337	9,337	9,337	9,337	9,337	9,337	9,337
Ração caseira para frangos - até 8ª semana p/ FC	kg	R\$	1.3	0	37,346	37,346	37,346	37,346	37,346	37,346	37,346	37,346	37,346	37,346
Ração caseira acabamento - 09 semana até o abate p/FC	kg	R\$	1.3	0	46,683	46,683	46,683	46,683	46,683	46,683	46,683	46,683	46,683	46,683
Aquisição de pintainhas p/ FC	Unid	R\$	4.0	0	4,446	0	0	0	0	0	0	0	0	0
Maravalha (para todo o plantel) p/FC	Unid	R\$	7.0	0	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Vacinas diversas p/FC	Unid	R\$	26.0	0	10	10	10	10	10	10	10	10	10	10
Custos diversos (energia elétrica, gás, cal, etc) /FC	verba	R\$	30.0	864	864	864	864	864	864	864	864	864	864	864
Ração das pintinhas (pré-inicial) - 1 a 2 semanas p/Ovos	kg	R\$	3.3	0	333	0	333	0	333	0	333	0	333	0
Ração caseira para frangos - até 8ª semana p/ Ovos	kg	R\$	1.3	0	7,114	0	7,114	0	7,114	0	7,114	0	7,114	0
Ração caseira postura - 09 semana até o abate p/Ovos	kg	R\$	1.3	0	20,866	0	20,866	0	20,866	0	20,866	0	20,866	0
Aquisição de pintainhas p/Ovos	Unid	R\$	4.0	0	1,112	0	0	0	0	0	0	0	0	0
Maravalha (para todo o plantel) p/Ovos	Unid	R\$	7.0	0	270	0	270	0	270	0	270	0	270	0
Vacinas diversas p/Ovos	Unid	R\$	26.0	0	2	2	2	2	2	2	2	2	2	2
Custos diversos (energia elétrica, diesel, cal, etc)- ovos	verba	R\$	30.0	216	216	216	216	216	216	216	216	216	216	216
<b>Labores</b>														
Mão-de-obra - Pedreiro construção do aviário (3 dias/bene	h/d	R\$	120.0	0	270	0	0	0	0	0	0	0	0	0
Imposto mão-de-obra de pedreiro para construção do aviár	%	R\$	48.0	0	270	0	0	0	0	0	0	0	0	0
Mão-de-obra - Servente construção do aviário (6 dias/bene	h/d	R\$	80.0	0	540	0	0	0	0	0	0	0	0	0
Mão-de-obra - Pedreiro para construção do pinteiro (2 dias	h/d	R\$	120.0	0	180	0	0	0	0	0	0	0	0	0
Imposto mão-de-obra de pedreiro para construção do pinte	%	R\$	48.0	0	180	0	0	0	0	0	0	0	0	0
Mão-de-obra - Servente construção do pinteiro (4 dias/ben	diaria	R\$	60.0	0	360	0	0	0	0	0	0	0	0	0
Mão-de-obra - Construção da cerca (6 dias/beneficiário)	diaria	R\$	60.0	0	540	0	0	0	0	0	0	0	0	0
Mão-de-obra - Limpeza local do SAF (1 dia/beneficiário)	diaria	R\$	60.0	0	90	0	0	0	0	0	0	0	0	0
Mão-de-obra - Plantio SAF (1 dia/beneficiário)	diaria	R\$	60.0	0	90	0	0	0	0	0	0	0	0	0
Mano de obra Frago Caipira	diaria	R\$	60.0	2,592	2,592	2,592	2,592	2,592	2,592	2,592	2,592	2,592	2,592	2,592
Mano de obra Ovos	diaria	R\$	60.0	648	648	648	648	648	648	648	648	648	648	648
<i>Sub-total labores</i>				0	5,310	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240
Trabajo calificado (remunerado) (S)	pers. day		120	0	1,660	0	0	0	0	0	0	0	0	0
Trabajo Mano de obra Familiar (F)	pers. day		60	0	3,650	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240

### Ingresos Incrementales por familia beneficiaria Modelo III

FINANCING COST	WITHOUT PROJECT				WITH PROJECT									
Flujo de ingresos por familia		1,188			-10,476	7,460	7,170	8,418	8,080	9,248	8,872	10,096	9,744	11,029
Ingresos incrementales por familia					-11,663	6,272	5,982	7,230	6,893	8,060	7,684	8,908	8,557	9,842

## Flujo de Caja Financiero del Modelo IV "Bovinos para Leche con SAF forrajero"

PRESUPUESTO FINANCIERO			CON PROYECTO										
ITEMS	Unidad	precio	SIN PROYECTO	1	2	3	4	5	6	7	8	9	10
<b>Ingresos de la producción principales</b>													
Venda de litros de leite			3,179,520	3,815,424	5,007,744	5,564,160	5,564,160	6,359,040	6,359,040	6,359,040	6,359,040	6,359,040	6,359,040
0			0	0	0	0	0	0	0	0	0	0	0
	Ventas		3,179,520	3,815,424	5,007,744	5,564,160	5,564,160	6,359,040	6,359,040	6,359,040	6,359,040	6,359,040	6,359,040
	Autoconsumo		0	0	0	0	0	0	0	0	0	0	0
Pérdidas en el transporte			317,952	457,851	500,774	556,416	667,699	635,904	508,723	508,723	508,723	508,723	508,723
Ingresos Totales			2,861,568	3,357,573	4,506,970	5,007,744	4,896,461	5,723,136	5,850,317	5,850,317	5,850,317	5,850,317	5,850,317
<b>Inversiones</b>													
Motoensiladeira com Reboque			0	78,600	0	0	0	0	0	0	0	0	0
Enfardadeira			0	33,900	0	0	0	0	0	0	0	0	0
Roçadeira			0	50,400	0	0	0	0	0	0	0	0	0
Estojo para vacinação			0	8,700	0	0	0	0	0	0	0	0	0
Tanque de Resfriamento de Leite 1.500 Litros			0	69,000	0	0	0	0	0	0	0	0	0
Placa indicativa do PIR			0	800	0	0	0	0	0	0	0	0	0
Palma resistente a cochonilha do carmim (1 ha SAF-F)			0	216,000	0	0	0	0	0	0	0	0	0
Gliricidia (1 ha SAF-F)			0	135,000	0	0	0	0	0	0	0	0	0
Leucena (1 ha SAF-F)			0	45,000	0	0	0	0	0	0	0	0	0
Capim elefante - Colmos (1 ha SAF-F)			0	22,500	0	0	0	0	0	0	0	0	0
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)			0	36,000	0	0	0	0	0	0	0	0	0
Cerca com 05 fios de arame (1 ha SAF-F)			0	225,000	0	0	0	0	0	0	0	0	0
Cisternas de produção			0	59,400	0	0	0	0	0	0	0	0	0
Sistemas de reuso de águas cinzas			0	22,275	0	0	0	0	0	0	0	0	0
Biódigestor			0	267,300	0	0	0	0	0	0	0	0	0
Viveiro para produção de mudas (coletivo)			0	44,550	0	0	0	0	0	0	0	0	0
Sub-total costos de inversion			0	1,314,425	0	0	0	0	0	0	0	0	0
<b>Insumos Operativos</b>													
Medicamentos e vacinas			0	21,060	21,060	21,060	21,060	21,060	21,060	21,060	21,060	21,060	21,060
Manutenção anual do SAF (tratos culturais, adubação, mão de obra, etc)			0	216,000	216,000	216,000	216,000	216,000	216,000	216,000	216,000	216,000	216,000
Produtos de limpeza			0	31,500	31,500	31,500	31,500	31,500	31,500	31,500	31,500	31,500	31,500
Combustível (transporte do leite, moto forrageira, etc)			64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800	64,800
Energia elétrica			0	54,000	54,000	54,000	54,000	54,000	54,000	54,000	54,000	54,000	54,000
Ração / animal			2,099,520	1,905,120	2,143,260	2,381,400	2,381,400	2,381,400	2,381,400	2,381,400	2,381,400	2,381,400	2,381,400
Manutenção anual nas pastagens de Pisoteio			0	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000	270,000
Otros custos de administracion y comercializacion			0	540,000	540,000	540,000	540,000	540,000	540,000	540,000	540,000	540,000	540,000
Sub-total insumos operativos			2,164,320	3,102,480	3,340,620	3,578,760	3,578,760	3,578,760	3,578,760	3,578,760	3,578,760	3,578,760	3,578,760
<b>Labores</b>													
Plantio			0	25,200	0	0	0	0	0	0	0	0	0
Preparo do Solo			0	27,000	0	0	0	0	0	0	0	0	0
Mão de obra para conduzir a atividade			1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000
Trabajo calificado (remunerado) (S)			0	52,200	0	0	0	0	0	0	0	0	0
Trabajo familiar (F)			1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000
Sub-total Costos laborales			1,944,000	1,996,200	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000	1,944,000
Total Costos de Produccion			4,108,320	6,413,105	5,284,620	5,522,760	5,522,760	5,522,760	5,522,760	5,522,760	5,522,760	5,522,760	5,522,760
Ingresos despues de los costos laborales			-1,246,752	-3,055,532	-777,650	-515,016	-626,299	200,376	327,557	327,557	327,557	327,557	327,557
Ingresos netos incrementales				-1,808,780	469,102	731,736	620,453	1,447,128	1,574,309	1,574,309	1,574,309	1,574,309	1,574,309
Ingresos antes de los costos laborales			697,248	-1,111,532	1,166,350	1,428,984	1,317,701	2,144,376	2,271,557	2,271,557	2,271,557	2,271,557	2,271,557



## Flujo de Caja Financiero del Modelo V "Caprinos para Leche con SAF Forrajero"

PRESUPUESTO FINANCIERO			SIN PROYECTO	CON PROYECTO									
ITEMS	Unidad	precio	1	1	2	3	4	5	6	7	8	9	10
<b>Ingresos de la producción principales</b>													
Produccion total de leite de cabra del grupo			3,231,000	4,038,750	4,442,625	4,442,625	4,846,500	4,846,500	4,846,500	4,846,500	4,846,500	4,846,500	4,846,500
0			0	4	4	4	4	4	4	4	4	4	4
Pérdidas en ordeño/trasporte/etc			323,100	403,875	94,830	94,830	75,864	387,720	242,325	242,325	242,325	242,325	242,325
<b>Ingresos Totales</b>			<b>2,907,900</b>	<b>3,634,872</b>	<b>4,347,792</b>	<b>4,347,792</b>	<b>4,770,633</b>	<b>4,458,777</b>	<b>4,604,172</b>	<b>4,604,172</b>	<b>4,604,172</b>	<b>4,604,172</b>	<b>4,604,172</b>
<b>Inversiones</b>													
Motoensiladeira com reboque			0	157,200	0	0	0	0	0	0	0	0	0
Triturador			0	20,400	0	0	0	0	0	0	0	0	0
Misturador de ração 1000kg			0	37,500	0	0	0	0	0	0	0	0	0
Enfardadeira			0	21,000	0	0	0	0	0	0	0	0	0
Tanque de resfriamento 1500 litros			0	144,000	0	0	0	0	0	0	0	0	0
Placa indicativa do PIR			0	2,400	0	0	0	0	0	0	0	0	0
Palma resistente a coconilha do carmim (1 ha SAF-F)			0	22,500	0	0	0	0	0	0	0	0	0
Giricídia (1 ha SAF-F)			0	72,000	0	0	0	0	0	0	0	0	0
Leucena (1 ha SAF-F)			0	72,000	0	0	0	0	0	0	0	0	0
Moringa (1 ha SAF-F)			0	72,000	0	0	0	0	0	0	0	0	0
Adubo Orgânico - Esterco Bovino (1 ha SAF-F)			0	27,000	0	0	0	0	0	0	0	0	0
Cerca com 05 fios de arame (1 ha SAF-F)			0	270,000	0	0	0	0	0	0	0	0	0
Cisternas de produção			0	59,400	0	0	0	0	0	0	0	0	0
Sistemas de reuso de águas cinzas			0	111,375	0	0	0	0	0	0	0	0	0
Fogão ecoeficiente			0	89,100	0	0	0	0	0	0	0	0	0
Biodigestor			0	89,100	0	0	0	0	0	0	0	0	0
Viveiro para produção de mudas (coletivo)			0	44,550	0	0	0	0	0	0	0	0	0
<b>Sub-total gastos de inversion</b>			<b>0</b>	<b>1,311,525</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Insumos Operativos</b>													
Ração			32,000	86,400	86,400	86,400	86,400	86,400	86,400	86,400	86,400	86,400	86,400
Medicamentos e vacinas			0	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Manutenção do SAF (tratos culturais, adubação, mão de obra)			0	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
Produtos de limpeza			240	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440
Combustível (transporte do leite, ordenha mecânica, etc)			0	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
Energia elétrica			600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Manutenção anual nas pastagens de Pisoteio			0	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000	810,000
<b>Sub-total insumos operativos</b>			<b>32,840</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>	<b>919,440</b>
<b>Labores</b>													
Plantio			0	36,720	0	0	0	0	0	0	0	0	0
Preparo do Solo			0	9,000	0	0	0	0	0	0	0	0	0
Mão de obra para conduzir a atividade			1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000
<b>Sub-total labores</b>			<b>1,620,000</b>	<b>1,665,720</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>
Trabajo calificado (remunerado) (S)			0	100,800	0	0	0	0	0	0	0	0	0
Trabajo familiar (F)			1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000
<b>Sub-total Costos laborales</b>			<b>1,620,000</b>	<b>1,720,800</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>	<b>1,620,000</b>
<b>Total Costos de Produccion</b>			<b>1,652,840</b>	<b>3,951,765</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>	<b>2,539,440</b>
<b>Ingresos despues de los costos laborales</b>			<b>1,255,060</b>	<b>-316,893</b>	<b>1,808,352</b>	<b>1,808,352</b>	<b>2,231,193</b>	<b>1,919,337</b>	<b>2,064,732</b>	<b>2,064,732</b>	<b>2,064,732</b>	<b>2,064,732</b>	<b>2,064,732</b>
<b>Ingresos netos Incrementales</b>				<b>-1,571,953</b>	<b>553,292</b>	<b>553,292</b>	<b>976,133</b>	<b>664,277</b>	<b>809,672</b>	<b>809,672</b>	<b>809,672</b>	<b>809,672</b>	<b>809,672</b>
<b>Ingresos antes de los costos laborales</b>			<b>2,875,060</b>	<b>1,303,107</b>	<b>3,428,352</b>	<b>3,428,352</b>	<b>3,851,193</b>	<b>3,539,337</b>	<b>3,684,732</b>	<b>3,684,732</b>	<b>3,684,732</b>	<b>3,684,732</b>	<b>3,684,732</b>









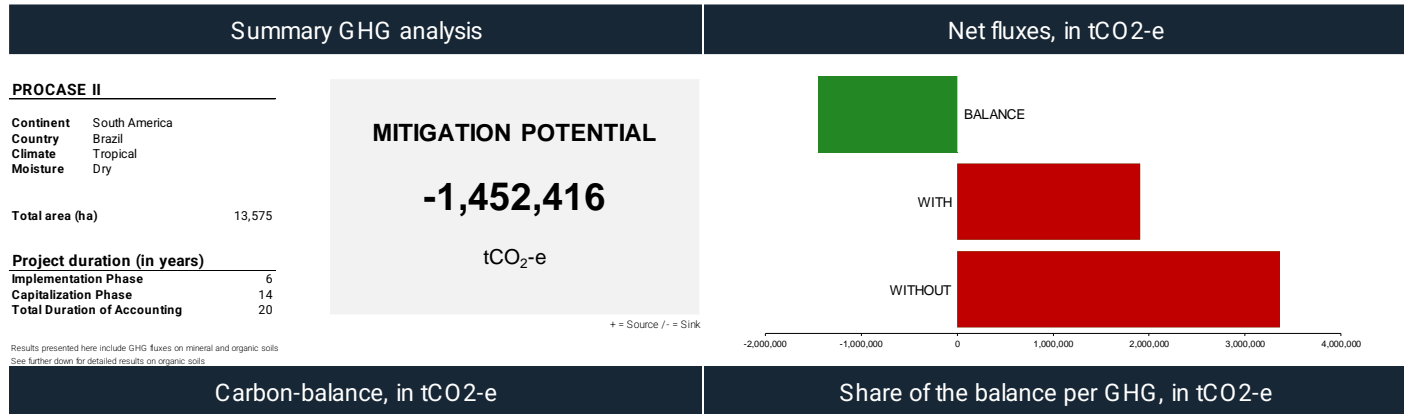






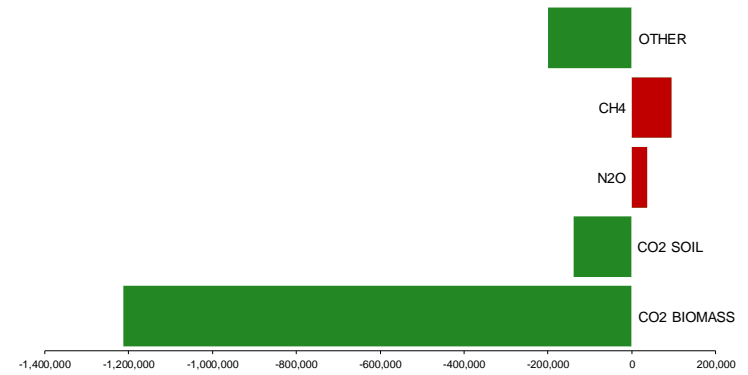
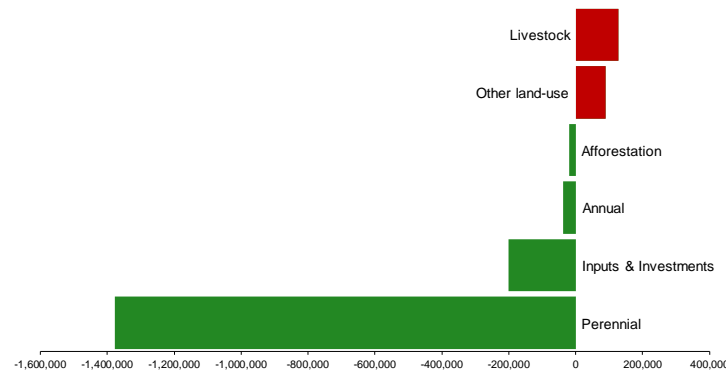
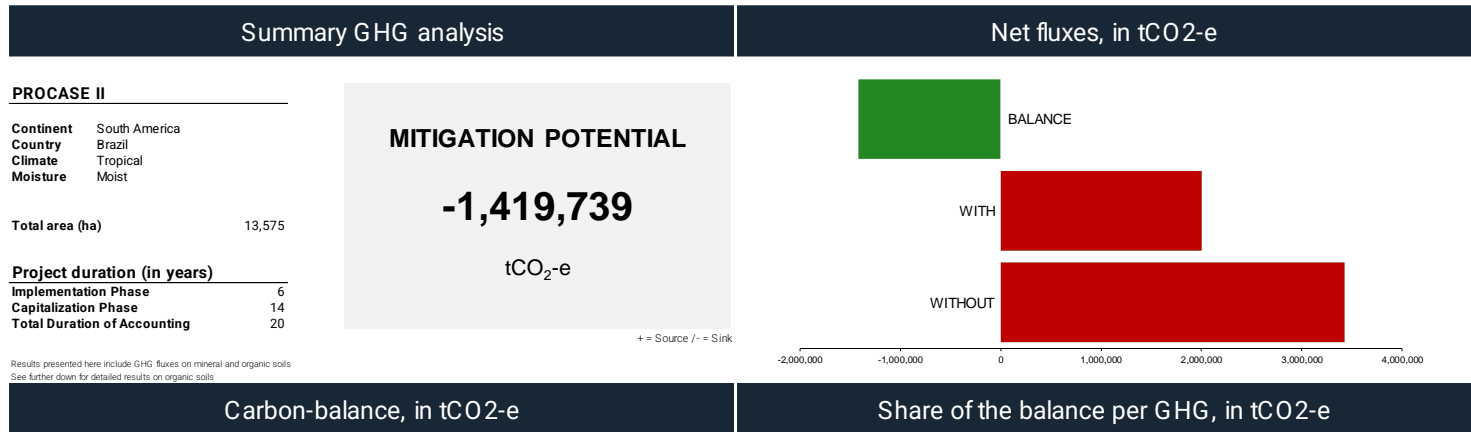
# ANEXO III- RESULTADOS DEL ANALISIS EX-ACT PARA BENEFICIOS AMBIENTALES

## Resultado en periodo de seco:

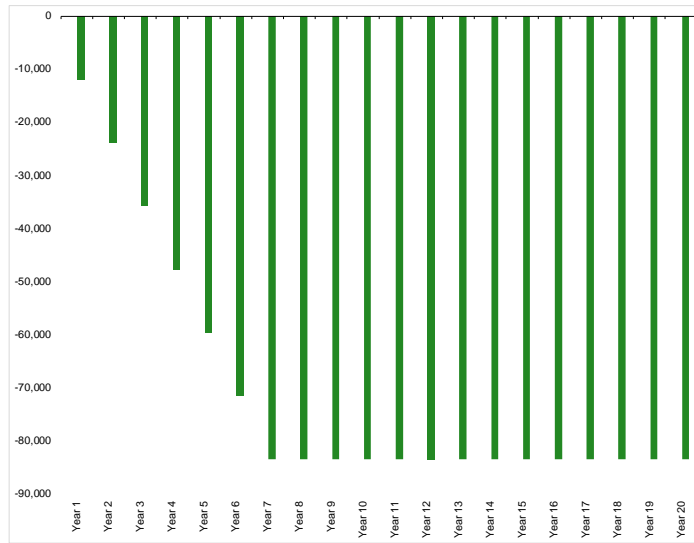




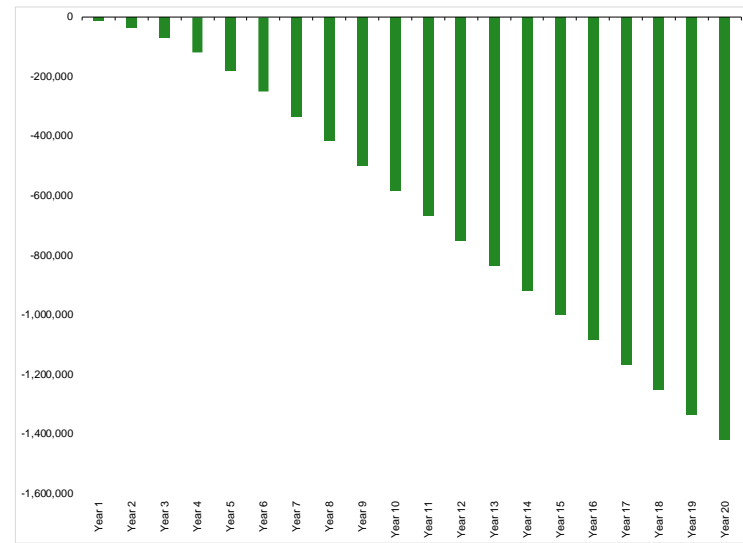
## Resultado en periodo de húmedo:



Annual carbon balance, in tCO<sub>2</sub>-e (20 years)



Cumulative carbon balance per year, in tCO<sub>2</sub>-e (20 years)







### Valuación monetaria de los Servicios Ambientales

Value of Environmental Services (US\$)				
	Escenarios			Unit
	Low	Med	High	
<b>Carbon</b>	51.0	118.0	185.0	US\$/ton
<b>Water (Caatinga)</b>	23.1	23.4	23.7	uS\$/hectare/year
<b>Water (Zona da Mata)</b>	33.2	219.7	411.3	uS\$/hectare/year
<b>Erosion Control (Caatinga)</b>	18.4	18.9	19.8	uS\$/hectare/year
<b>Erosion Control (Zona da Mata)</b>	28.3	32.6	54.1	uS\$/hectare/year
<b>Pollination</b>	24.0	53.0	120.7	uS\$/hectare/year
<b>Biological Control</b>	17.9	132.2	280.4	uS\$/hectare/year

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 18 Ex Act Rational**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



# EX-ACT Rationale

## GHG accounting for PROCASE II

### Methodology for GHG accounting

The Ex-Ante Carbon-balance Tool (EX-ACT) has been developed by the Food and Agriculture Organization of the United Nations (FAO) to evaluate impacts of the interventions in the Agriculture, Forestry and Other Land Use (AFOLU) sector on greenhouse gas (GHG) emissions. EX-ACT provides estimates of the mitigation potential of public or private investment projects, policies, and national level programs. It helps the decision makers to understand whether the planned agricultural interventions contribute to meeting climate change mitigation objectives. The EX-ACT appraisals, initially designed for ex-ante analysis, can also be conducted during the project implementation as well as ex-post for comprehensive monitoring and evaluation, both at a project and at a country level. EX-ACT calculations are based on land use data.

The current version of EX-ACT is primarily based on *the IPCC 2019 Refinement to the 2006 Guidelines for National Greenhouse Gas Inventories* (IPCC 2019) and *IPCC 2013, 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands* (IPCC 2014), complemented by other scientific research. GHG emissions for farm operations, inputs, transport, and irrigation systems implementation are based on Lal (2004). Emissions factors for the fishery sector are derived from Parker & Tyedmers (2014), Sciortino (2010), Winther et al. (2009) and Irribaren et al. (2010 & 2011). Soil carbon stock in mangroves is complemented by the review from Atwood et al. (2017). These references provide EX-ACT with recognized default values for emission factors and carbon values, the so-called Tier 1 level of precision.

The tool has nine topic modules that analyze a range of agricultural and forestry activities including crop production, land rehabilitation, forest management, livestock, and grassland production systems, among others. The tool calculates changes in carbon stocks and GHG emissions including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), which once converted to CO<sub>2</sub> equivalent are used to derive the carbon balance that indicates the impact of the project: positive carbon balance indicates that the project leads to greater emissions, while negative carbon balance indicates that project contributes to emissions reduction.

The evaluation assesses how the impacts of an intervention compared to the business as usual (BAU) scenario. The calculator requires data for 3 specific points in time: initial situation, with project scenario and without project or BAU. In preparing this data, much work is required up front to determine the adequate modeling of activities/interventions in the tool. This considers technical specificities, conversations with national staff to determine current and future projections, literature reviews to assess availability of tier 2 or 3 coefficients to improve the assessment's accuracy. Once all this information is gathered, a plan based on technical expertise is generated on how to best model the intervention in the tool along with the assumptions made. This is a crucial step as this is what really determines the measurement of the impact. All these aspects are discussed below to ensure a clear and transparent understanding of the assessment done for this Project.

## Project boundaries and data sources

The Project seeks “to reduce poverty and food and nutrition insecurity by investing in family farming, ensuring the development and strengthening of sustainable and climate-resilient local food systems”<sup>1</sup>. The Project aims “to contribute to the sustainable rural development of family farming, strengthening actions to adapt to and mitigate climate change”<sup>1</sup>.

The GHG analysis made use of data on activities from the Concept Note (CN) and the Economic and Financial Analysis (EFA), as well as consultations with technical experts in the field and part of the Project design team. The assumptions and data used are presented in consecutive sections. Table 1 collects the activities represented in the analysis.

Table 1: Project activities considered under EX-ACT analysis.

<b>Component 1 - Resilient production systems to reduce rural poverty</b>		
<b>Subcomponent 1.1: Implementation of resilient and biodiverse production systems</b>	<b>Reference</b>	<b>Ex-ACT Module</b>
Irrigated horticulture and Fruticulture	Economic and Financial	2.LUC
Goat farming in Agroforestry systems	Assessment	3.Cropland
Free-range poultry in Agroforestry systems		4.Grassland
Dairy goats in Agroforestry systems		
Dairy cattle in agroforestry systems		
<b>Subcomponent 1.2: Strengthening and diversifying commercialization</b>	<b>Reference</b>	<b>Ex-ACT Module</b>
<b>Agroecological cotton</b>	Economic and Financial Assessment	3.Cropland
<b>Subcomponent 1.3: Incentives for innovation</b>	<b>Reference</b>	<b>Ex-ACT Module</b>
<b>Ecostoves</b>	Economic and financial assessment	9. Inputs

The estimation of emissions for this Project considers the sequestration, reduction and or avoidance that result from the implementation of the activities summarized in Table 1. EX-ACT differentiates between two time periods: Project implementation phase and capitalization phase. The implementation phase is the period during which the Project activities are carried out. Yet, the period covered by the analysis does not necessarily end with the termination of the active project intervention. Further changes may occur from interventions (Project activities) such as changes in soil organic carbon content or biomass. This period defines the capitalization phase. In this analysis, following recommendations of the IPCC<sup>2</sup>, we consider an overall 20-year period for implementation and capitalization phase.

In the current analysis the physical implementation of the Project consists of 6 years, the benefits generated by the Project will continue to capitalize for 14 more years to reach the 20-year period. In the specific case of soil organic carbon, a constant rate over 20 years from the year of planting to reach

<sup>1</sup> Project Concept Note, May 2024

<sup>2</sup> IPCC recommends considering the timeframe between transitions states of natural systems and the period necessary to reach a new equilibrium for carbon stocks and suggest applying a 20 year long time frame. [IPCC, 2019 \(chapter 2\)](#) and [IPCC, 2003](#)

the new equilibrium is assumed. The analysis further assumes the dynamics of change (from without (BAU) to “with Project”) to be linear over the duration of the Project.

The Project will take place in the State of Paraiba in Brazil. Paraiba contains two biomes: Caatinga and Mata Atlantica with differentiated climates and soil characteristics. The main data to describe both areas are presented in table 2.

Table 2: Key descriptors of areas in the Project area (Paraiba)

	Caatinga	Mata Atlantica
Climate	Tropical Dry	Tropical moist
Soil type (dominant)	High Activity Clay (HAC)	Low Activity Clay (LAC)
Reference SOC (tC/ha)	22.61	36.97

Sources: All necessary data to define the descriptors was acquired via eartmap.org<sup>3</sup>

## Results of the EX-ACT analysis:

### General results:

The estimated total carbon balance of PROCASE II is -1,504,095 tCO<sub>2</sub>-eq for 20 years of accounting, 6 years of implementation and 14 years of capitalization, for a total area of 25,245 hectares and 1,072,757 heads of livestock. This amounts to a carbon balance of -60 tCO<sub>2</sub>-eq per ha and -3 tCO<sub>2</sub>-eq per hectare per year. The Project take place in two distinct biomes, Mata Atlantica and Caatinga, at the current stage the final allocation of hectares of the activities between biomes is not clear. Therefore, the carbon balance is an average of two analyses using the same activity data parameters but with variations in the key biome descriptors (table 2). The estimated carbon balance represents an expected balance ranging between -1,530,659 tCO<sub>2</sub>-eq (tropical moist) and -1,477,531 tCO<sub>2</sub>-eq (tropical dry) (figure 1). For detailed results for each analysis see EX-ACT disaggregated Results (figures 2 and 3).

Figure 1. General EX-ACT Results

PROJECT COMPONENTS	BALANCE		
	Tropical moist	Tropical dry	AVERAGE
Deforestation	0	0	0
Afforestation	0	0	0
Other land-use	88,841	8,690	48,765
Annual	-133,688	-34,535	-84,111
Perennial	-1,411,441	-1,367,042	-1,389,241
Flooded rice	0	0	0
Grasslands	-864	-529	-696
Livestock	126,834	116,224	121,529
Forest mngt.	0	0	0
Inland wetlands	0	0	0
Coastal wetlands	0	0	0
Fisheries and aquaculture	0	0	0
Inputs & Invest.	-200,341	-200,341	-200,341
<b>Total emissions, tCO<sub>2</sub>-e</b>	<b>-1,530,659</b>	<b>-1,477,531</b>	<b>-1,504,095</b>
<b>Total emissions, tCO<sub>2</sub>-e/ha</b>	<b>-61</b>	<b>-59</b>	<b>-60</b>
<b>Total emissions, tCO<sub>2</sub>-e/ha/yr</b>	<b>-3</b>	<b>-3</b>	<b>-3</b>

<sup>3</sup> The earth map tab of the excel file contains all raw data and specific sources used to define the key descriptors.

Figure 2. Detailed EX-ACT Results - Mata Atlantica (Tropical moist)

Project name	PROCASE II		Project duration (in years)	25,245		Global warming potential		
Continent	South America		Implementation Phase	25,245		CO <sub>2</sub>	1	
Country	Brazil		Capitalization Phase	0		CH <sub>4</sub>	28	
Climate	Tropical		Total Duration of Accounting	0		N <sub>2</sub> O	265	
Moisture	Moist							

GROSS FLUXES				SHARE PER GHG OF THE BALANCE					AVERAGE ANNUAL EMISSIONS		
In tCO <sub>2</sub> e over the whole period analysis				In tCO <sub>2</sub> e over the whole period analysis					In tCO <sub>2</sub> e/yr		
PROJECT COMPONENTS	WITHOUT	WITH	BALANCE	CO <sub>2</sub> BIOMASS	CO <sub>2</sub> SOIL	N <sub>2</sub> O	CH <sub>4</sub>	ALL NON-AFOLU EMISSIONS*	WITHOUT	WITH	BALANCE
Land use changes	0	0	0	0	0	0	0	0	0	0	0
Deforestation	0	0	0	0	0	0	0	0	0	0	0
Afforestation	0	0	0	0	0	0	0	0	0	0	0
Other land-use	0	88,841	88,841	105,964	-17,123	0	0	0	0	4,442	4,442
Annual	127,279	-6,408	-133,688	0	-149,615	15,927	0	0	6,364	-320	-6,684
Cropland	Perennial	-435,157	-1,846,598	-1,411,441	-1,297,489	-113,302	-650	0	-21,758	-92,330	-70,572
Flooded rice	0	0	0	0	0	0	0	0	0	0	0
Grasslands & Livestock	Grasslands	0	-864	-864	0	-864	0	0	0	-43	-43
Livestock	2,456,240	2,583,074	126,834	0	0	32,044	94,790	0	122,812	129,154	6,342
Forest mgmt.	0	0	0	0	0	0	0	0	0	0	0
Inland wetlands	0	0	0	0	0	0	0	0	0	0	0
Coastal wetlands	0	0	0	0	0	0	0	0	0	0	0
Fisheries and aquaculture	0	0	0	0	0	0	0	0	0	0	0
Inputs & Invest.	944,397	744,056	-200,341	0	0	0	0	-200,341	47,220	37,203	-10,017
<b>Total emissions, tCO<sub>2</sub>-e</b>	<b>3,092,759</b>	<b>1,562,100</b>	<b>-1,530,659</b>	<b>-1,191,525</b>	<b>-280,905</b>	<b>47,322</b>	<b>94,790</b>	<b>-200,341</b>	<b>154,638</b>	<b>78,105</b>	<b>-76,533</b>
<b>Total emissions, tCO<sub>2</sub>-e/ha</b>	<b>122.5</b>	<b>61.9</b>	<b>-60.6</b>	<b>-47.2</b>	<b>-11.1</b>	<b>1.9</b>	<b>3.8</b>	<b>-7.9</b>			
<b>Total emissions, tCO<sub>2</sub>-e/ha/yr</b>	<b>6.1</b>	<b>3.1</b>	<b>-3.0</b>	<b>-2.4</b>	<b>-0.6</b>	<b>0.1</b>	<b>0.2</b>	<b>-0.4</b>			

\* = Source / - = Sink  
 Results presented here include GHG fluxes on mineral and organic soils  
 See further down for detailed results on organic soils  
 \* Includes fisheries, aquaculture and inputs & investments that are not included in the AFOLU definition.

Uncertainty level	tCO <sub>2</sub> -e/yr	Percent
WITHOUT	154,638	27%
WITH	78,105	24%
BALANCE	-76,533	29%

Figure 3. Detailed EX-ACT Results – Caatinga (Tropical dry)

Project name	PROCASE II		Project duration (in years)	25,245		Global warming potential		
Continent	South America		Implementation Phase	25,245		CO <sub>2</sub>	1	
Country	Brazil		Capitalization Phase	0		CH <sub>4</sub>	28	
Climate	Tropical		Total Duration of Accounting	0		N <sub>2</sub> O	265	
Moisture	Dry							

GROSS FLUXES				SHARE PER GHG OF THE BALANCE					AVERAGE ANNUAL EMISSIONS		
In tCO <sub>2</sub> e over the whole period analysis				In tCO <sub>2</sub> e over the whole period analysis					In tCO <sub>2</sub> e/yr		
PROJECT COMPONENTS	WITHOUT	WITH	BALANCE	CO <sub>2</sub> BIOMASS	CO <sub>2</sub> SOIL	N <sub>2</sub> O	CH <sub>4</sub>	ALL NON-AFOLU EMISSIONS*	WITHOUT	WITH	BALANCE
Land use changes	0	0	0	0	0	0	0	0	0	0	0
Deforestation	0	0	0	0	0	0	0	0	0	0	0
Afforestation	0	0	0	0	0	0	0	0	0	0	0
Other land-use	0	8,690	8,690	16,157	-7,467	0	0	0	0	434	434
Annual	53,657	19,123	-34,535	0	-51,019	16,484	0	0	2,683	956	-1,727
Cropland	Perennial	-466,498	-1,833,540	-1,367,042	-1,336,990	-29,803	-248	0	-23,325	-91,677	-68,352
Flooded rice	0	0	0	0	0	0	0	0	0	0	0
Grasslands & Livestock	Grasslands	0	-529	-529	0	-529	0	0	0	-26	-26
Livestock	2,417,282	2,533,507	116,224	0	0	21,434	94,790	0	120,864	126,675	5,811
Forest mgmt.	0	0	0	0	0	0	0	0	0	0	0
Inland wetlands	0	0	0	0	0	0	0	0	0	0	0
Coastal wetlands	0	0	0	0	0	0	0	0	0	0	0
Fisheries and aquaculture	0	0	0	0	0	0	0	0	0	0	0
Inputs & Invest.	944,397	744,056	-200,341	0	0	0	0	-200,341	47,220	37,203	-10,017
<b>Total emissions, tCO<sub>2</sub>-e</b>	<b>2,948,838</b>	<b>1,471,307</b>	<b>-1,477,531</b>	<b>-1,320,834</b>	<b>-88,817</b>	<b>37,670</b>	<b>94,790</b>	<b>-200,341</b>	<b>147,442</b>	<b>73,565</b>	<b>-73,877</b>
<b>Total emissions, tCO<sub>2</sub>-e/ha</b>	<b>116.8</b>	<b>58.3</b>	<b>-58.5</b>	<b>-52.3</b>	<b>-3.5</b>	<b>1.5</b>	<b>3.8</b>	<b>-7.9</b>			
<b>Total emissions, tCO<sub>2</sub>-e/ha/yr</b>	<b>5.8</b>	<b>2.9</b>	<b>-2.9</b>	<b>-2.6</b>	<b>-0.2</b>	<b>0.1</b>	<b>0.2</b>	<b>-0.4</b>			

\* = Source / - = Sink  
 Results presented here include GHG fluxes on mineral and organic soils  
 See further down for detailed results on organic soils  
 \* Includes fisheries, aquaculture and inputs & investments that are not included in the AFOLU definition.

Uncertainty level	tCO <sub>2</sub> -e/yr	Percent
WITHOUT	147,442	26%
WITH	73,565	24%
BALANCE	-73,877	25%

## Disaggregated results:

The project implementation is structured around Resilient Investment Plans (PIR, by the Portuguese acronym) and Business Plans (BP) corresponding to subcomponents 1.1 and 1.2. Figure 4 shows the carbon balance of each of the plans analyzed. It also includes the distribution of ecostoves under component 1.3. A more detailed disaggregation of actions is in an appendix at the end of the document (Figure 5).

Figure 4. Disaggregated EX-ACT Results – Per Resilient Investment Plans and Business Plans

	Hectares	Livestock (heads)	BALANCE (tCO <sub>2</sub> -eq)		
			Tropical Moist	Tropical Dry	Average
<b>RESILIENT INVESTMENT PLANS</b>	<b>22,005</b>	<b>1,072,757</b>	<b>-1,296,625</b>	<b>-1,268,378</b>	<b>-1,282,502</b>
Irrigated horticulture and Fruticulture	12,150	-	-175,125	-74,387	-124,756
Goat farming in Agroforestry systems	4,500	376,032	-567,222	-600,353	-583,787
Free-range poultry in Agroforestry systems	405	576,116	-51,944	-49,861	-50,903
Dairy Goat in Agroforestry systems	3,600	108,000	-468,463	-494,304	-481,383
Dairy cattle in Agroforestry systems	1,350	12,609	-33,871	-49,474	-41,673
<b>BUSINESS PLANS</b>	<b>3,240</b>	<b>-</b>	<b>-33,350</b>	<b>-8,469</b>	<b>-20,909</b>
Agroecological cotton in small cooperatives	3,240	-	-33,350	-8,469	-20,909
<b>ECOSTOVES</b>	<b>-</b>	<b>-</b>	<b>-200,684</b>	<b>-200,684</b>	<b>-200,684</b>
<b>TOTAL</b>	<b>25,245</b>	<b>1,072,757</b>	<b>-1,530,659</b>	<b>-1,477,531</b>	<b>-1,504,095</b>



## Computation of data in EX-ACT:

The GHG analysis followed the investment models and description from the Economic and Financial Analysis (EFA) to determine the hectares and livestock heads targeted. The analysis considered 6 models:

### Subcomponent 1.1: Resilient Investment Plans:

1. **Irrigated horticulture and Fruticulture:** Implementation of hedgerows systems and adoption of agroecological management practices in existing annual and perennial croplands.
2. **Goat farming in Agroforestry systems:** Replacing degraded grasslands with an agroforestry system for forage production under agroecological practices. In addition, livestock improves nutrition and health.
3. **Free-range poultry in Agroforestry systems:** Replacing annual croplands with an agroforestry system for forage production under agroecological practices. In addition, poultry improves nutrition and health.
4. **Dairy goats in Agroforestry systems:** Replacing degraded grasslands with an agroforestry system for forage production under agroecological practices. In addition, dairy goats improve nutrition and health.
5. **Dairy cattle in agroforestry systems:** Replacing degraded grasslands with an agroforestry system for forage production under agroecological practices. In addition, dairy goats improve nutrition and health.

### Subcomponent 1.2: Business plans:

6. **Agroecological cotton in small cooperatives:** Existing areas of cotton production are brought under agroecological management practices improving cotton production. In addition, cotton areas are incremented.

### Resilient Investment plans:

Table 3 and 4 summarize PIR models according to the number of beneficiaries and investment targets. Following the assumptions of the EFA, the GHG analysis considered a 67% adoption rate.

*Table 3. Key data on Land targeted and impacted as per EFA model in PIRs*

PIRs	Families	Hectares		
		Per family	Targeted	Impacted <sup>a</sup>
Irrigated horticulture and Fruticulture	4050	3	12,150	8,140
Goat farming in Agroforestry systems	4500	1	4,500	3,015
Free-range poultry in Agroforestry systems	4500	0.09	405	271
Dairy goats in Agroforestry systems	3600	1	3,600	2,412
Dairy cattle in Agroforestry systems	1350	1	1,350	980
<b>TOTAL</b>	<b>18000</b>		<b>22,005</b>	<b>14,818</b>

<sup>a</sup> Impacted areas factor in the adoption rate of 67% and correspond to areas where change will be achieved and capitalized. Dairy cattle also include extra restoration activities.

Table 4. Key data on Livestock targeted and not impacted as per EFA model in PIRs

PIRs	Families	Livestock Heads (Scenarios)				
		Start & Without		With		
		Per family	Total	Not impacted	AFS	AFS + BD
Goat farming in Agroforestry systems	4500	80	360,000	118,000	188,978	68,254
Free-range poultry in Agroforestry systems	4500	-	100,000	33,000	272,909	270,207
Dairy goats in Agroforestry systems	3600	30	108,000	35,640	54,360	18,000
Dairy cattle in agroforestry systems	1350	8	10,800	3,564	8,595	450

AFS: Livestock heads in Agroforestry systems; AFS + BD: Livestock heads in Agroforestry systems and biodigesters

**Irrigated horticulture and Fruticulture:** Currently, 80% of the existing lands to be targeted are under annual crops (9,720 ha). Currently, planted with horticultural crops (*based on EFA*) under full tillage and low carbon inputs and residues are used to feed livestock or other uses (exported) (*based on project team*). 20% of the land targeted are perennial croplands (2,430 ha). Currently, planted with Acerola (*based on EFA*) under full tillage and low carbon inputs and crop residues are not burnt (*based on project team*). The impacted annual croplands (6,512 ha) will introduce no tillage practices, increase the input of organic material and crop residues will be retained on the ground following agroecological practices. In parallel, it will introduce tree planting in the perimeter of the fields (203 ha). In the newly implemented hedgerows (land use change), the project will introduce: no tillage practices, an increase in the input of organic material, retention of crop residues and trickle irrigation systems. The existing perennial system will introduce the same management practices as annual croplands.

**Goat farming in Agroforestry systems:** The agroforestry system (forage) (3,015 ha) will be introduced in existing grazed grasslands (land use change). Existing grasslands show signs of degradation (high intensity grazing). The project will introduce forage banks with Palma, Gliricidia, Moringa and Leucena (*based on EFA*) and implement no tillage practices and include the use of organic amendments on the soil (*based on project team*), crop biomass will be fed to animals. Tier 2 values for the forage banks were not located so an agroforestry default system was chosen (Henrique et al., 2023)<sup>4</sup>. Grasslands not impacted will maintain the same level of degradation<sup>5</sup>. Due to an increase in the feed quality and quantity and nutrition, higher pregnancy rates and reduced mortality are expected to reduce mortality. Therefore, it is assumed that farmers implementing forage banks will select and retain goats and the herd will increase slowly (6.6 % in 6 years, *based on EFA*). Investment without an increase on the herd loses profitability. Farmers not implementing agroforestry systems will maintain the same number of goats. In addition, 800 biodigesters will be purchased benefiting 18% of total families or 26% of families implementing agroforestry systems. Change in diet is expected to reduce emissions from enteric fermentation (see Table 5 and Table 6)

**Free-range poultry in Agroforestry systems:** The agroforestry system (forage) (271 ha) will be introduced in existing annual croplands (land use change). Currently, cultivated under full tillage and low carbon

<sup>4</sup> Henrique et al, 2023: Estimativa da emissão de gases de efeito estufa provenientes de rebanhos de caprinos e ovinos: no bioma Caatinga, Semiárido brasileiro, em cenários de atuação do FIDA. Based on the publication, forage bank are considered medium technology system while the current situation corresponds to low technology systems, however, no biomass values were given.

<sup>5</sup> To maintain a conservative approach on the soil organic carbon since no indication of improvement is defined.

inputs and residues exported (to feed animals) (*based on project team*). The agroforestry systems consist of Palma, Gliricidia, Moringa and Leucena (*based on EFA*). Forage banks will be managed following no tillage practices, the use of organic amendments on the soil (*based on project team*) and the crop biomass will be fed to animals. Tier 2 values for the forage banks were not located so an agroforestry default system was chosen. Annual croplands not adopting agroforestry systems will maintain current practices. The project will provide chicks and the population will increase considerably (Table 4) thanks to higher feed quality and quantity. In addition, 1,500 biodigesters will be distributed corresponding to 33% of the families or 49% of the families implementing agroforestry systems.

**Dairy Goat in Agroforestry systems:** The agroforestry system (forage) (2,412 ha) will be introduced in existing grazed grasslands (land use change). Existing grasslands show signs of degradation (high intensity grazing). The project will introduce forage banks with Palma, Gliricidia, Moringa and Leucena (*based on EFA*) and implement no tillage practices and include the use of organic amendments on the soil (*based on project team*), crop biomass will be fed to animals. Tier 2 values for the forage banks were not located so an agroforestry default system was chosen (Henrique et al., 2023). Grasslands not impacted will maintain the same level of degradation<sup>5</sup>. Due to an increase in the feed quality and quantity and nutrition, higher productivity is expected, increasing the amount of milk per goat. Therefore, it is assumed that farmers implementing forage banks will maintain the same number of goats but with higher productivity level (default)<sup>6</sup>. Farmers not implementing agroforestry systems will maintain the same number of goats and low productivity levels. In addition, 600 biodigesters will be purchased benefiting 17% of total families or 25% of families implementing agroforestry systems. Change in diet is expected to reduce emissions from enteric fermentation (see Table 5 and Table 6).

**Dairy cattle in Agroforestry systems:** The agroforestry system (forage) (905 ha) will be introduced in existing grazed grasslands (land use change). Existing grasslands show signs of degradation (high intensity grazing). The project will introduce forage banks with Palma, Gliricidia, Moringa and Leucena (*based on EFA*) and implement no tillage practices and include the use of organic amendments on the soil (*based on project team*), crop biomass will be fed to animals. Tier 2 values for the forage banks were not located so an agroforestry default system was chosen (Henrique et al., 2023). Grasslands not impacted will maintain the same level of degradation<sup>5</sup>. Due to an increase in the feed quality and quantity and nutrition higher productivity is expected increasing the amount of milk per cattle and increase the number of cows per family by 25% during the 6 years of implementation. Therefore, it is assumed that farmers implementing forage banks will keep more productive cows (default). Farmers not implementing agroforestry systems will maintain the same number of cattle and low productivity levels. In addition, 45 biodigesters will be purchased benefiting 3% of total families or 4.5% of families implementing agroforestry systems. The plans also include the restoration of degraded areas, estimated at 5 hectares per plan (75 hectares in total) to be conservative (*based on project team*). Therefore, some of the grasslands where agroforestry will be restored to a level of no degradation.

Table 5: Tier 2 values for enteric fermentation for goats under grasslands<sup>7</sup>:

Animal type	Goat farming		Dairy goats	
	Enteric fermentation (kg CH4/animal year) (Henrique et al., 2023)	% animal type (herd)	TIER 2 (weighted average) (kg CH4/animal year)	% animal type (herd)

<sup>6</sup> Default it is used to represent a level intermediate between low and high productivity according to the IPCC definitions that govern EX-ACT.

<sup>7</sup> According to Henrique et al., 2023 current systems in Caatinga correspond to low technology systems indicating degraded areas without trees.

					(kg CH4/animal year)
Does not lactating	5.4	15		63	
Does lactating	12.6	28	6.5	33	7.9
Kids	3.7	56		0	
Rams	8.7	1.2		3.3	

Source: Adapted from Henrique et al., 2023

Table 5: Tier 2 values for enteric fermentation for goats under Agroforestry systems<sup>8</sup>:

Animal type	Goat farming			Dairy cows	
	Enteric fermentation (kg CH4/animal year) (Henrique et al., 2023)	% on the herd	TIER 2 (weighted average) (kg CH4/animal year)	% on the herd	TIER 2 (weighted average) (kg CH4/animal year)
Does not lactating	5.1	15		63	
Does lactating	11.9	28	6.1	33	7.5
Kids	3.4	56		0	
Rams	8.1	1.2		3.3	

Source: Adapted from Henrique et al., 2023

### **Business plans:**

Table 6 summarizes BPs models according to the number of beneficiaries and investment targets. Following the assumptions of the EFA, the GHG analysis considered a 67% adoption rate.

Table 6: Key data on Land targeted and impacted as per EFA model in PIRs

BPs	Members	Hectares		
		Per family	Targeted	Impacted <sup>a</sup>
Agroecological cotton in small cooperatives (existing)	900	2.5	2,250	1,508
Agroecological cotton in small cooperatives (new)	396	2.5	990	663
TOTAL	1,296		3,204	2,171

<sup>a</sup> Impacted areas factor in the adoption rate of 67% and correspond to areas where change will be achieved and capitalized.

**Agroecological cotton in small cooperatives:** Currently, 83% of the existing lands of members of cotton producing cooperatives are growing cotton (1,875 ha) (*based on EFA*) under traditional practices: full tillage and low carbon inputs and residues exported (*based on project team*). The impacted existing cotton (1,256 ha) will introduce no tillage practices, increase the input of organic material and crop residues will be retained on the ground following agroecological practices. In parallel, 251 ha of existing members not producing cotton, out of 375 ha, will be put under agroecological cotton production. Finally, the activities of the project are expected to increase the membership of these cooperatives by 44% (*based on EFA*) incrementing the potential area to be brought to agroecological cotton production by 663 ha. It will introduce tree planting in the perimeter of the fields (203 ha). In the newly

<sup>8</sup> According to Henrique et al., 2023 systems in Caatinga to be implemented correspond to medium technology systems indicating agroforestry systems under transformation.

implemented hedgerows (land use change), the project will introduce: no tillage practices, an increase in the input of organic material, retention of crop residues and trickle irrigation systems. The existing perennial system will introduce the same management practices as annual croplands.

**Ecostoves:** The project will distribute 8,680 ecostoves. The ecostoves are expected to reduce wood consumption by 50% from the current 4.78 t wood/hh year (IFAD,2019)<sup>9</sup>. The ecostoves have a lifespan of 10 years. After considering moisture content (40%) it is expected that the wood burned will be reduced from 24,921 tdm/ year to 18,690 tdm/ year considering a 20-year period.

#### **Activities not considered:**

The PIR models under subcomponent 1.1 will require regular inputs to sustain production (fertilizers) and current annual systems might be using agricultural inputs. No use of inputs is considered in the assessment due to not available data.

The BP models under subcomponent 1.2 include agroecological cotton for medium and big cooperatives. At the time of the analysis projections were not available. In addition, BPs will require investments in equipment and potentially infrastructure which has not been included and can increase the energy used currently.

Subcomponent 1.3: Incentives for Innovation gathers investments in mechanization. The energy consumption from machinery has not been considered.

#### **Refinement of the analysis:**

Activities not considered are described in the previous point. The addition of these activities can improve the analysis when data is available.

Additionally, given the relevance of the introduction of perennial systems (forage banks), biomass growth values can be adjusted to provide a more precise assessment, especially considering the periodical pruning.

Once the activities to be implemented per biome, the percentage of land and livestock impacted by climate, the analysis could be revised.

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<sup>9</sup> IFAD, 2019. Relatório de pesquisa: Consumo residencial de lenha das famílias rurais em vulnerabilidade social no semiárido baiano.

## Appendix:

Figure 5. Disaggregated detailed EX-ACT Results – Per Resilient Investment Plans and Business Plans

	Hectares	Livestock (heads)	BALANCE (tCO2-eq)		
			Tropical Moist	Tropical dry	Average
<b>Irrigated horticulture and Fructiculture</b>	<b>12,150</b>	-	<b>-175,125</b>	<b>-74,387</b>	<b>-124,756</b>
Implementation of hedgerows	203	-	-2,593	1,760	-417
Management of hedgerows (Agroecological practices)	203	-	-40,965	-40,360	-40,662
Improvement of existing annual crops	9,518	-	-96,939	-24,617	-60,778
Improvement of existing perennial crops	2,430	-	-34,754	-10,677	-22,716
Implementation of irrigation systems (hedgerows)	203	-	63	63	63
Irrigation in tree nurseries	203	-	63	63	63
<b>Goat farming in Agroforestry systems</b>	<b>4,500</b>	<b>376,032</b>	<b>-567,222</b>	<b>-600,353</b>	<b>-583,787</b>
Implementation of SAF	3,015	-	44,817	3,585	24,201
Management of SAF	3,015	-	-609,919	-600,915	-605,417
Existing grassland (SAF not adopted)	1,485	-	0	0	0
Livestock (incl. Digesters)	-	376,032	-2,190	-3,093	-2,642
Irrigation in tree nurseries	225	-	70	70	70
<b>Free-range poultry in Agroforestry systems</b>	<b>405</b>	<b>576,116</b>	<b>-51,944</b>	<b>-49,861</b>	<b>-50,903</b>
Implementation of SAF	271	-	-6,081	-599	-3,340
Management of SAF	271	-	-54,893	-54,082	-54,488
Existing cropland (SAF not adopted)	134	-	0	0	0
Livestock (incl. Digesters)	-	576,116	8,959	5,580	7,270
Irrigation in tree nurseries	225	-	70	70	70
<b>Dairy Goat in Agroforestry systems</b>	<b>3,600</b>	<b>108,000</b>	<b>-468,463</b>	<b>-494,304</b>	<b>-481,383</b>
Implementation of SAF	2,412	-	35,854	2,868	19,361
Management of SAF	2,412	-	-487,935	-480,732	-484,334
Existing grassland	1,188	-	0	0	0
Livestock (incl. Digesters)	-	108,000	-16,437	-16,496	-16,466
Irrigation in tree nurseries	180	-	56	56	56
<b>Dairy cattle in Agroforestry systems</b>	<b>1,350</b>	<b>12,609</b>	<b>-33,871</b>	<b>-49,474</b>	<b>-41,673</b>
Implementation of SAF	905	-	13,445	1,076	7,260
Management of SAF	905	-	-182,976	-180,275	-181,625
Existing grassland	371	-	0	0	0
Livestock (incl. Digesters)	-	12,609	136,502	130,233	133,368
Grassland restoration	75	-	-864	-529	-696
Irrigation in tree nurseries	68	-	21	21	21
<b>AGROECOLOGICAL COTTON - small cooperatives</b>	<b>3,240</b>	-	<b>-33,350</b>	<b>-8,469</b>	<b>-20,909</b>
Implementation of agroecological practices	3,240	-	-33,350	-8,469	-20,909
<b>ECOSTOVES</b>			<b>-200,684</b>	<b>-200,684</b>	<b>-200,684</b>
<b>TOTAL</b>	<b>25,245</b>	<b>1,072,757</b>	<b>-1,530,659</b>	<b>-1,477,531</b>	<b>-1,504,095</b>

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 19 Lessons Learned And Linkage Between The Two Phases**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## Lessons learned and linkage between the two phases of PROCASE

This annex addresses the crucial question of how the lessons learned from the first phase of PROCASE have been integrated into the design of the second phase. These lessons encompass positive outcomes and successful strategies from phase I that will be continued or scaled up in phase II, and areas where improvements are necessary to avoid repeating past mistakes. The annex is organized into a table format: the first column lists the lessons learned as documented in the Project Completion Report (PCR) from PROCASE I, marked with an asterisk, along with additional insights. The second column outlines the specific measures and strategies implemented in phase II to address each lesson, ensuring a more robust and informed project execution.

Lessons learned	How phase II will apply the lesson learned
<b>Start-up delays</b>	
<p><b>The first phase of PROCASE experienced a significant start-up delay</b> that subsequently required an extension. The contracting of the Inter-American Institute for Cooperation on Agriculture (IICA) for supporting contracting activities meant an important gain in speed and efficiency.</p>	<p>PROCASE II will establish a Project Management Unit (PMU) in the State Secretariat for Family Farming and Semiarid Development (SEAFDS) that has extensive experience in project execution, including from International Financial Institutions, such as IFAD, and keep key staff with intensive training and vast experience in executing the previous phase.</p> <p>A Technical Cooperation Project agreement between SEAFDS and the Inter-American Institute for Cooperation on Agriculture (IICA) will be signed to support PROCASE II procurement/contracting activities.</p>
<b>Target Groups</b>	
<p>PROCASE I significantly exceeded the targeting goals for priority groups, such as women (160%), young people (202%), and quilombola communities (160%). Several types of activities were held, including training and exchanges, with the technical teams, partner entities, and managers seeking to ensure that priority groups were included in interventions and technical assistance services.</p>	<p>PROCASE II will include important new target groups: indigenous peoples, LGBTQIAPN+, and persons with disability. The second phase establishes gender, youth, PCTs, and social inclusion strategies with specific budgets to promote the participation of women, youth, PCTs, persons with disability, and members of the LGBTQIAPN+ community.</p>

<p><i>Gender:</i> An important instrument in this dimension was the gender equity workshops held in all communities, led by TA focal points and some participation from the Unified Social Assistance System, coordinated by the local government. Another important lesson learned was the use of the Agroecological Logbooks.</p> <p><i>Youth:</i> PROCASE I work with youth could have been stronger and led to more relevant results regarding youth socioeconomic and political empowerment.</p> <p><i>Quilombola:</i> In the intervention with quilombolas, within the five PROCASE territories, 14 communities were incorporated into the race and ethnicity equity activities promoted by the Project, covering a total of 319 families.</p> <p><i>Persons with disabilities:</i> PROCASE I was the first Project in Brazil to innovate implementing a socioeconomic diagnosis targeting persons with disabilities (more details in the lesson regarding M&amp;E).</p>	<p>Diagnosing the inclusion gaps of persons with disabilities has been instrumental in shaping the activities targeting this group in phase II. Persons with disabilities will not only benefit as a key project target group but also from specific activities designed to empower them, such as demand-driven thematic training. This is a testament to PROCASE II's commitment to their inclusion and empowerment.</p> <p>Regarding <i>gender</i>, PROCASE II will continue to scale up the capacity-building on gender and diversity directed to beneficiary communities and the work with the agroecological logbooks. Still, it will also include new activities, such as childcare circles and awareness-raising on gender-based violence. Minimum percentages of the Resilient Investment Plans (PIR, using the Portuguese acronym) resources are foreseen to be allocated to groups with a majority of women.</p> <p>PROCASE II will strengthen the work with <i>youth</i> with a dedicated budget and specialist at the PMU and a strategy that includes activities such as vocational training, training for Young Communicators, demand-driven thematic meetings, and strengthening youth networks. Besides <i>quilombolas</i>, who will be a priority target group in land titling activities, other traditional peoples and communities will be targeted in phase II, such as indigenous peoples, riverine communities, and gypsies. PROCASE II will also have a specific budget and dedicated specialist for activities involving traditional peoples and communities (PCTs), including strengthening PCT Networks and policy engagement.</p>
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**Agroecological approach**

<p><b>*The adoption of the agroecological approach by family farming has been widely recognized in Paraíba and with the work of PROCASE I.</b> It has been proven to increase resilience, especially in highly degraded and vulnerable biomes such as the semiarid region. From the IFAD Stocktake report on agroecology in IFAD operations, IFAD projects in Brazil are considered agroecologically based. IFAD</p>	<p>PROCASE II will have a holistic agroecological approach that promotes a set of agricultural practices, including diversification, utilization, and restoration of ecosystem services. It will also promote efficiency and recycling, reducing dependence on external inputs. Agroecology will support mitigating the risks of climate change and guarantee a greater variety of nutritious food. This approach will be based on the co-creation of knowledge and practices, resulting in more</p>
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<p>has consistently supported the government and invested in communities shifting to agroecological practices for the management of farms and landscapes. Remarkably, these projects contributed to innovative ways of connecting producers to markets, e.g., through public procurement or linkages with local tourist services rediscovering and serving local food. The PROCASE I in Paraíba represents a reference to a fully agroecological project implemented in the semiarid context.</p>	<p>effective adoption of innovations and practices adapted to the local context, the environment, and the needs and realities of the people and communities of Paraíba. The Project will develop Technical Assistance (TA) capacities to provide family farmers with agroecological practices, such as diversifying plant breeds and crops with multi-crop/consortia systems, increasing the organic matter content of the soil, using green fertilizers and Integrated Pest Management (IPM) with practices aimed at increasing the structural and functional diversity of the agroecosystem.</p>
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**Agroforestry Systems**

<p>PROCASE I implemented approximately 900 agroforestry systems, such as Crop-Livestock-Forest Integration (CLFI) with forage palm and productive yards, among other sustainable techniques for the management of the Caatinga biome. With the implementation of Emergency Plans, the Project further installed 31 agroforestry systems, with an average size of 0.5 ha, containing arrangements of tree and shrub plants and herbaceous for food and fodder production, mitigating environmental impacts and desertification trends. The successful implementation of these systems and high acceptance by farmers led to the expansion of these initiatives in phase 2.</p>	<p>Agroforestry systems will be the main elements of PROCASE II's production systems, focusing on different crops adapted to the local biomes of the semiarid and the Atlantic Rainforest. In the semiarid, the systems based on fodder production will support goat farming for milk and meat, dairy cattle farming, and free-range poultry farming. Other systems will focus on the production of fruits and vegetables, including Neglected and underutilized species (NUS) and medicinal plants.</p>
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**Innovation**

<p>The Project identified innovation initiatives led by farmers during phase 1, such as new mechanization tools for agroecological systems or adaptation of existing equipment. However, there was no mechanism in place to scale such initiatives and spread such tools to other farmers.</p>	<p>PROCASE II will foster innovation initiatives with the incubation of small businesses, providing funding and technical assistance to identified innovators, helping them scale their initiative to reach other farmers. Selected projects will receive funding and will be supported by a team of experts in the scaling process.</p>
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## Technical assistance

**\*Technical assistance is important for the successful implementation of a rural development project such as PROCASE.** Technical Assistance (TA) has been a highlight of sustainable development projects supported by IFAD in Northeast Brazil, being an element that should characterize their intervention strategy. PROCASE, in its original design, was fully aligned with this principle or guideline. However, for several reasons, the implementation of PROCASE took place for a long time without a TA on the field. Indeed, the work with the Productive Plans (PP) started in the first year of implementation of the Project in 2013, but the TA for this line of work was only contracted in 2017. In the case of Emergency Plans, which started in 2015, there was the initial contracting, which was very insufficient and lasted from February to December 2016. It was only in 2018 that the TA service for these initiatives was again contracted, this time in an appropriate format. In both cases, the Project's own teams (PMU - RPMU) covered the initial advisory work to the extent of their reduced possibilities. All those involved in the implementation of PROCASE were able to verify that a satisfactory TA service fostered outstanding progress in the implementation of PPs and PEs, both in quantitative and qualitative terms (in execution). These improvements have led to results in terms of more production, more training, and more water security. Thus, PROCASE's experience with this TA matter is a confirmation of the correctness of the original guideline, which attributed a very important role to the provision of this service in a sustainable rural development project. At the same time, it serves as a warning to managers that failing to provide this service can lead to very important losses for the implementation of a project of this type.

PROCASE II aims to provide high-quality technical assistance based on a participatory approach, which has proven to be essential to meeting the real needs and demands of the beneficiaries, maximizing the Project's impact, and ensuring greater sustainability. Component II contemplates contracting local technical assistance entities to support the design and implementation of the PIR in the communities, including good agricultural practices, sustainable water and soil management, and good use and care of infrastructure investments.

<b>Resource management by beneficiary organizations</b>	
<p>The experience of PROCASE I shows that transferring funds to community organizations and cooperatives for contracting in productive schemes reduces costs, empowers, and involves beneficiaries, improving scheme outcomes. However, providing strong support to these organizations is crucial to ensure timely and effective procurement and accountability.</p>	<p>Beneficiary organizations will be responsible for the management of project resources for Component I-funded PIR and Business Plans (BPs) and will carry out planned procurement and contracting. To this end, SEAFDS will sign agreements with them, establish obligations, transfer resources, and provide technical assistance to support them in procurement and accountability.</p>
<b>Water access social technologies</b>	
<p><b>*The integration of water activities with productive projects</b> (mainly for a region such as the Brazilian semiarid region). The 2012-2019 'great drought' crisis made it very clear what could be considered underestimating the 'water issue' in the Project's design. In the original document, the theme was mentioned, but it was a sub-component of a subcomponent with a very small budget. PROCASE I's response to the crisis was an important readjustment of the design, which significantly expanded the budget dedicated to the issue and incorporated a series of technologies/investments that had not been initially foreseen, such as tubular wells (as a proposal for wide application) small irrigated areas (with appropriate irrigation systems), medium-sized dams. The work done by PROCASE in the context of the 'water issue' has shown that this type of investment can have a very important impact not only on 'quality of life' (providing more water for human consumption, for example) but also on the productive activities of families served (with more water for herds and the possibility of installing small, irrigated areas, citing another example).</p>	<p>PROCASE II will build on the build-up on the lessons from phase 1, investing in a series of water and energy access social technologies, such as cisterns for production, greywater reuse systems, underground dams, biodigesters, and efficient cookstoves, which play a fundamental role in building and strengthening more resilient production systems and improving the basic living conditions of beneficiary families. It will also innovate in implementing social technologies for basic rural sanitation. These activities will be implemented by entities contracted by the PMU. In addition to implementation, these organizations will carry out all the training to ensure the proper appropriation, use, and maintenance of the technologies by the families.</p>

For public policy/project managers and formulators, this PROCASE experience had repercussions on two levels. Firstly, it provoked a review of the way of analyzing the 'water problem' when thinking about 'projects' for contexts like the northeastern semi-arid. Concomitantly, it also modified the range of 'available' responses for inclusion in policies/projects. The conclusion of this perspective change has been the recognition that it is indispensable and technically and economically possible to make more investments in terms of harvesting, storing, accessing, and sustainably using water resources in this type of Project.

### Gender

**\*The establishment of women's groups as a methodological strategy for the strengthening of a collective identity of female farmer-entrepreneurs and female farmer-activists.** In the communities supported by PROCASE I, where groups of women existed, they became more active social and political subjects and were involved in organizational processes. When women's groups are articulated, they strengthen and expand organizational capacities in several aspects: self-organization, training, marketing, and the conquest of public policies and social rights. The results are visible: women can have more democracy in community associations and take up decision-making positions, such as the presidency and treasury of associations. In the PP of groups of women, they manage to be protagonists participating in the production and commercialization. In contrast, in mixed PPs where these groups do not exist, the participation of women only occurs in an adjuvant way. In the public policy domain, these groups of women are more active in the demands for their community, such as health centers and regular doctors,

PROCASE II will take a holistic approach to transforming gender relations, which focuses on the environmental, economic, political, and cultural causes of women's social vulnerability. This perspective aims to transform unequal power relations shaped by patriarchal structures, norms, and practices and empower women to be more resilient. To this end, the Project will: i) promote economic empowerment and equal access to and control over resources and assets, ii) address the issue of women's overload due to domestic and care work, iii) empower women and men to have equal voice and decision-making power in rural institutions and organizations (see details in the Annex on Gender Diagnosis). One key entry point regarding women's political empowerment will be strengthening existing women's groups, seeking to articulate them among each other and other women's organizations in the territories. This process will favor the formation of a collective identity of female farmer activists and leaders.

schools, school transportation for children, and community participation in the Orçamento Cidadão (Participatory Budget), among others. In this perspective, the lesson to highlight here is that developing a strategy of forming groups in the communities that are intended to support to discuss specific issues of women, such as health, violence, democratic participation in the management of associations, and productive Project for women, is of paramount importance as a tool for women's empowerment.

**\*Project management can become a mechanism for the transversality of rural development policies.** In 2017, PROCASE created its Targeting Working Group (WG), composed of representatives of the PMU and the Regional Project Management Units (RPMUs), and also made up of representatives of contracted technical assistance organizations and with the participation of farmers and young people, to support and monitor the gender activities carried out by the TA and, at the same time, developing strategies and instruments to ensure the mainstreaming of the gender focus in the set of the Project's activities. This Targeting WG, with systematic meetings, reflective and operative, served as a space for learning and analyzing practices related to the execution of productive projects and the level of inclusion of priority groups, that is, women, quilombolas, and youths, in the interventions carried out. Based on the successful experience of the PROCASE Targeting WG, in March 2021, the State's Council for Sustainable Rural Development (CEDRS) permanently instituted the **Gender Equality, Generations, Race, Ethnicity, and Peoples Working Group (WG)**. This new WG, with a broader scope, has as its main competencies the follow-up to the formulation and the monitoring of the implementation of official programs for these groups, the promotion of studies and debates on relevant themes for the

PROCASE II will continue with the Targeting Working Group to support and monitor the gender activities carried out by the TA but will incorporate a broader strategy to reach other new target groups, such as persons with disabilities and the LGBTQIAPN+.

Phase II will continue actively participating in the **Gender Equality, Generations, Race, Ethnicity, and Peoples Working Group (WG)**, permanently instituted by the State's Council for Sustainable Rural Development (CEDRS).

<p>implementation of activities aimed at these groups, and propose guidelines for monitoring policies for gender equity, generations, race, ethnicity and for traditional peoples, in the sustainable rural development of the State, among others, enriched by the participation of technical teams and later expanded with the presence of multiplying farmers and young scholarship holders, it is no longer a merely operative instrument to transform itself into a strategic mechanism for the transversality of gender activities in the State's rural development policies.</p>	
<p>The <b>Agroecological Logbook (AL)</b>, a methodological tool based on the principles of feminism and agroecology, helped to create a counterpoint to the conventional economic view, which does not measure the non-market economic contribution of women. The use of AL allowed women to keep an excellent record of the farmers' work results, quantifying what they used for consumption, donation, exchange, and sale and giving greater visibility to the production of wealth they generated. With this tool, the 55 participating women expanded their ability to identify and give visibility to the importance of their work. The ALs' evaluations highlighted their valuable contribution to the families' food and nutrition security. They also empower women as guardians of agrobiodiversity.</p>	<p>In phase II, the implementation of the Agroecological Logbooks will be scaled up. Subcomponent 2.3 allocates a specific budget line for this activity within the Gender and Diversity Plan.</p>
<p><b>Monitoring and Evaluation (M&amp;E)</b></p>	
<p>* <b>Inclusion of persons with disabilities in the impact evaluation study.</b> PROCASE I was the first IFAD project in Brazil to include a specific analysis of the results obtained regarding persons with disabilities. The methodology was structured and successfully applied by the M&amp;E team.</p>	<p>Based on the research done during PROCASE I, it was possible to include target values in the PROCASE II Logical Framework.</p> <p>It was also possible to provide information to better characterize persons with disabilities in the territory and suggest specific activities to close this target group's identified social inclusion gaps.</p>



	<p>The knowledge gained from phase I will be applied to the impact evaluation study of phase II.</p>
<p><b>Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC)</b></p>	
<p>In the first phase of PROCASE, the concept of knowledge management was introduced towards the Project's end and managed primarily by the Monitoring and Evaluation (M&amp;E) department. Despite this late integration, PROCASE I succeeded in systematizing and producing valuable knowledge products and facilitated knowledge exchange activities.</p>	<p>In PROCASE II, the critical importance of KM is recognized from the outset. Effective KM is crucial for a development project as it ensures that valuable insights and lessons are systematically captured, shared, and utilized to enhance project outcomes and sustainability. PROCASE II has a specific subcomponent (2.5) for KM and SSTC activities, with a corresponding budget allocation. A KM and SSTC specialist will be hired to manage this subcomponent and ensure its implementation.</p> <p>By embedding KM and SSTC into the Project's core structure from the beginning, PROCASE II aims to ensure a more systematic and impactful approach to capturing, organizing, and disseminating knowledge. Additionally, phase II will incorporate South-South and Triangular Cooperation (SSTC), enabling the exchange of project activities and the generated knowledge within Brazil and with other countries in the Global South. This broader cooperation will not only enhance the Project's effectiveness but also contribute to a global pool of shared knowledge and best practices.</p>

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 20 Exit Strategy**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





**Brazil**

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**PROCASE II**

**Project Design Report**

**Exit Strategy**

Document Date: 25.06.2024

Project No. 2000004316

Latin America and the Caribbean  
Programme Management Department

The Project is closely aligned with the priorities of Secretariat of Family Agriculture and Semiarid Development (SEAFDS) and the Government of Paraíba, which were considered and integrated throughout the design process. This should create favorable conditions for strong ownership and continuity of PROCASE II activities, both during and after implementation. In addition to these priorities, the Project design also considered the lessons learned during PROCASE's first phase, as well as other ongoing interventions in similar areas of activity conducted with the federal government or international resources (e.g. COOPERAR, PDHC II and PCR).

The sustainability of the Project's investments beyond its lifetime was an important concern during design and should be a priority over the implementation phase. From the third year of implementation, a strategic sustainability plan will be drawn up through an iterative process with the different stakeholders. This plan will be monitored during IFAD and IDB supervision missions.

PROCASE II's exit strategy will seek to scale up Project activities with good performance and ownership, leading to greater impacts after the Project ends.

The plan's preparation will follow the guidelines of IFAD's reference documents, in particular, the Operational framework for scaling up results. Below, there is a description of several elements that will contribute to the long-term sustainability of the investments and activities implemented during the Project. The following contributing factors will be considered:

**At state level:**

- Collaboration with bodies linked to SEAFDS, such as the Rural Extension, Research and Land Regularization State Agency (EMPAER), Project sub-executor, will be a strategic factor for integrating beneficiary families and their organizations with other governmental actions and policies;
- The effective participation of various secretariats and government bodies, such as the National Institute for Colonization and Agrarian Reform (INCRA), the State Secretariat for the Environment, the Secretariat for Human Development (SEDH), which plays a central role in drawing up and coordinating the various actions included in the State Plan for Food and Nutritional Security, the Paraíba School of Public Health, the National Rural Learning Service (SENAR), the Brazilian Micro and Small Business Support Service (SEBRAE), the National institute for the Semiarid (INSA), the Brazilian Agricultural Research Corporation (EMBRAPA) and local universities, will be crucial for the appropriation of the Project's methodology and direct contribution during the implementation period. This involvement will enable these institutions to continue and expand Project's activities;
- The integration of PROCASE II activities in the state's 15 Rural Territories, in particular through the Democratic Budget hearings, will be strategic channels for finding complementarities and guaranteeing the continuity of activities after the

- Project ends. The activities of the Territories through the collegiate bodies will also be strategic for disseminating and expanding innovations and successful practices;
- Strengthening and diversifying the capacities of Technical Assistance (TA) organizations in terms of new approaches and the use of new tools related to PROCASE II strategic priorities (e.g. climate resilience, agroecology and gender-transformative approaches) will be fundamental to guaranteeing good continuity of the Project's activities. It will also be a way for organizations to apply the good practices acquired under PROCASE II to other projects;

**At community and family level:**

- The Project aims to strengthen the capacities of the beneficiary population and their community organizations through TA, so that they can access and implement other projects and activities on resilient productive systems;
- Beneficiary families and organizations will be involved in all stages of elaborating the Rural Investment Plans (PIR), defining the activities to be carried out together with TA teams. In addition, beneficiaries and their organizations will also be involved and responsible for acquiring and accounting for the financial resources related to the PIRs. This practice, used in several other IFAD-supported projects in the Northeast, contributes greatly to the ownership of the investments and enables new skills to be acquired that can be used for other projects;
- Improving skills and knowledge in nutrition, together with participatory methods of social, ethnic-racial, gender, youth, and persons with disabilities inclusion, will contribute to better ownership and social inclusion;
- Training activities and support for access to various public policies should create favorable conditions for beneficiaries, thus allowing them greater autonomy and capacities to expand and maintain the activities initiated with PROCASE II, in particular with access to rural credit and institutional purchasing programs;
- The land titling activities will play a crucial role in ensuring the sustainability of the Project's productive and environmental activities for the benefiting family farming properties.

Regarding the **environmental dimension of the sustainability of PROCASE II's** activities, it is important to note that the approach aims to make production systems and, consequently, the livelihoods of family farmers more sustainable and resilient. These include:

- PROCASE II will promote an agroecological transition to diversify and intensify production systems, integrating a specific approach to environmental issues. This is expected to lead to greater resilience to climate change, as well as greater capacity to maintain productive practices with the potential to increase and diversify yields;
- The construction of PIRs with a specific environmental focus and with resources earmarked for this purpose should make it possible to carry out collective activities

around environmental problems, generating mobilization and concrete actions from the beneficiary population;

- Social technology investments via PIRs should improve environmental sustainability by reducing water and soil contamination through the installation of family grey water treatment and reuse technologies, improving families' living conditions.

The crucial elements of the **economic dimension** that contribute to the sustainability of the project are:

- Capacity-building activities for farmers' organizations and their processing units will be key to improving access to markets on a more continuous and regular basis, allowing for a better valuation of products and an improvement in producers' incomes.
- Beneficiaries will receive TA to improve market access, an essential factor for the sustainability of the investments. Although all types of market opportunities are covered, the institutional market, such as the National School Feeding Program (PNAE) and the Food Acquisition Program (PAA), is very accessible to small producers at a local level if they have TA support;
- The introduction of agroecological practices will help to reduce the use of commercial inputs and, consequently, production costs. Together with improved mechanization, this is expected to increase the economic sustainability of family systems significantly;
- Technicians from the Project and TA organizations will be trained to use a tool to draw up PIRs and Business Plans (PN) that uses profitability calculation principles. As all the PIRs and PNs will be elaborated this way, the Project will contribute to strengthening these new capacities to generalize this methodological approach;
- Social technologies for energy production will guarantee a reduction and efficient use of natural resources in the long term, as well as monetary savings for families;
- The construction of small infrastructures for collecting, storing, and accessing water for production will be fundamental to guaranteeing the economic sustainability of production activities.

Finally, the elements of the **Project's overall approach and strategy that contribute to its sustainability** are:

- Strengthening the knowledge and expertise of the in-person and remote public and private TA teams working in the state will be a strategic contribution to the continuity of the activities implemented by PROCASE II and their replication in other projects and programs;
- Encouraging social participation at all stages of the Project through the use of specific methodologies and tools for women, young people, traditional peoples and communities and persons with disabilities should encourage ownership and sustainability of the Project's activities;

- The methodology for identifying, drawing up and implementing the RIPs and PNs, including the procurement and accountability processes, based on participatory processes and with the support of TA should allow for strong ownership of the activities and organizational dynamics promoted by the Project, a fundamental factor for its sustainability;
- The various innovations that the Project will help develop will aim to provide adapted solutions and strengthen the adaptation and resilience of productive activities and families, and their impact will go beyond the Project area, with repercussions in the medium and long term;
- The work of Knowledge Management and South-South and Triangular Cooperation will constitute a fundamental methodological reference for the continuation and expansion of the Project's activities. This will be an opportunity to ensure that the results, as well as successful innovations and approaches, are shared with the government (both at state and federal level), with other IFAD projects and with the relevant stakeholders in Brazil and in other countries, to facilitate their acceptance, support and scaling up;
- The overall sustainability of the interventions will depend on increased production of healthy food, productive diversification, improved nutrition, and increased incomes (by reducing costs and improving prices and sales conditions), and greater resilience to climate change and shocks.

**Budget:** USD 200,000 was allocated to cover the costs of carrying out the activities under component Management and M&A.



## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 21 Diversity Diagnosis**

Mission Dates: 20-28/05/2024  
Document Date: 05/09/2024  
Project No. 2000004620  
Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



**TECHNICAL REPORT**

**Diversity diagnostics of the PROCASE II project implementation area**

**Alexandra Teixeira**

**March/2024**

## Summary

<b>List of Acronyms</b>	3
<b>Terminology and Definitions</b>	4
<b>Diversity diagnosis methodology</b>	5
<b>Introduction</b>	6
<b>1. Identification</b>	7
<b>2. Socio-economic characterization</b>	8
2.1 Education	8
2.2 Economic activities	9
2.3 Income	9
2.4 Technical assistance and access to finance	13
2.5 Land security and access to land	13
2.7 Water resources, access to water and basic sanitation	14
2.8 Food Security, Nutrition and Health	15
<b>3. Other vulnerable groups in rural Paraíba</b>	16
3.1 Young people	16
3.2 Persons with disabilities	17
3.3 Agrarian Reform Settlers	18
3.4 LGBTQIAPN+	19
<b>4. Programs and public policies aimed at the Project's priority groups and themes</b>	19
<b>5. Conclusions and recommendations</b>	22
<b>6. Table of statistical gaps</b>	24
Annex 1- General data tables and Single Registry	25

## List of Acronyms

CAR	Rural Environmental Registry
CRQ	Quilombo Remnant Community
DAP	Declaration of Aptitude to Pronaf
EBIA	Brazilian Food Insecurity Scale
EEQ	Quilombola School Education
FCP	Palmares Cultural Foundation
FF	Family Farming
FNDE	National Education Development Fund
FNS	Food and Nutrition Security
IBGE	Brazilian Institute of Geography and Statistics
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
INCRA	National Institute for Colonization and Agrarian Reform
M&E	Monitoring and Evaluation
MHDI	Municipal Human Development Index
PCT	Traditional Peoples and Communities
PNAD	National Household Sample Survey
PNAE	National School Feeding Program
PNATER	National Policy for Technical Assistance and Rural Extension for Family Farming and Agrarian Reform
PNCF	National Land Credit Program
PNS	National Health Survey
PNSB	National Basic Sanitation Survey
PNSIP	National Policy for the Integral Health of the Black Population
PROINF	Program to Support Infrastructure in Rural Territories
PRONAF	National Program to Strengthen Family Farming
PSA	Pro-Semiarid Project
SISAN	Food and Nutrition Security System
SUS	Unified Health System
TI	Indigenous Lands
UFPA	Family Agricultural Production Units

## Terminology and Definitions

*Traditional Peoples and Communities (PCTs):* are culturally differentiated groups that recognize themselves as such, have their own forms of social organization, occupy, and use territories and natural resources as a condition for their cultural, social, ancestral, and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition<sup>1</sup>. These groups include: indigenous peoples, quilombolas, people of African descent or terreiros, communities that collect non-timber forest products, riverine communities, and artisanal fishers, babassu coconut breakers, shellfish gatherers, caboclos, among others. There may be overlap between these social segments.

*Indigenous Peoples:* Indigenous Peoples are distinct social and cultural groups who share collective ancestral ties with the lands and natural resources where they live, occupy or have been displaced from. The land and natural resources they depend on are inextricably linked to their identities, cultures, livelihoods, as well as their physical and spiritual well-being. They often turn to their leaders and customary organizations for representation that is distinct or separate from the dominant society or culture.

*Quilombola communities:* According to Decree No. 4887 of November 20, 2003, quilombola communities are ethnic-racial groups according to criteria of self-attribution, cultural identity, and their own historical trajectory, endowed with specific territorial relations, with a presumption of black ancestry related to resistance to slavery<sup>2</sup>.

*Vulnerable groups:* people belonging to a minority who are prevented or denied access, participation and/or equal opportunities to universal goods and services available to the population<sup>3</sup>. These groups suffer materially, socially, and psychologically from the effects of exclusion for various reasons, such as health, sexual orientation, ethnicity, race, physical or mental disability, gender, among others.

*Sexual Orientation:* This can be understood as the identity attributed to an individual according to their sexual desire and conduct, whether towards another person of the same gender (homosexuality), of a different gender (heterosexuality) or towards people of both genders (bisexuality).

*Intersectionality:* "Intersectionality is a concept that seeks to capture the structural and dynamic consequences of the interaction between two or more axes of subordination. It deals specifically with the way in which racism, patriarchy, class oppression and other discriminatory systems create basic inequalities that structure the relative positions of women, races, ethnicities, classes, and others. In addition, intersectionality deals with how specific actions and policies generate oppressions that flow along these axes, constituting dynamic or active aspects of disempowerment."<sup>4</sup>

*Good Practice:* a successful experience and initiative in any area, which is linked to innovation or is a reference for a particular group, community, or territory. It is an action that generates positive impacts on improving living conditions. It is an exemplary experience that presents good initiatives, innovations and lessons learned that can be disseminated and replicated in other contexts and similar conditions or needs<sup>5</sup>.

*Capacity Development:* is understood as a process by which individuals, groups and organizations strengthen their abilities to perform functions, mobilize and use resources efficiently to achieve objectives in a sustainable way, in the following dimensions: individual, organizational, inter-institutional and social/contextual<sup>6</sup>.

*Multidimensional Approach to Poverty:* People in poverty face a range of deprivations, from social exclusion to barriers to accessing a stable income, quality education or health care. Poverty is multifaceted and therefore one-dimensional metrics, such as monetary poverty measures, are limited<sup>7</sup>.

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<sup>1</sup> CARVALHO, Maria Tereza Queiroz. [Allocation of public lands to traditional peoples and communities: evaluation of the regulations of the Northeastern states](#). AKSAAM. Viçosa, MG: UFV, 2020.

<sup>2</sup> IBRD. [Indigenous Peoples](#).

<sup>3</sup> BASTOS, Rossano Lopes. [Entry: Vulnerable Groups](#). Dictionary of Human Rights.

<sup>4</sup> CRENSHAW, Kimberlé. [Background Paper for the Expert Meeting on Gender Related Aspects of Race Discrimination](#).

<sup>5</sup> PROCASUR. [Semi-arid Northeast Brazil: inventory of good practices. 2019](#).

<sup>6</sup> DFID. [Capacity Building. DFID Research Strategy 2008-2013 Working Paper Series, 1-19. 2008](#).

<sup>7</sup> FAO. [Measuring Poverty with a multidimensional approach: the rural multidimensional poverty index](#). 2022. BRAC. [Why we need to understand extreme poverty as multidimensional](#). 2021.

## Diversity diagnosis methodology

Poverty and inequality are rooted in socio-economic, political, and cultural structures that perpetuate the exclusion of groups belonging to certain social categories. From this perspective, inequality is recognized as a historical-structural, heterogeneous phenomenon, emanating from a culture of privilege that has excluded various social groups, such as people living in poverty, women, young people, rural populations, the LGBTQIAPN+ population and persons with disabilities, and, in the case of traditional peoples and communities (PCTs), has arbitrarily and violently expropriated them of their means of life, production and natural resources.

The gap approach is in line with the IDB's Gender and Diversity Sector Framework and the bank's Gender Action Plan and Diversity Action Plan. A *gap* implies inequality and is understood as a bottleneck that prevents the sustainable and inclusive development of a certain group in terms of social and economic equality. The *gap approach* seeks to identify these bottlenecks as a means of prioritizing certain public policies in favor of greater horizontal and vertical equity.

This socio-economic diversity diagnosis is based above all on recognizing and analyzing vertical structural gaps, i.e., disparities within the state of Paraíba and the municipalities of the PROCASE II project region. It also seeks to identify how social categorizations such as race, ethnicity, generation, and gender may create overlapping and interdependent systems of discrimination, oppression, or disadvantage.

Historically, traditional peoples and communities (PCTs), like other groups in situations of vulnerability, have suffered a process of statistical invisibility, which is reflected in the scarcity of official data dealing specifically with these groups, disaggregated by gender, race and ethnicity. These populations have specific needs, which should shape the types of actions and interventions needed to promote rural development that respects diversity and favors inclusion<sup>8</sup>.

*Data collection methodology.* Evidence - mainly quantitative - of multiple socio-economic dimensions of poverty (education, access to land, income, among others) is collected and analyzed using information from official databases<sup>9</sup>. Whenever possible, we tried to access micro-data from the 223 municipalities in the Project's area of intervention and data disaggregated by race/ethnicity and gender. In addition, when official statistics were not available, articles from academic literature were used. From February 20 to 23, 2024, a mission was conducted in communities in the Project's intervention area to gather additional information on the socio-economic situation and demands of the target groups.

*Data analysis methodology.* The first method aims to analyze the socio-economic challenges of the initial situation (baseline) and the structural conditions in which the Project will develop at the local level (municipalities) of the intervention area. A second exercise is to map public policies and programs on issues relevant to the Project, such as: family farming, access to water, sanitation and traditional peoples and communities. A third scope consists of examining the problems and cause and effect relationships identified and the associated constraints and opportunities. This effort stems from addressing the needs from the perspective of the direct beneficiaries (women, young people, family farmers, traditional peoples, and communities). This analysis will be used to highlight, from a differential approach, the discrimination and social exclusion of groups in situations of vulnerability and to propose actions to close the gaps identified.

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<sup>8</sup> IADB. *Diversity Action Plan for Operations* (2019-2021).

<sup>9</sup> The following databases were consulted: Agricultural Census (20017); Demographic Census (2010); Single Registry for Social Programs (March 2023); Continuous PNAD (2019), PNS (2019); SISVAN (2023).

## Introduction

The **general objective of** the Paraíba Rural Sustainable Development Project (PROCASE II) is to reduce rural poverty levels, improving food and nutritional security and adapting the rural population to climate change. The **specific objectives** are as follows: (i) Increasing the adoption of agricultural technologies, including those for adapting to and mitigating climate change, (ii) Improving the productive and social inclusion of family farmers, prioritizing women, young people, Traditional Peoples and Communities (PCT) and persons with disabilities, and (iii) Improving the environmental conditions of rural communities and their surroundings.

The Project's *intervention area* covers all 223 municipalities in the state of Paraíba, but the intervention will prioritize communities based on the following technical criteria: i) incidence of rural poverty (Single Registry, Cadastro Único); ii) presence of traditional peoples and communities (PCTs); iii) incidence of food and nutritional insecurity; iv) concentration of rural women and young people; v) limited or no access to water for human consumption and production; vii) avoidance of overlap with the PROCASE I, Sertão Vivo and PDHC III interventions.

The Project aims to directly benefit 60,000 families (around 210,000 people) in the family farming sector, of which 50% will be women, 20% young people, 5% Traditional Peoples and Communities (PCTs) and 2% will be Persons with Disabilities. The Project's main target groups are: i) family farmers living in poverty and extreme poverty, ii) rural women, iii) rural youth, iv) PCTs, v) Persons with disabilities and v) LGBTQIAPN+.

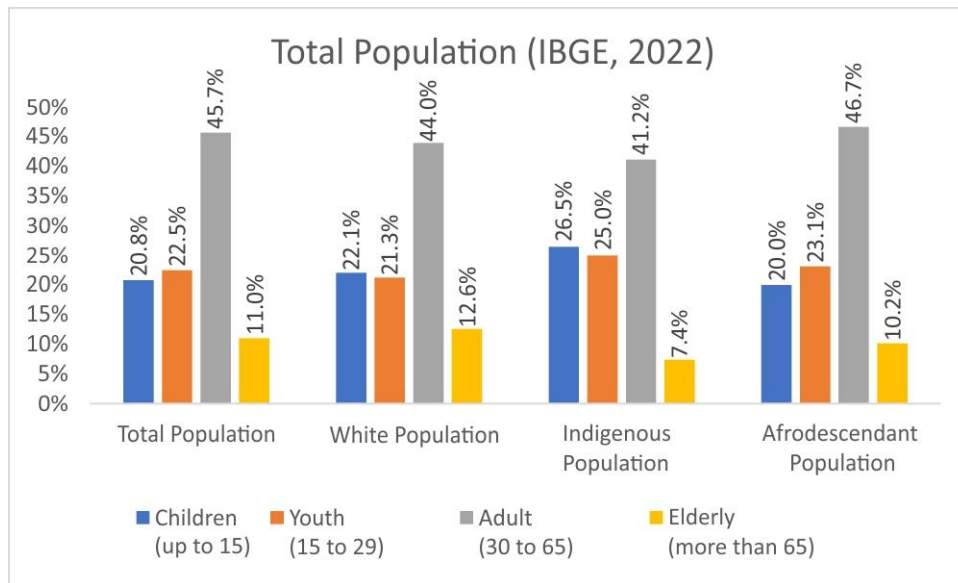
The *overall objective of* the diversity diagnosis is to ensure the inclusion of historically marginalized groups living in the PROCASE II area, in particular traditional peoples, and communities, Afrodescendants, young people, persons with disabilities and LGBTQIAPN+, ensuring that "no one is left behind". Its *specific objective* is to enhance the effectiveness of the Project's interventions by collecting and analyzing information that will serve as input for recommending activities that improve participation and benefits for marginalized communities in the Project area.

*Structure of the diagnosis.* Section 1 identifies the general and specific figures for the Project's main target groups, with emphasis on Afrodescendants, quilombolas and indigenous people. Section 2 is based on an analysis of the socio-economic characteristics of family farmers (broken down by race/ethnicity) and traditional communities in the Project's area of intervention, highlighting the *gaps* in social inclusion. Section 3 analyzes the specific challenges faced by the following vulnerable groups: young people, persons with disabilities and LGBTQIAPN+. Next (section 4), federal public policies aimed at priority groups are mapped to identify possible synergies and complementarities. Finally (section 5), based on the evidence collected, activities, targets and indicators are recommended that are appropriate for tackling existing inequalities, both in the productive sphere and in issues linked to organization and representation in spaces for dialogue, defense, and protection of their rights.



## 1. Identification

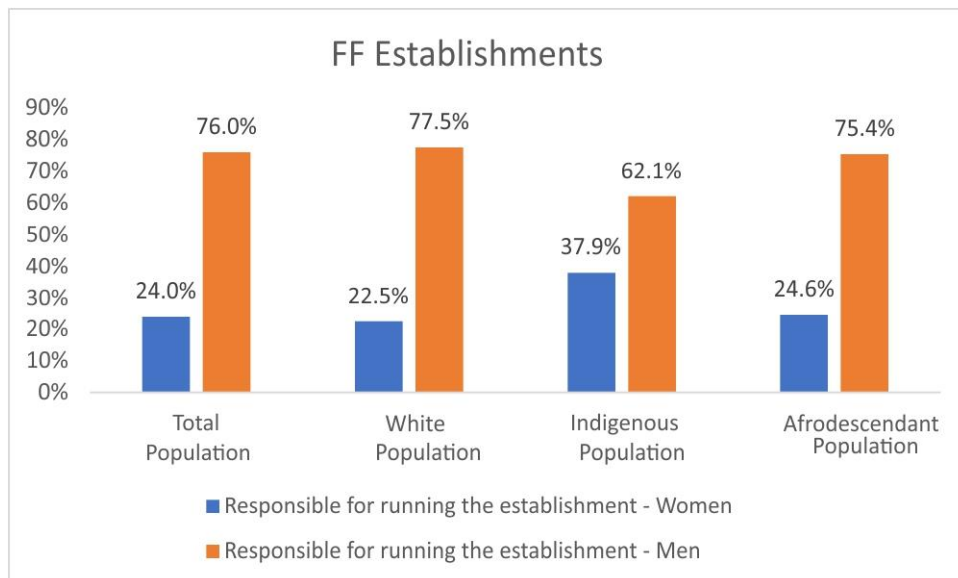
According to the 2022 Demographic Census, the population of the 223 municipalities in the intervention area is 3,974,687, of which 2,055,832 are women (51.7%) and 893,666 young people aged 15 to 29 (22.5%)<sup>10</sup> and 2,524,452 are of Afrodescendants (63.5%) (Figure 1).



**Figure 1** - Total population by race/ethnicity and age (Demographic Census, 2022).

According to the 2017 Agricultural Census<sup>11</sup>, in the Project's intervention area (223 municipalities), 76.9% of total establishments are family farms, totaling 125,489. Among the family farms, 24.0% are run by women, 64.0% by Afrodescendants<sup>12</sup>, 11.3% by young people under 35 and 0.9% by indigenous people. The table below summarizes the percentages of female and male heads of family farms by race/ethnicity and age groups.

Among the establishments run by people of African descent (Afrodescendants), 24.4% are run by women and 75.6% by men. Among those run by indigenous people, 37.9% of establishments are run by women and 62.1% by men.



**Figure 2** - Heads of FF establishments by gender and distribution of men and women by race and ethnicity (IBGE, Agricultural Census, 2017).

<sup>10</sup> Among young people aged 15 to 29, 120,114 (26.5%) are young women and 129,666 (27.3%) are young men. Source: Demographic Census 2022.

<sup>11</sup> This is the most recent Agricultural Census available with microdata for the municipalities in the project's area of intervention.

<sup>12</sup> Among the establishments run by people of African descent, 24.4% are run by women and 75.6% by men.

In the Project area, 2,574,204 people are registered in the Single Registry, of which 1,154,067 are women (44.8%) and 1,420,137 are men (data from November 2023). The total population living in rural households registered in the Single Registry is 713,277 people, making up approximately 301,455 families.

#### *Traditional Peoples and Communities:*

*Indigenous people:* According to the 2022 Demographic Census, Paraíba has 30,492 indigenous people, which corresponds to 0.76% of the state's total resident population. Of the total number of indigenous people in Paraíba, 50.8% are women and 25.6% are young people aged between 15 and 29. However, only 6,842 indigenous people (18.7% of the total) live in Indigenous Territories. In the Single Registry, there are 6,328 indigenous families registered, 73.1% of whom are in a situation of poverty or extreme poverty.

*Quilombolas:* Regarding quilombolas, according to the recently published data from the 2022 Demographic Census, there are 16,584 quilombolas in Paraíba, but only 17.6% (2,918 people) live in the state's 11 officially delimited quilombola territories. The municipalities in Paraíba with the highest number of quilombola residents were Conde (around 3,000), João Pessoa (2,260), Cacimbas (1,698), Santa Luzia (1,324) and Alagoa Grande (946). Overall, 51 municipalities in the state registered a quilombola population. When calculating the ratio between the number of quilombolas and the population of each municipality, the highlights are Cacimbas (23.5%), Conde (10.9%), Diamante (9.4%), Santa Luzia (8.9%), Riachão do Bacamarte (8.8%) and Dona Inês (7.8%)<sup>13</sup>.

According to the MPF, there are 47 certified quilombola communities in the state, none of which have titled territory<sup>14</sup>. However, data from the State Coordination of Black and Quilombola Communities of Paraíba (CECNEQ/PB) indicates that there are 49 quilombola communities in 28 municipalities in the state, 2 of which have not yet been certified<sup>15</sup>. The CECNEQ/PB survey also shows that of the 49, only 4 have been demarcated. There are 4,295 quilombola families registered in the Single Registry, 67.9% of whom live in poverty or extreme poverty.

*Gypsies:* The Gypsy population is estimated at around 1,000 families of the Calon ethnic group, present in more than 35 municipalities, according to data collected by the Community Association of Gypsy Peoples of Condado (ASCOCIC) in 2015. According to a socio-economic survey carried out by the State Secretariat for Human Development, the largest gypsy community in the state of Paraíba is in the municipality of Sousa. In Sousa alone, 278 family nuclei were declared, accounting for 904 people<sup>16</sup>. However, there are gypsy families all over the state of Paraíba.

*Shellfish gatherers:* In Paraíba, there are three informal associations of shellfish gatherers who call themselves "Women of the Waters" communities, in the municipalities of João Pessoa, Cabedelo and Pitimbu. They bring together an average of 2,500 women. In Acaú/Pitimbu (Mata Sul da Paraíba), of the 316 women involved in shellfish gathering, 104 are active members of AMA - Associação de Marisqueiras de Acaú. However, they are registered with the Ministry of Fisheries as artisanal fisherwomen.

*Agrarian Reform Settlers:* In the project area, 5,966 agrarian reform settler families are registered in the Single Registry, 3,646 (61.1%) of whom are in extreme poverty and 192 (3.2%) poverty<sup>17</sup>. In Paraíba, there are around 322 settlements which represents 15,000 settled families, or around 100,000 people<sup>18</sup>.

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<sup>13</sup> THE UNION. Paraíba has more than 16.5 thousand quilombolas. Available at: [https://auniao.pb.gov.br/noticias/caderno\\_paraiba/paraiba-tem-mais-de-16-5-mil-quilombolas#:~:text=A%20Para%C3%ADba%2C%20por%C3%A9m%2C%20C3%A9%20o,Geografia%20e%20Estat%C3%ADstica%20\(IBGE\)](https://auniao.pb.gov.br/noticias/caderno_paraiba/paraiba-tem-mais-de-16-5-mil-quilombolas#:~:text=A%20Para%C3%ADba%2C%20por%C3%A9m%2C%20C3%A9%20o,Geografia%20e%20Estat%C3%ADstica%20(IBGE).).

<sup>14</sup> IBGE. **Demographic Census 2022. Quilombolas. First results of the population.** Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (ii) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

<sup>15</sup> State Coordination of Black and Quilombola Communities of Paraíba-CECNEQ. Survey of Quilombola communities in Paraíba - Demarcation of territory by INCRA. 2023.

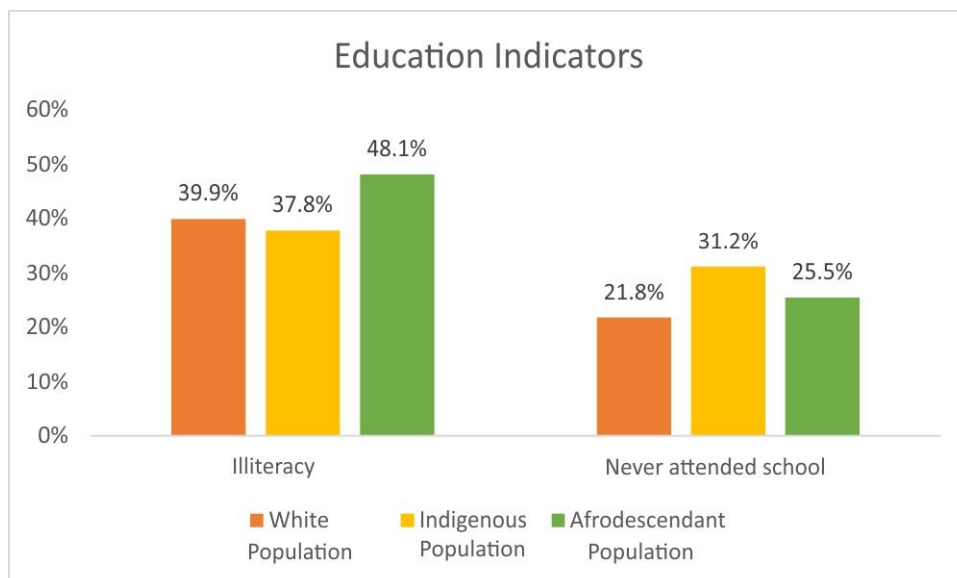
<sup>16</sup> SEDH. Socio-economic survey of the Roma population in Sousa - PB. August to December 2022.

<sup>17</sup> Single Registry, 2024. Available at: <https://aplicacoes.cidadania.gov.br/vis/data3/data-explorer.php>.

<sup>18</sup> <https://auniao.pb.gov.br/noticias/entrevistas/antonio-barbosa-superintendente-do-incra-na-paraiba-201ccerca-de-30-dos-assentamentos-da-pb-carecem-de-regularizacao201d>.

## 2. Socio-economic characterization

### 2.1 Education



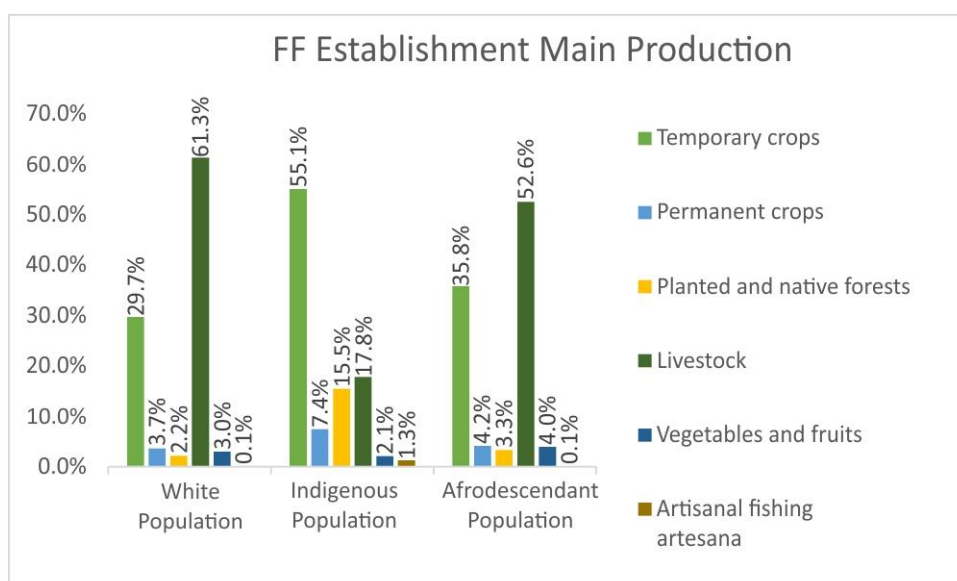
**Figure 4** - Indicators of illiteracy and never attending school (Agricultural Census, 2017).

*Illiteracy.* According to the 2017 Agricultural Census, 56,699 of those responsible for family farming establishments were illiterate, 45.2% of the total. Among the population of white family farmers, illiteracy reached 39.9% of those responsible for establishments, while among indigenous people illiteracy reached 37.8% and among Afrodescendants 48.1%. Considering only Afrodescendants, illiteracy is considerably higher among men (51.3%) than among women (38.3%).

*Never attended school.* The same database shows that 30,410 heads of family farms have never been to school (24.2% of the total). Among white family farmers, 9,466 (21.8%) have never been to school, among Afrodescendants, 20,474 (25.5%) and among indigenous people, the gap is even wider: 341 or 31.2% have never been to school. Considering only Afrodescendant family farmers, the indicators for men are higher: 27.1% of them have never been to school, while the rate for women is 20.4%.

### 2.2 Economic activities

In the Project area, according to the 2017 Agricultural Census, the agricultural economic activities of the heads of family farm (FF) establishments, broken down by race and ethnicity, are shown in Figure 5 below:



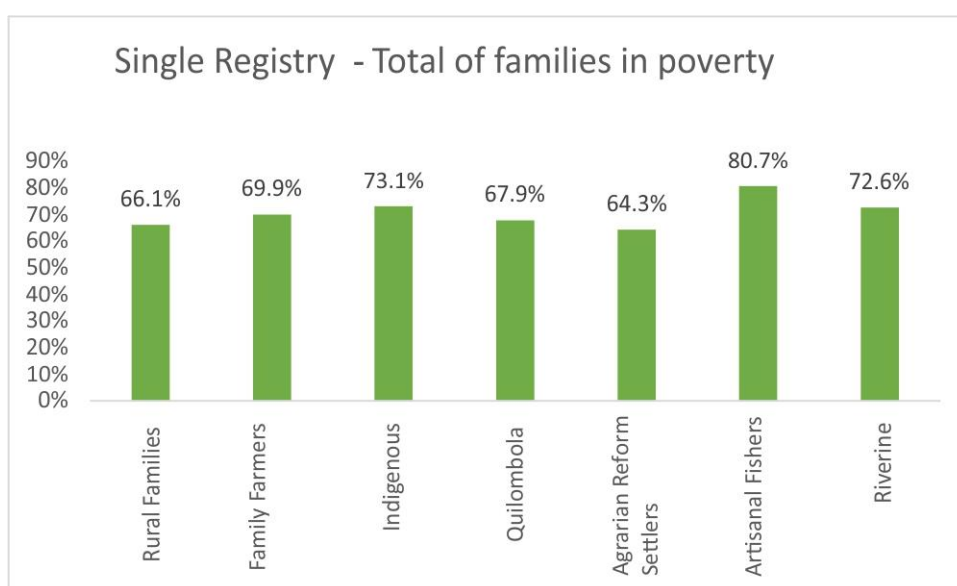
**Figure 5** - Main production of FF establishments (Agricultural Census, 2017).

For family farmers in general, livestock farming is prevalent (55.3%), followed by temporary crops (33.9%) and permanent crops (4.0%). Horticulture/fruit growing (3.6%) and forestry (3.0%) account for 5.6% of the activities of family farms. The Afrodescendant population devotes proportionally more time than the white population to temporary and permanent crops, forestry production and horticulture/fruit growing. For their part, the indigenous population's main farming activity is temporary crops (55.1%), followed by livestock (17.8%) and forestry (15.5%) - a percentage well above the other subgroups.

### 2.3 Income

*Multidimensional Poverty Index (MPI):* In 2023, the MPI for the Northeast region was calculated at 47%, while for the rural areas of the Northeast it was 66%: 29 percentage points higher than the population of urban areas<sup>19</sup>. This indicator is not available disaggregated by state or municipality.

*Household income per capita:* Nominal monthly household income per capita in 2023 was R\$1,320, eighteenth place among the 27 federation units<sup>20</sup>. However, this data is not available broken down by race/ethnicity.



**Figure 6** - Families in poverty - rural families, family farmers, quilombolas, indigenous people, artisanal fishers, riverine and agrarian reform settlers (Single Registry - Cadastro Único, 2024).

*Poverty* (figure 6). According to a study by the Paraíba State Human Development Secretariat, based on data from the Single Registry, the percentage of poverty in the state is 53.95%, considering the average of the rates of the 223 municipalities<sup>21</sup>.

Among rural families in the Single Registry, 66.1% are in extreme poverty.

Among the family farmers in the Single Registry, 69.9% are in poverty or extreme poverty - a gap of 3.8% in relation to the total number of registered rural families.

Among indigenous people, 73.1% are in a situation of poverty and extreme poverty, i.e., registered indigenous people have a rate of extreme poverty and poverty 5.6 percentage points higher than the average for all registered rural families.

Among the quilombolas, extreme poverty reaches 67.9% of those registered in poverty and extreme poverty, which indicates a gap of 6.4 percentage points in the extreme poverty and poverty situation in relation to the general average of those registered.

<sup>19</sup> UFV (2023). Study of Multidimensional Poverty in the North and Northeast of Brazil. Study commissioned by IFAD in preparation for COSOP.

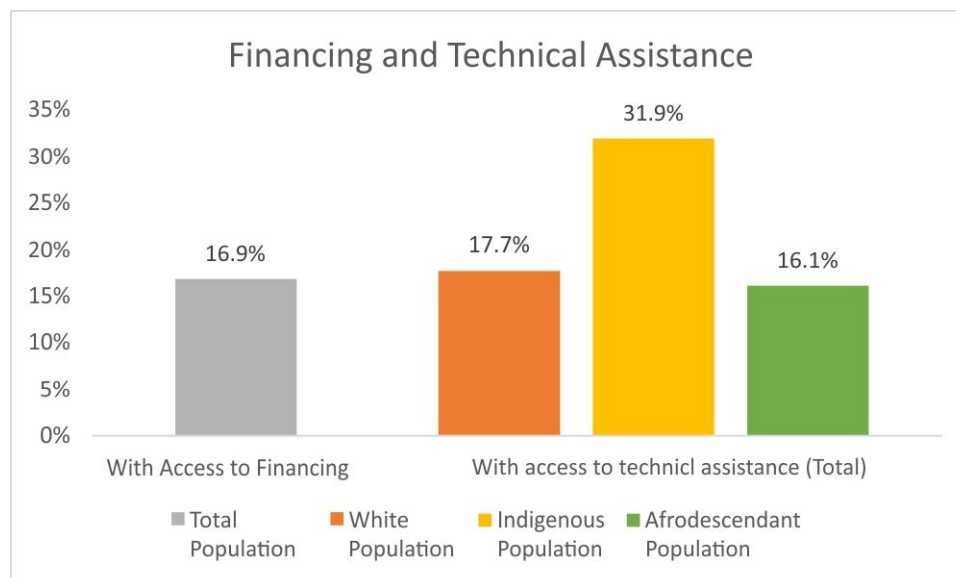
<sup>20</sup> IBGE (2018). <https://cidades.ibge.gov.br/brasil/pb/panorama>.

<sup>21</sup> SEDH. Overview of the poverty conditions of families in the state of Paraíba.

Considering artisanal fishing families, 80.7% of them are in extreme poverty or poverty. This is a gap of 12.4 percentage points in relation to the poverty/extreme poverty situation of all registered rural families.

Finally, among riverine families, 72.6% are in poverty or extreme poverty, a gap of 6.5 percentage points compared to rural families in the project area.

## 2.4 Technical assistance and access to finance



**Figure 7** – Total access to Financing and access to Technical Assistance by race and ethnicity (Agricultural Census, 2017).

*Technical Assistance (TA).* The 2017 Agricultural Census shows that 21,123 heads of family farms had access to TA, 16.8% of the total. Among white family farmers, 7,694 had access to TA (17.7%), among indigenous people, 349 or 31.9%, and among Afrodescendants, 12,961 or 16.1% of the total. The gap between white and Afrodescendant leaders is 0.7 percentage points and between whites and indigenous people 3.9 percentage points.

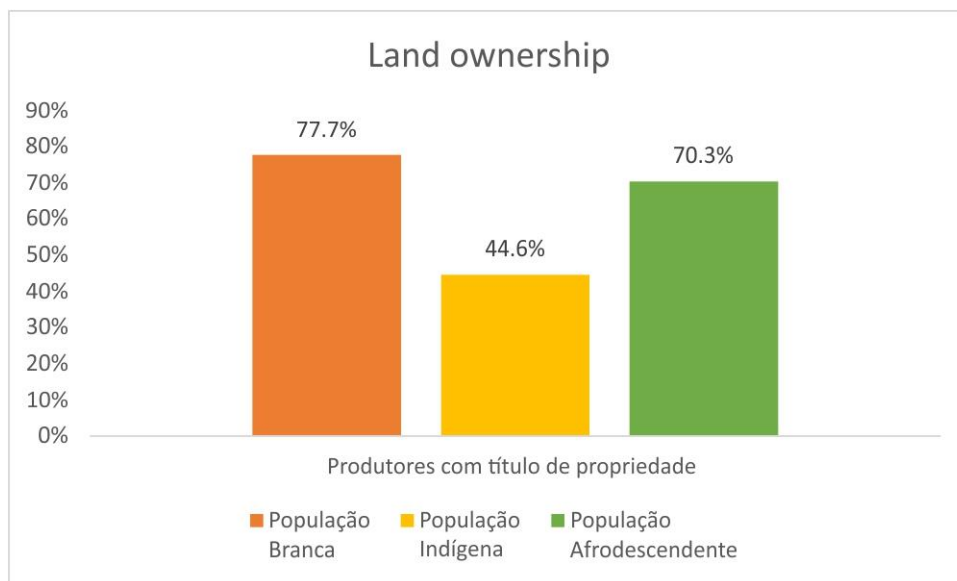
*Access to financing.* According to the 2017 Agricultural Census, 21,151 PA establishments in the Project area had access to some kind of financing (16.9% of the total). Of those that received financing, 9,899 came from public credit programs, 72.8% from PRONAF. Details of which credit programs were accessed can be found in table 1. This data is not available disaggregated by race and ethnicity.

**Table 1**

Funds from Government Credit Programs	Total	Percentage
From credit programs	9 899	100.0%
Implementation and installation of settlements (INCRA)	54	0.5%
Promotion Program	31	0.3%
National Support Program for Medium-sized Rural Producers (PRONAMP)	92	0.9%
National Program to Strengthen Family Farming (PRONAF)	7 210	72.8%
Terra Forte e Terra Sol Program	5	0.1%
Program to Support Infrastructure Projects and Services in Rural Territories (PROINF)	59	0.6%
Other programs (federal, state, or municipal)	2 448	24.7%

## 2.5 Land security and access to land

*Property title.* According to the 2017 Agricultural Census, in the Project area, 88,383 heads of family farms have land titles, or 70.4% of the total. Among white family farmers, 77.7% have a title, among indigenous farmers, only 44.6% and among Afrodescendants, 70.3%. Figure 8 shows the inclusion gaps in access to land titles.



**Figure 8** – Land ownership: Property title by race and ethnicity (Agricultural Census, 2017).

*Area of establishments.* The highest percentage of establishments with a small area - 0 to 1 ha and 1 to 5 ha - corresponds to the Afrodescendant population. Among establishments with an area of between 5 and 50 ha and over 50 ha, the highest percentage is accounted for by the white population. For family farming establishments with an area of over 50 ha, there is a gap of 3.4% between white and Afrodescendant managers. The differences in the areas of establishments by race/ethnicity are illustrated in Figure 9.



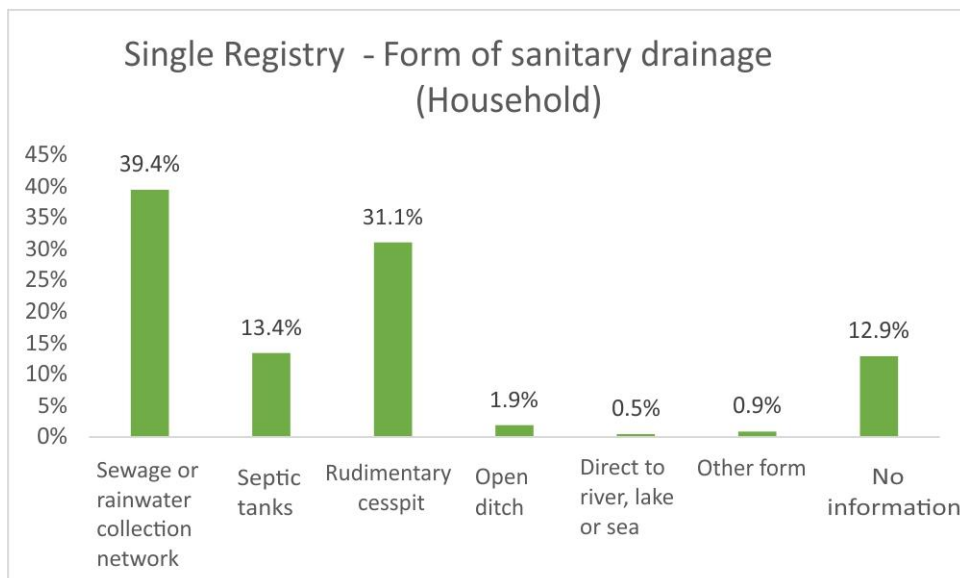
**Figure 9** - Area of FF establishments (Agricultural Census, 2017).

## 2.7 Water resources, access to water and basic sanitation

*Establishments with access to water resources:* According to the 2017 Agricultural Census, 106,764 family farming establishments (85.1%) have access to water resources, while 18,725 do not (14.9%).

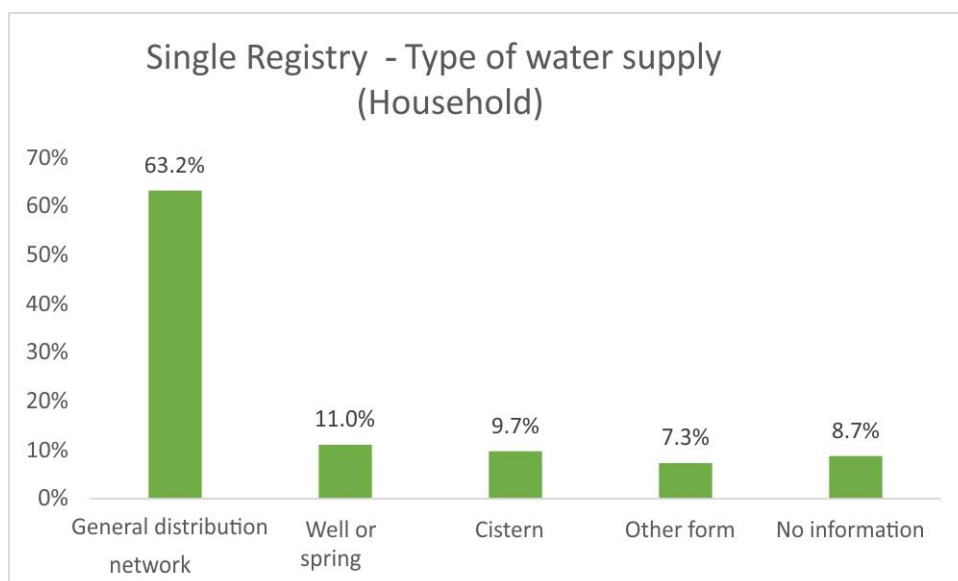
*Access to water for irrigation:* 14,394 FF establishments in the Project area (11.8% of the total) have access to water for irrigation. *Access to cisterns:* 78,824 FF establishments in the Project area (62.8%) have access to cisterns. However, this data is not available disaggregated by race/ethnicity.

*Sanitation.* In the Project area, according to the Single Registry 39.4% of households are connected to the public sewage system, 13.4% have septic tanks and 31.1% have rudimentary tanks (Figure 10). This data is not available broken down by race/ethnicity.



**Figure 10** - Forms of basic sanitation drainage in the Single Registry for the Project area (Single Registry - Cadastro Único, 2024).

*Forms of water supply.* According to data from the Single Registry (November 2023), 63.2% of households in the Project area are connected to the public water supply network, 11.0% have wells or springs and 9.7% have cisterns (see Figure 11). This data is not available disaggregated by race/ethnicity.



**Figure 11** - Forms of water supply for the Project area (Single Registry - Cadastro Único), 2023).

## 2.8 Food Security, Nutrition and Health

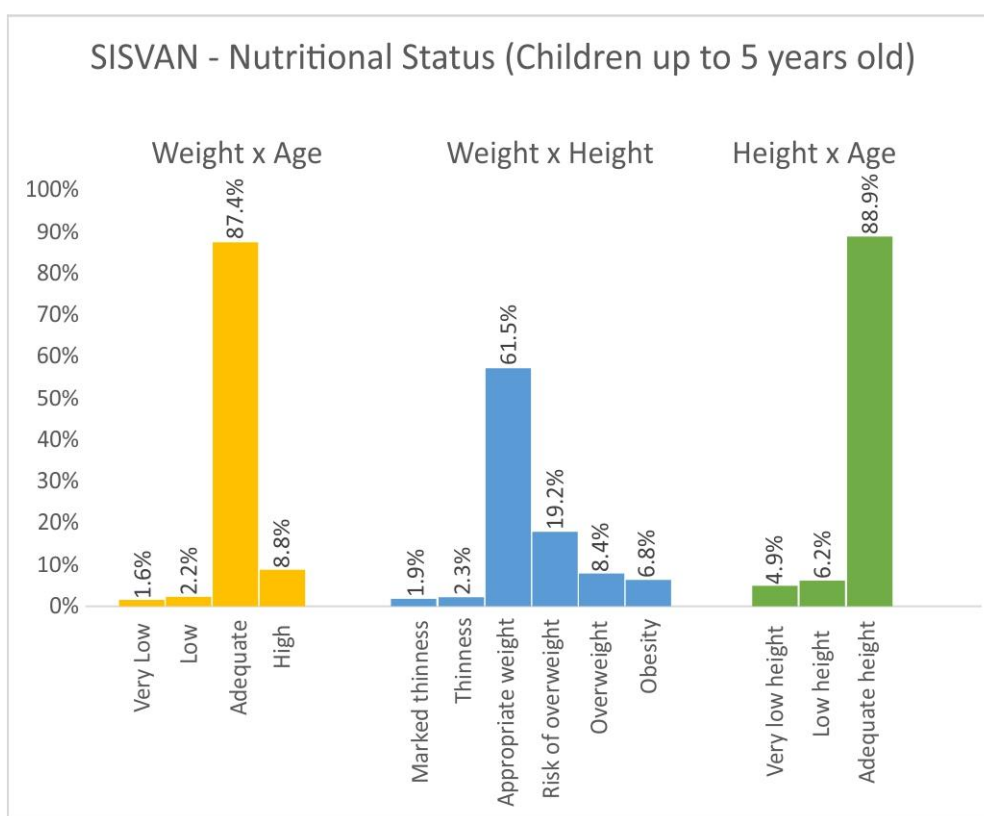
*Food Insecurity:* According to the II VIGISAN<sup>22</sup>, food insecurity (FI) in 2021/2022 affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it reached 68% of households, where 12.1 million people are going hungry, i.e., at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly affected. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of FI were observed in family farming families who had not yet been able to return to pre-pandemic

<sup>22</sup> II National Survey on Food Insecurity in the Context of the COVID-19 Pandemic in Brazil [II VIGISAN: final report]. Brazilian Research Network on Food Sovereignty and Security - PENSSAN. São Paulo, SP: Friedrich Ebert Foundation. PENSSAN Network, 2022.

conditions, especially those who had not been able to fully re-establish their production and marketed quantities. The most recent survey by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger).

**Nutrition.** Despite the process of nutritional transition, the state of Paraíba follows the national trend, and the rest of the Northeast region faces a double burden of malnutrition, marked by both undernutrition and an increase in the prevalence of overweight. 62.5% of adults in Paraíba are overweight (35.5% overweight and 27.0% obese)<sup>23</sup>. Growth retardation affects 4.9% of children under 5, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8% (figure 12).

The situation is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to suffer from socio-economic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% for the rest of Brazil<sup>24</sup>.



**Figure 12 – Nutritional Status of Children up to 5 years old (SISVAN, 2023).**

The main root causes of food and nutritional insecurity in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and the low levels of food and nutritional education. It is worth highlighting the direct correlation between food insecurity and malnutrition and poverty rates (69.9% of family farmers registered in the Single Registry in the Project area live in poverty or extreme poverty)<sup>25</sup> and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality

<sup>23</sup> Ministry of Health. Food and nutrition situation in Brazil: overweight and obesity in the adult population in Primary Health Care. [https://bvsmms.saude.gov.br/bvs/publicacoes/atlas\\_situacao\\_alimentar\\_nutricional\\_populacao\\_adulta.pdf](https://bvsmms.saude.gov.br/bvs/publicacoes/atlas_situacao_alimentar_nutricional_populacao_adulta.pdf).

<sup>24</sup> MELO, Maria Inês Bezerra de et al (2011). "Nutritional status of pregnant women assessed by three different anthropometric classification methods." *Revista de Nutrição* 24 (2011): 585-592.

<sup>25</sup> Single Registry, November 2023. Available at: <https://aplicacoes.cidadania.gov.br/vis/data3/data-explorer.php>.



of water sources). Access to quality water and sanitation plays a fundamental role in combating different forms of malnutrition. Only 39.4% of households in the Project area have access to a public sewage system and 63.2% are connected to a public water supply system<sup>26</sup>.

*Health.* The Ministry of Health understands the situation of inequality and vulnerability affecting the health of the Afrodescendant population - early deaths, high maternal and infant mortality rates, higher prevalence of chronic and infectious diseases and high rates of violence - and recognizes that the racism experienced by the black population has a negative impact on these indicators, compromising this population's access to public health services<sup>27</sup>. According to the PNS/2013, 10.6% of Brazilians over the age of 18 have felt discriminated by health service. These include: women (11.6%); black (11.9%) and brown (port. *parda*) (11.4%) people, and people with no education or incomplete primary education (11.8%).

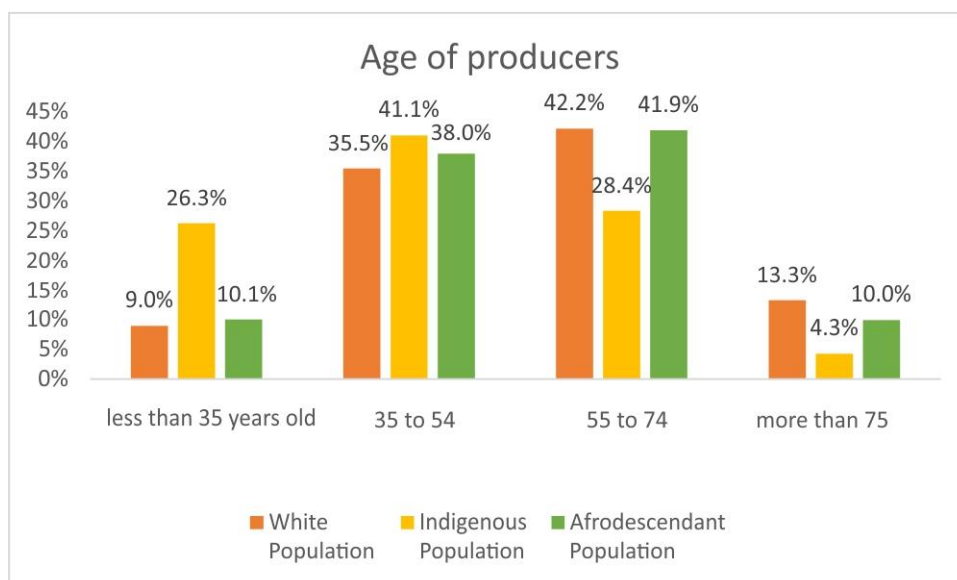
According to data from the National Health Survey (PNS) 2019, Afrodescendants are more dependent on public health services. The vast majority of Afrodescendants do not have health insurance (78.8%) and less access to complementary healthcare means greater exposure to risks. In comparison, 38.8% of white people have private health insurance. The PNS 2019 estimates also point to a direct relationship between race, level of education and health insurance coverage. In this sense, white people or those with higher education have the highest proportions of coverage. There is also a clear regional disparity in health insurance coverage; in the Northeast, it is only 16.6%.

Quilombos do not have a structured health system. In this context, one of the most striking structural difficulties for Paraíba's quilombola communities in accessing health care is the physical distance from health centers and hospitals.

The incidence of diseases such as malaria, tuberculosis, and sexually transmitted diseases (STDs) has advanced among indigenous peoples in different regions of the country, revealing the decay of care and the dismantling of the health infrastructure. Faced with the abandonment and neglect of the indigenous population, APIB and other organizations representing the indigenous movement have been advocating for the replacement of the current model of health care for indigenous peoples with a system that is appropriate to the different and complex realities<sup>28</sup>.

### 3. Other vulnerable groups in rural Paraíba

#### 3.1 Young people



**Figure 13** - Age of heads of FF establishments by race and ethnicity (Agricultural Census, 2017).

<sup>26</sup> Idem.

<sup>27</sup> BRAZIL. Ministry of Health. [National Comprehensive Health Policy for the Black Population Department of Management Support Participatory and Social Control](#). 3. ed. - Brasília: Editora do Ministério da Saúde, 2017.

<sup>28</sup> ISA. [Indigenous Health](#).

Brazil's Youth Statute (2013)<sup>29</sup> defines young people as those between 15 and 29 years of age. In the Project area, there are 893,666 young people<sup>30</sup>. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

25% of young Brazilians are considered vulnerable to poverty because they neither study nor work<sup>31</sup>, the majority of whom are black men and women. In Paraíba, the rates are even higher among young people aged 15 to 29. Approximately 35.1% neither studied nor worked in 2021, according to the Synthesis of Social Indicators 2022. Young Afrodescendant women have a higher percentage of out of school and the labor market. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, especially young women. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department<sup>32</sup>.

Paraíba's rural environment does not offer attractive employment opportunities for young people, as it combines low-income generation capacity, precarious and strenuous working conditions, and a lack of basic services. Because of the lack of sustainable study and formal work opportunities for young rural people, there is a process of migration to urban centers, mainly of young women with more schooling, which causes the rural population to age (the largest group of migrants is between 16 and 35 years old) and the proportion and number of women to decrease<sup>33</sup>. The trend of young women leaving rural areas more frequently is driven not only by a lack of opportunities but also by their reluctance to assume the traditional roles of their mothers and grandmothers in the family production unit<sup>34</sup>. Comparing the 2006 Agricultural Census and the 2017 Census, the young rural population under the age of 25 fell by 49.7%<sup>35</sup>.

Among the factors that influence staying in rural areas are access to financial resources, education/training suited to the characteristics of rural areas, appreciation of rural lifestyles, the availability of services and conditions that can offer the possibility of success in agricultural production<sup>36</sup>. However, in the PROCASE II area, young people who decide to stay in the rural area have limited access to and control over resources, inputs, goods, and technologies. The indicators for access to land and credit confirm this.

In the Project area, only 9.9% of FF farms are run by young people under 35 years of age<sup>37</sup>, indicating low access to land. When they get married, few of them can acquire new properties, and what often happens is that the family property is divided into smaller plots for the children, which further reduces the productive potential and profitability of agricultural activities. It should be noted that there are gender tensions in inheritance patterns, which disadvantage young rural women.

Access to credit is very limited in the Project area. Only 21,123 FF establishments in the Project area have accessed some kind of financing (16.8% of the total), the largest of which is PRONAF. Although this data is not available disaggregated by generation, it can be inferred that access to credit by young people is even more limited. The PRONAF youth program, which was created to facilitate young rural people's access to credit, creating the conditions to enable rural succession processes in FF, still has a very small number of contracts signed in relation to the proportion of the young rural population. Among the root causes of this lack of access is misinformation, the lack of institutions for training young farmers, the difficult bureaucratic requirements that restrict the signing of credit contracts, and the fact that bank agents often assume that young people's inexperience in managing resources will lead them to default<sup>38</sup>.

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<sup>29</sup> Available at: [https://www.gov.br/mdh/pt-br/navegue-por-temas/juventude/publicacoes/estatuto\\_da\\_juventude\\_2022-defeso.pdf](https://www.gov.br/mdh/pt-br/navegue-por-temas/juventude/publicacoes/estatuto_da_juventude_2022-defeso.pdf).

<sup>30</sup> IBGE, 2022. Demographic Census.

<sup>31</sup> IBGE, 2022. Synthesis of Social Indicators, 2022. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv101979.pdf>.

<sup>32</sup> Available at: <https://g1.globo.com/pb/paraiba/noticia/2022/02/01/paraiba-registra-mais-de-125-mil-casos-de-gravidez-em-criancas-e-adolescentes-entre-2020-e-2022.ghtml>.

<sup>33</sup> CAMARANO, A. A.; ABRAMOVAY, R. Rural exodus, ageing and masculinization in Brazil: an overview of the last 50 years. Rio de Janeiro: IPEA, 1999. 28 p. (Text for discussion n.621).

<sup>34</sup> SILVA, Luciana Porto da. "Female youth in the rural Northeast: an analysis of the process of permanence based on the Census (1980-2010) and Pnad (1992-2015)." (2018). Available at: [https://repositorio.unb.br/bitstream/10482/32747/1/2018\\_LucianaPortodaSilva.pdf](https://repositorio.unb.br/bitstream/10482/32747/1/2018_LucianaPortodaSilva.pdf).

<sup>35</sup> IBGE (2006). Agricultural Census; IBGE (2017). Agricultural Census.

<sup>36</sup> LIMA, S.M.V. Juventude Rural e as Políticas e Programas de Acesso à Terra no Brasil: Recomendações para Políticas de Desenvolvimento para o Jovem Rural. Brasília: MDA, 2013.

<sup>37</sup> Although the Youth Statute defines young people as those aged between 15 and 29, the data from the 2017 Agricultural Census is not broken down by age group. In this context, it was decided to use the information available for those under 35 as an approximation.

<sup>38</sup> CMAP. Evaluation Report: National Program to Strengthen Family Farming - 2020 cycle. Available at: [https://www.gov.br/economia/pt-br/acao-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio\\_avaliacao-cmas-2020-pronaf.pdf](https://www.gov.br/economia/pt-br/acao-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio_avaliacao-cmas-2020-pronaf.pdf). MARIN,

However, access to technical knowledge is higher among young people under 35 than the average among family farmers in the project area. The quantitative evidence available from the 2017 Agricultural Census indicates that, among young FA managers (under 35), 2,283 (18.5%) received TA - while 16.8% of all family farmer managers did. Despite the higher percentage of access, it can still be said that access to TA among young people is limited. Broken down by gender, access to TA was 18.1% among young women and 18.6% among young men. There is therefore an access gap of 0.1 percentage points between young male and female leaders.

During the PROCASE II design field mission, an additional problem faced by rural youth was identified - vulnerability to violence associated with drug trafficking.

### 3.2 Persons with Disabilities<sup>39</sup>

The Northeast is the region with the highest percentage of persons with disabilities in Brazil, 10.3% of the population or around 5.8 million people<sup>40</sup>. The highest percentages of persons with disabilities are women and people of African descent. According to data from the Single Registry (November 2023), there are 144,655 persons with disabilities in the project area, or around 5.6% of those registered.

Disability and poverty are intricately linked in Brazil, with persons with disabilities facing significant stigma and discrimination. For example, this group has lower success rates at school and more limited access to economic activities, both of which are major factors contributing to family poverty. Persons with disabilities face a number of challenges throughout the life cycle. Children with disabilities dropping out of school is a serious problem in Brazil. There is a relatively high number of female-headed households receiving the main tax-funded disability benefit in Brazil, the Continuous Social Assistance Benefit, and this may be related to the high rate of parental abandonment by families that have a child with disabilities as a member. The data highlights that persons with disabilities do not achieve parity with their non-disabled peers at any level of education. This puts them at a significant disadvantage in a competitive job market.

There are some additional gender dimensions that impact the challenges that persons with disabilities face. For example, women and girls with some form of disability are at high risk of abuse, and this is especially the case for those with cognitive disabilities. Furthermore, until the Brazilian Inclusion Law (2015) was enacted, it was still routine for women with cognitive disabilities to be sterilized without consent. Caring for persons with disabilities also has a significant gender dimension. In general, women face the double burden of needing to both earn money and provide care, but this burden is only exacerbated when family members are also disabled. It should also be noted that women with disabilities can also have a disproportionate burden of care placed on them, as they can still be expected to care for other members of their family.

In Paraíba, disability is concentrated among the older population: 24.8% of people aged 60 and over had some kind of disability, while among people aged two to 59 this percentage drops to 5.1%. In Paraíba, 88.7% of persons with disabilities do not work and 74.4% earn less than the minimum wage<sup>41</sup>.

### 3.3 LGBTQIAPN+

The lack of government data on the socio-economic and political challenges faced by the LGBTQIAPN+ community is indicative of the statistical invisibility and marginalization of this group. The lack of a social assistance policy, the rural exodus of the LGBTQIAPN+ population to urban centers, the lack of family support, the limited access to income and low employability in the countryside, the difficulty of staying in the school environment due to prejudice, especially from the trans population, are some of the factors that maintain the invisibility of data on the LGBTQIAPN+ population in rural areas.

Data on this LGBTQIAPN+ population was collected experimentally in the 2019 National Health Survey (PNS). Around 2.9 million people in the country declared themselves to be homosexual or bisexual in 2019, which corresponded to around 1.8% of the adult population over the age of 18<sup>42</sup>. On the other

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Joel Orlando Bevilacqua. Pronaf Jovem: the disjunctions between the ideal and the real. *Revista de Economia e Sociologia Rural*, 2020, 58: e187438. Available at: <https://www.scielo.br/j/resr/a/PTkqtrffmF3Pq4cWvwmBhxR/>.

<sup>39</sup> Disability is considered to be any loss or abnormality of a psychological, physiological or anatomical structure or function that generates an incapacity to perform an activity within the standard considered normal for human beings.

<sup>40</sup> IBGE (2022). Continuous National Household Sample Survey.

<sup>41</sup> PCD CENSUS (2023). Available at: <https://wemp.com.br/censo/#>.

<sup>42</sup> Among people aged 18 and over, 94.8% declared themselves heterosexual; 1.2% homosexual; 0.7% bisexual; 1.1% didn't know their sexual orientation; 2.3% didn't want to answer; and 0.1% declared another sexual orientation.

hand, 1.7 million did not know their sexual orientation and 3.6 million did not want to answer<sup>43</sup>. There was a higher declaration of homosexuality or bisexuality in the Southeast, at 2.1%, compared to 1.9% in the South and North, 1.7% in the Midwest and just 1.5% in the Northeast. Other relevant data collected by the PNS show that:

- Self-identification is higher in urban areas (2%) than in rural areas (0.8%)<sup>44</sup>;
- Self-identification as homosexual or bisexual is higher among those with higher education (3.2%) and higher incomes - more than 5 minimum wages per capita (3.5%);
- The proportion of "don't know" or "refused to answer" responses was higher among those with a lower level of education;
- The proportion of homosexuals and bisexuals is slightly lower among whites (1.8%) than among blacks (1.9%) and browns (1.9%);
- The 18-29 age group has the highest proportion of self-declared homosexuals or bisexuals (4.8%);
- The youngest age group also has the highest proportion of people who did not know or did not want to answer (5.3%).

Based on data from the PNS 2019, the analysis of the level of education of the LGBTQIAPN+ population in Brazil reveals a diverse panorama. The figures reflect a wide range of educational levels within this community (Table 2).

**Table 2 - Level of education of the LGBTQIAPN+ population in Brazil**

Level	Absolute value	Percentage value
No education	35.400	1,18%
Elementary school incomplete or equivalent	239.400	7,98%
Complete primary school or equivalent	184.500	6,15%
Incomplete high school or equivalent	403.200	13,44%
High school diploma or equivalent	955.500	31,85%
Incomplete university degree or equivalent	377.700	12,59%
Complete university degree	804.300	26,81%

The distribution of per capita household income among the LGBTQIAPN+ population in Brazil reveals significant economic diversity (Table 3).

**Table 3 - Per capita household income of the LGBTQIAPN+ population in Brazil**

Track	Absolute value	Percentage value
Up to ¼ minimum wage	200.100	6,67%
More than ¼ to ½ minimum wage	273.000	9,10%
More than ½ to 1 minimum wage	761.400	25,38%
More than 1 to 2 minimum wages	800.100	26,67%
More than 2 to 3 minimum wages	362.400	12,08%
More than 3 to 5 minimum wages	320.100	10,67%
More than 5 minimum wages	282.900	9,43%

Throughout Brazil, the LGBTQIAPN+ population has been victimized by different forms of LGBTIphobia, placing this group in a situation of vulnerability because they do not fit into a socially referenced heteronormative pattern. Brazil is an extremely unsafe country for this population, as indicated by the upward trend in the number of violent deaths of LGBTQIAPN+ people over the last two decades. Between

<sup>43</sup> IBGE, 2019. National Health Survey (PNS). Available at: <https://www.ibge.gov.br/estatisticas/sociais/saude/9160-pesquisa-nacional-de-saude.html>.

<sup>44</sup> Self-declared homosexuality and bisexuality were also higher in the capital cities.

2000 and 2022, 5,635 (five thousand six hundred and thirty-five) people died because of gender prejudice and intolerance. In 2022, there were a total of 273 deaths of LGBTQIAPN+ people, a national average of 1.31 deaths per million people<sup>45</sup>. Most of the deaths occurred among young people aged between 20 and 29 and the Northeast region had the highest absolute number of violent deaths. It is possible to relate the number of LGBTQIAPN+ deaths in each Brazilian macro-region to the social, economic, and cultural conditions of these spatial units. The Northeast and North, for example, are historically marked by lower socio-economic indicators, such as income, schooling, access to public services and life expectancy, than the rest of the country, including a significant population in a situation of vulnerability. Among the states, those with the highest number of deaths were Ceará (34), São Paulo (28) and Pernambuco (19). According to the Observatory of LGBTI Deaths and Violence in Brazil, 8 violent deaths of LGBTQIAPN+ people were recorded in Paraíba in 2022.

Paraíba recorded 68 cases of violent deaths of the LGBTQIAPN+ population between 2017 and 2022, according to data released in a report by the Secretariat for Women and Human Diversity. In total, 24 municipalities in Paraíba recorded cases. João Pessoa has the highest number of cases, with 29 crimes, followed by Campina Grande and Bayeux, with five cases each, and Patos was in third place, recording four crimes. Gay men represent the largest number of murders in Paraíba, leading with 17 of the 29 cases between 2020 and 2022, followed by transvestites who represent six cases in the same period, and in third place are transgender women, with 4 crimes.

Partial data for 2023 from the Observatory of LGBT Deaths and Violence in Brazil, from January to April, totaled 80 deaths. To date, transvestites and trans women account for 62.50% of the total deaths (50); gay men account for 32.50% of the cases (26 deaths); trans men and transmasculine people, 2.50% of the cases (2 deaths); lesbian women account for 2.50% of the deaths (2 deaths); no cases against bisexual people and people identified as other segments have been identified<sup>46</sup>.

#### **4. Programs and public policies aimed at PROCASE II priority groups and themes**

To help identify possible synergies and complementarities with the project's interventions, the federal public programs and policies that apply to the project's relevant themes and target groups are mapped below.

##### **Youth**

- The National Youth Inclusion Program (ProJovem) has the mission of raising the educational level of young people between the ages of 18 and 29 who, despite being literate, have not yet completed elementary school. This commitment materialized through the Youth and Adult Education (EJA) modality, which integrates professional skills and civic involvement". The "Campo" program is aimed at young farmers excluded from the formal education system. It lasts 24 months and integrates Youth and Adult Education (EJA) with social and professional skills, strengthening the agricultural base.
- PRONAF Youth: supports agricultural and non-agricultural activities, through a specific line of credit aimed at young rural people, with easy payment conditions.
- The National Agrarian Reform Education Program (PRONERA): presents and supports educational projects aimed at developing agrarian reform areas. The public policy is aimed at young people and adults living in settlements created or recognized by INCRA, quilombolas, teachers and educators who carry out educational activities aimed at beneficiary families, as well as people assisted by the National Land Credit Programme (PNCF).
- Youth Land" line of the National Land Credit Program (PNCF) - offers subsidized credit for the acquisition of land by rural workers under the age of 30.
- The Young Entrepreneur Program was designed to provide professional training and subsequent financing for young people at the technical level who were graduating or had recently graduated, were aged between 18 and 29 and were interested in running their own business. It had a regional focus, limited to the areas where Banco Nordeste operates (northern Espírito Santo, Minas Gerais, and the Northeastern states), which was responsible for its development.
- Young Brazil Program, which includes the establishment of Youth Centers and the training of young people aged 15 to 17 as Youth Agents for Social and Human Development through the granting of scholarships.

<sup>45</sup> Observatory of LGBTI+ deaths and violence in Brazil. Dossier 2022: Deaths and violence against LGBTI+ people in Brazil. Available at: [Dossie-de-Mortes-e-Violencias-Contra-LGBTI-no-Brasil-2022-ACONTECE-ANTRA-ABGLT.pdf](#).

<sup>46</sup> <https://observatoriomorteseviolenciaslgbtibrasil.org/dossie/mortes-lgbt-2022/>.

- The Youth Agent Program for Social and Human Development aims to prepare young people for intergenerational work, training them for the job market and to work in their communities in the areas of health, culture, the environment, citizenship, sport, and tourism.

#### Health, Food Security and Nutrition<sup>47</sup>:

- he National Policy for the Integral Health of the Black Population (PNSIPN) is a commitment to combat inequalities in the Unified Health System (SUS) and to promote the health of the black population in an integral way, considering that health inequalities are a consequence of unjust socio-economic and cultural processes - in particular, current racism - which corroborate the morbidity and mortality of Brazil's black populations.
- The National Policy for the Health Care of Indigenous Peoples<sup>48</sup> aims to guarantee indigenous peoples access to comprehensive health care, in accordance with the principles and guidelines of the SUS, taking into account social, cultural, geographical, historical and political diversity in order to overcome the factors that make this population more vulnerable to health problems of greater magnitude and transcendence among Brazilians, recognizing the effectiveness of their medicine and the right of these peoples to their culture<sup>49</sup>.
- The National Food and Nutrition Security Policy (PNSAN) aims to promote and guarantee access to adequate food and food and nutrition security as a fundamental human right.
- The Food Acquisition Program (PAA)<sup>50</sup> includes the acquisition of agricultural products from FA, their distribution to people in situations of food insecurity and the formation of strategic stocks. Quilombola communities and other social groups of Afrodescendants, identified as family farmers, can participate in the PAA, which includes specific targets for serving quilombola communities.
- The National School Feeding Program (PNAE) is a strategy to promote FNS for public school students and a public procurement program that encourages the local purchase of food from family farming (a minimum of 30% of FNDE resources) and prioritizes agrarian reform settlements, indigenous people and quilombolas. Quilombola organizations have historically demanded that food for public schools and their students be in line with the customs, diet, ways of life and production of the communities.
- Food Guidelines for the Brazilian Population (Ministry of Health - MoH, 2015) and Food Guide for the Brazilian Population (MoH, 2019): present a set of information, analyses, recommendations and guidelines on the choice, combination, preparation, and consumption of food aimed at promoting the health of individuals, families and communities and Brazilian society.
- The Brazil Without Hunger Plan (2023): There are 80 actions and programs, with more than 100 goals proposed by the 24 Ministries that make up the Interministerial Chamber for Food and Nutritional Security - CAISAN, organized into 3 axes: Access to income, poverty reduction and promotion of citizenship; Adequate and healthy food, from production to consumption; Mobilization to combat hunger.

#### Family Farming:

- The National Program to Strengthen Family Farming (PRONAF) provides credit for the costing of the harvest or agro-industrial activity, or for investment in machinery, equipment, or production infrastructure and agricultural or non-agricultural services. Pronaf has specific credit lines for young people and women. The Declaration of Aptitude to Pronaf (DAP)<sup>51</sup> is a mandatory document for accessing rural credit lines and other public policies to encourage family agricultural production. Quilombolas, indigenous peoples, collectors of non-timber forest product, artisanal fishers, Agrarian Reform settlers and beneficiaries of the National Land Credit Program (PNCF) and Agrarian Reform can obtain the DAP.
- The National Land Credit Program (PNCF) is currently called Terra Brasil<sup>52</sup> and offers conditions for farmers who do not have access to land or who own property with an area that is demonstrably insufficient to support their families to buy rural property through financing. As well as buying land, the funds can be used to structure the property, implement a production project, or hire technical assistance services.

<sup>47</sup> According to CONAQ, the federal public policies for family farming most accessed by the communities are the PNAE and the PAA. Source: ECAM. [Diagnosis of public policies aimed at quilombola family farming](#). 2021.

<sup>48</sup> Legal basis: Law No. 9.836 of September 23, 1999; Ministry of Health Ordinance No. 254 of January 31, 2002; Decree No. 3.156 of August 27, 1999.

<sup>49</sup> Brazil. Ministry of Health. [National Policy for the Health Care of Indigenous Peoples](#). 2002.

<sup>50</sup> Legal basis: Law no. 10.696, of July 2, 2003; 2. Decree no. 4.772, of July 2, 2003; amended by Decree no. 5.873, of August 15, 2006.

<sup>51</sup> Legal basis: Ordinance No. 24 of May 29, 2009; Ordinance No. 12 of June 25, 2010; Ordinance No. 102 of December 6, 2012; Normative Instruction No. 001 of May 14, 2010.

<sup>52</sup> Legal basis: Complementary Law No. 93, of February 4, 1998; Decree No. 10.126/2019; SAF/MAPA Ordinance No. 123, of March 23, 2021.

- The National Policy for Technical Assistance and Rural Extension for Family Farming and Agrarian Reform (PNATER)<sup>53</sup> is aimed at families in situations of social vulnerability, such as PCTs. Its twelve objectives include: i) promoting sustainable rural development; ii) increasing the production, quality and productivity of agricultural and non-agricultural activities and services, including collection of non-timber forest products, forestry, and craft activities; iii) advising on the various phases of economic activities, business management, organization, production, market insertion and supply, observing the peculiarities of the different production chains
- Digital Ater Program - The aim of this program is to strengthen the Brazilian Technical Assistance and Rural Extension System (Sibrater), to expand the reach of extension workers in all regions of Brazil, using Information and Communication Technologies (ICTs), increasing farmers' access to modern, agile, and efficient services, increasing their competitiveness.
- Brasil Mais Cooperativo Program<sup>54</sup> was set up to support Brazilian rural cooperatives and associations by offering specialized assistance, promoting inter-cooperation, technical training and qualifying management, production, and commercialization processes in institutional and private markets.
- National Seal of Family Farming (SENAF) - Identifies the origin and provides the characteristics of family farming products, with the aim of strengthening it in the eyes of the consumer public. It is awarded to agro-industries and cooperatives/associations that have a Declaration of Aptitude to Pronaf (DAP). There are seven types of the National Family Farming Seal: Senaf, Senaf Mulher, Senaf Juventude, Senaf Quilombola, Senaf Indígena, Senaf Sociobiodiversidade and Senaf Empresas.

#### Access to water and sanitation:

- The National Health Foundation (FUNASA) provides technical and financial support for sanitation actions<sup>55</sup> in rural areas and traditional communities (quilombo remnants) in all Brazilian municipalities, with resources executed directly or through agreements signed with municipalities, states, and the Federal District.
- The Water for All Program aims to assist families living in rural areas with precarious access to water, who are registered with the Single Registry of Social Programs (CadÚnico). All municipalities in the Brazilian semi-arid region where there are families living in extreme poverty on the CadÚnico and who have precarious access to water are automatically included in the Program.
- The Cistern Program, which aims to promote universal access to water in rural areas for human consumption and agriculture<sup>56</sup>, has already implemented more than 1 million water technologies. However, the program has reached its lowest level in 17 years after a 94% reduction in its budget over the last 6 years<sup>57</sup>. The Agua Doce Program, aimed at implementing well water desalination systems to promote access to water for low-income populations in the semi-arid region, has the goal of installing 1,727 desalination systems in the state and setting up 103 biosaline agricultural production units, to benefit around 1.2 million people.
- The Agua Doce Program (PAD), aimed at setting up well water desalination systems to promote access to water for low-income populations in the semi-arid region, has the goal of installing 1,727 desalination systems in the state and setting up 103 biosaline agricultural production units, to benefit around 1.2 million people.

#### Traditional Peoples and Communities:

- The main objective of the National Policy for the Sustainable Development of Traditional Peoples and Communities<sup>58</sup> is to promote the sustainable development of Traditional Peoples and Communities, with an emphasis on recognizing, strengthening, and guaranteeing their territorial, social, environmental, economic, and cultural rights, while respecting and valuing their identity, their forms of organization and their institutions.
- The National Policy for the Territorial and Environmental Management of Indigenous Lands (PNGATI)<sup>59</sup> has the general objective of guaranteeing and promoting the protection, recovery, conservation and sustainable use of the natural resources of indigenous lands and territories,

<sup>53</sup> Legal basis: Law No. 12.188 of January 11, 2010.

<sup>54</sup> Legal basis: MAPA Ordinance No. 129, of July 4, 2019.

<sup>55</sup> Basic sanitation actions encompass three types of intervention: i) implementation and/or expansion of public water supply systems; ii) implementation and/or expansion of public sewage systems; iii) implementation of small-scale household and/or collective sanitation improvements, including cisterns.

<sup>56</sup> The program is organized into three types of technologies: water for human consumption, water for production and cisterns in schools. Legal basis: Law No. 12,873 of October 24, 2013 and Decree No. 9,606 of December 10, 2018.

<sup>57</sup> According to [Articulação Semiárido Brasileiro \(ASA\)](#), there are at least 350,000 families waiting in line for cisterns and more than 800,000 still lack the technology.

<sup>58</sup> Legal basis: Federal Decree No. 6.040/2007.

<sup>59</sup> Legal basis: Decree No. 7.747 of June 5, 2012.

ensuring the integrity of indigenous heritage, the improvement of quality of life and the full conditions for the physical and cultural reproduction of current and future generations of indigenous peoples, respecting their socio-cultural autonomy.

- The National Policy for the Sustainable Development of Traditional Peoples and Communities (PNPCT)<sup>60</sup>'s main objective is to promote the sustainable development of Traditional Peoples and Communities, with an emphasis on recognizing, strengthening, and guaranteeing their territorial, social, environmental, economic, and cultural rights, while respecting and valuing their identity, their forms of organization and their institutions.
- The National Policy for the Promotion of Racial Equality (PNPIR)<sup>61</sup>, whose central objective is to reduce ethnic inequalities in Brazil, especially among the black population, through programs and projects to be implemented in the long, medium, and short term. The following management principles are laid down in this national policy: a) transversality, in which various bodies participate in the execution and management of actions to combat racial inequalities; b) decentralized management, in which the federative entities are articulated; c) democratic management, through dialogue with civil society participating in the quilombola struggle.
- The Brazil Quilombola Program (PBQ)<sup>62</sup> is aimed at certified CRQs and has four thematic axes: a) access to land; b) infrastructure and quality of life; c) local development and productive inclusion; d) rights and citizenship.
- Aquilomba Brasil Program - is an expansion of Brasil Quilombola (Decree 6.261, 2007) and consists of a set of intersectoral measures aimed at promoting the rights of the quilombola population, with emphasis on four thematic axes: Access to Land; Infrastructure and Quality of Life; Productive Inclusion and Local Development; Rights and Citizenship.
- The "Quilombolas do Brasil" and "Indígenas do Brasil" stamps are essential tools for identifying the origin of agricultural, craft and food products from quilombola and indigenous communities, and necessary instruments for adding value.

Persons with disabilities:

- National Policy for the Integration of Persons with Disabilities<sup>63</sup> comprises a set of normative guidelines aimed at ensuring the full exercise of the individual and social rights of persons with disabilities.

LGBTQIAPN+ population

- The National Plan for the Promotion of LGBT Citizenship and Human Rights<sup>64</sup> (Lesbians, Gays, Bisexuals, Transvestites and Transsexuals) sets out the guidelines and actions for the development of public policies aimed at this segment, mobilizing public authorities, and organized civil society to consolidate a democratic pact.

## 5. Conclusions and recommendations

The diversity diagnosis shows that PCTs and Afrodescendants are severely disadvantaged in several of the socio-economic dimensions studied. Inserted in exclusionary and unequal structures, these groups face poverty, food insecurity, lack of access to technical assistance, and poor coverage of public services and policies, such as health and education. However, the PCTs play a fundamental role in environmental preservation and rural development as guardians of ancestral food and production knowledge and practices. Other vulnerable groups in the project area are young people, persons with disabilities and the LGBTQIAPN+ community.

The recommendations were drawn up considering the gaps identified in the diagnosis, the lessons learned from PROCASE as expressed in the PROCASE *Impact Assessment Report* and IFAD's *mainstreaming guidelines*<sup>65</sup>.

<sup>60</sup> Legal basis: Decree no. 6.040, of 2007.

<sup>61</sup> Legal basis: Federal Decree No. 4886/2003.

<sup>62</sup> Legal basis: Federal Decree No. 6.261/2007.

<sup>63</sup> Legal basis: Decree No. 3.298 of December 20, 1999 regulates Law No. 7.853 of October 24, 1989.

<sup>64</sup>

<https://www2.mppa.mp.br/sistemas/gcsubsites/upload/39/LGBTI/Plano%20Nacional%20de%20Promo%C3%A7%C3%A3o%20da%20Cidadania%20e%20Direitos%20Humanos%20LGBTI.pdf>

<sup>65</sup> IFAD12: *Deepening Impact and Building Resilience through mainstreaming*. 2020.



**Recommendation 1:** It is recommended that the project focus on rural youth and on closing the social inclusion gaps for this group identified in this diagnosis, such as the lack of access to employment and income opportunities. Specifically, the project should have a youth specialist in the PMU (Project Management Unit) and its own budget for activities with rural youth.

**Recommendation 2:** It is recommended that one of the project's main target groups should be persons with disabilities, given the multiple exclusions faced by this group and the fact that this is a priority for the government of Paraíba. PROCASE must ensure that persons with disabilities are prioritized beneficiaries of the various productive activities proposed by the Project, but that there are also specific activities aimed at the inclusion and accessibility of this public, as well as the promotion of debate on the experience of sexuality. A specific budget must be guaranteed for activities aimed at persons with disabilities and the PMU team must have the capacity to meet the specific demands of working with this public.

**Recommendation 3:** In environmental and land regularization activities, priority should be given to ensuring that traditional communities receive collective titles, particularly quilombolas.

**Recommendation 4:** As a facilitating measure, PROCASE II should include awareness-raising training on race and ethnicity, gender, sexuality, and generation for all the project's technical assistance professionals, as well as the Project Management Unit (PMU) teams, the decentralized management units, and partner entities, with a focus on different methodological approaches for quilombola communities and other traditional communities.

**Recommendation 5:** The investments (both Productive Development Plans and Business Plans) and services provided by the project must respond to the demands, potential and capacities of the beneficiary families, valuing traditional knowledge, cultural differences, and the diversity of their ways of life, social and productive organization. In this sense, IFAD's experience in the participatory preparation of investment plans and the participatory rural diagnosis methodology should be a relevant reference.

**Recommendation 6:** Establish partnerships with NGOs, social organizations, and movements of quilombolas and other traditional communities, or that work with these target groups (for example, the LGBTQIAPN+ community and persons with disabilities). Expanding the project's alliance strategies will enhance its benefits and results.

**Recommendation 7:** At the start of implementation, the project should draw up a Gender, Diversity, Youth and Nutrition Strategy and Action Plan to ensure that these themes are addressed across the board in all project components and activities. In subcomponent 1.3, there will be a budget for the Plans, which will include specific activities for each of these thematic areas.

**Recommendation 8:** A recommended operational measure is for the Project Management Unit (PMU) to include in its team a consultant who specializes in gender and diversity, another who specializes in youth and a third who specializes in traditional peoples and communities. These professionals must be fully dedicated to the project and, preferably, must be Afrodescendants or members of traditional communities. They should also oversee the implementation of the Gender, Diversity, Youth and Nutrition Strategy and Action Plan, supporting the project in addressing gender and social inclusion issues in its operations, including in Knowledge Management and M&E.

**Recommendation 9: Hold opening events in traditional communities to present the project's components and the activities planned, to formulate an adherence and commitment agreement.** When the activities involve indigenous peoples and traditional communities, Free, Prior and Informed Consent (FPIC) must be ensured.

**Recommendation 10:** Information about the project, including the Complaints and Redress Mechanism, should be presented to stakeholders in a culturally appropriate way, paying attention to the specific needs of the target groups that may be affected by the implementation of the project. Issues such as illiteracy, gender, language differences, access to technical information and digital connectivity should be considered.

**Recommendation 11:** Include the overall outreach target for families of PCTs, but ensure that throughout implementation, the project monitors this outreach target disaggregated by target

subgroups, such as indigenous people, quilombolas, artisanal fishers and shellfish gatherers. This target should be monitored annually in the context of supervision missions. An outreach target for young people, persons with disabilities and LGBTQIAPN+ should also be included.

## PROCASE II - General Data

Indicators / Variables			References
	Total	%	
<b>Sociodemographic characteristics</b>			
Total agricultural establishments classified as FA	125.489	76,9%	Agricultural Census. 2017 (table 6776)
Total agricultural establishments classified as NAF	37.594	23,1%	Agricultural Census. 2017 (table 6776)
Total population (Census 2022)	3.974.687	100%	Demographic Census 2022 (Table 9606)
Population of children (up to 15 years) - Total	826.921	20,8%	Demographic Census 2022 (Table 9606)
Population of young people (15 to 29 years) - Total	893.666	22,5%	Demographic Census 2022 (Table 9606)
Adult population (30 to 64 years) - Total	1.815.463	45,7%	Demographic Census 2022 (Table 9606)
Elderly population (over 65) - Total	438.637	11,0%	Demographic Census 2022 (Table 9606)
Total population (2010 Census)	3.766.528	100%	2010 Demographic Census (Table 3175)
Rural population (2010 Census)	927.850	24,6%	2010 Demographic Census (Table 3175)
Population of children (up to 15 years) - rural	255.625	27,6%	2010 Demographic Census (Table 3175)
Population of young people (15 to 29 years) - rural	249.780	26,9%	2010 Demographic Census (Table 3175)
Adult population (30 to 64 years) - rural	338.372	36,5%	2010 Demographic Census (Table 3175)
Elderly population (over 65) - rural	84.073	9,1%	2010 Demographic Census (Table 3175)
Illiteracy	56.699	45,2%	Agricultural Census. 2017 (Table 6755)
Never attended school	30.410	24,2%	Agricultural Census. 2017 (Table 6755)
Average number of residents per household (Total number of municipalities in the project area)	3,5	-	Demographic Census. 2010 (Table 156)
<b>Age</b>			
Producer's age - Under 35	12.366	9,9%	Agricultural Census. 2017 (Table 6776)
Producer's age - from 35 to under 55	46.674	37,2%	Agricultural Census. 2017 (table 6776)
Producer's age - from 55 to under 75	52.549	41,9%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over	13.900	11,1%	Agricultural Census. 2017 (table 6776)
Producers who are members of the trade organization/union	41.508	33,1%	Agricultural Census. 2017 (table 6851)
Producers associated with the cooperative	2.244	1,8%	Agricultural Census. 2017 (table 6851)
Producers associated with the producers' association/movement	17.734	14,1%	Agricultural Census. 2017 (table 6851)

## PROCASE II - General Data

Indicators / Variables			References
	Total	%	
<b>Single Registry (Cadastral Único)</b>			
Households connected to the public water supply network	1.167.145	100,0%	Single Registry. November 2023
Households connected to the public sewage system	460.145	39,4%	Single Registry. November 2023
Rural Families - Extreme Poverty	185.298	61,5%	Single Registry. November 2023
Rural Families - Poverty	14.042	4,7%	Single Registry. November 2023
Rural Families - Low Income	39.764	13,2%	Single Registry. November 2023
Rural Families - Above half the minimum wage	62.351	20,7%	Single Registry. November 2023
Total Rural Families Registered	301.455	100,0%	Single Registry. November 2023
<b>Land and property</b>			
Establishments with an area between 0 and 1ha	15.819	12,6%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 1 and 5ha	52.211	41,6%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 5 and 50ha	50.171	40,0%	Agricultural Census. 2017 (table 6759)
Establishments with an area over 50ha	6.262	5,0%	Agricultural Census. 2017 (table 6759)
Producers without land	6.139	4,9%	Agricultural Census. 2017 (table 6759)
Producers with title deeds	88.383	70,4%	Agricultural Census. 2017 (table 6759)
Concessionaire or settler awaiting definitive title	8.724	7,0%	Agricultural Census. 2017 (table 6759)
Total area of agricultural establishments in hectares	1.441.215	-	Agricultural Census. 2017 (table 6753)
Average area of agricultural establishments in hectares	11,48	-	Agricultural Census. 2017 (table 6753)
<b>Water Resources</b>			
Establishments without access to water resources (Total)	18.725	14,9%	Agricultural Census. 2017 (table 6861)
Establishments with access to water resources (Total)	106.764	85,1%	Agricultural Census. 2017 (table 6861)
Establishment with access to water for irrigation	14.394	11,5%	Agricultural Census. 2017 (table 6861)
With access to cisterns	78.824	62,8%	Agricultural Census. 2017 (table 6861)
<b>Agricultural Production</b>			
With access to technical assistance (Total)	21.123	16,8%	Agricultural Census. 2017 (table 6779)
With access to financing	21.151	16,9%	Agricultural Census. 2017 (table 6895)

Main production: temporary crops	42.506	33,9%	Agricultural Census. 2017 (table 6759)
Main production: permanent crops	5.029	4,0%	Agricultural Census. 2017 (table 6759)

## PROCASE II - General Data

Indicators / Variables			References
Agricultural Production (Continued)	Total	%	
Forestry production (planted forests + native forests)	3.786	3,0%	Agricultural Census. 2017 (table 6759)
Main production: livestock	69.411	55,3%	Agricultural Census. 2017 (table 6759)
Main production: vegetable / fruit production	4.503	3,6%	Agricultural Census. 2017 (table 6759)
Main production: artisanal fishing	149	0,1%	Agricultural Census. 2017 (table 6759)
Production for own consumption	91.792	73,1%	Agricultural Census. 2017 (table 6762)
Production for sale	33.697	26,9%	Agricultural Census. 2017 (table 6762)
Agricultural establishments that earned income from agricultural production	121.201	96,6%	Agricultural Census. 2017 (table 6901)

## PROCASE II - Diversity

Indicators / Variables	Total Population		Yellow Population		White Population		Indigenous population		Brown Population		Black Population		Afrodescendant Population		Gap (B, - A,)	References
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	%	
<b>Sociodemographic characteristics</b>																
Total PA (responsible for the direction of the establishment,)	125.489	76,9%	586	0,5%	43.435	34,6%	1093	0,9%	70.663	56,3%	9712	7,7%	80.375	64,0%	-	Agricultural Census. 2017 (table 6776)
Total NAF (head of the establishment)	37.594	23,1%	188	0,5%	14.207	37,8%	289	0,8%	20.410	54,3%	2500	6,6%	22.910	60,9%	-	Agricultural Census. 2017 (table 6776)
Total population (Census 2022)	3.974.687	100,0%	4.912	0,1%	1.419.778	35,7%	25.478	0,6%	2.207.880	55,5%	316572	8,0%	2.524.452	63,5%	-27,8%	Demographic Census 2022 (Table 9606)
Rural population (2010 Census)	927.850	100,0%	11.436	1,2%	328.499	35,4%	9.724	1,0%	533.521	57,5%	44.663	4,8%	578.184	62,3%	-26,9%	Demographic Census. 2010 (table 3175)
Population of children (up to 15 years) - rural	255.625	27,6%	2.959	25,9%	96.143	29,3%	3.539	36,4%	144.029	27,0%	8.952	20,0%	152.981	26,5%	2,8%	Demographic Census. 2010 (table 3175)
Population of young people (15 to 29 years) - rural	249.780	26,9%	3.399	29,7%	85.442	26,0%	2.924	30,1%	146.904	27,5%	11.109	24,9%	158.013	27,3%	-1,3%	Demographic Census. 2010 (table 3175)
Adult population (30 to 65 years) - rural	338.372	36,5%	4.087	35,7%	114.226	34,8%	2.852	29,3%	197.894	37,1%	19.311	43,2%	217.205	37,6%	-2,8%	Demographic Census. 2010 (table 3175)
Elderly population (over 65) - rural	84.073	9,1%	991	8,7%	32.688	10,0%	409	4,2%	44.694	8,4%	5.291	11,8%	49.985	8,6%	1,3%	Demographic Census. 2010 (table 3175)
Illiteracy	56.699	45,2%	268	45,7%	17.343	39,9%	413	37,8%	33.207	47,0%	5.468	56,3%	38.675	48,1%	-8,2%	Agricultural Census. 2017 (table 6755)
Never attended school	30.410	24,2%	129	22,0%	9.466	21,8%	341	31,2%	17.378	24,6%	3.096	31,9%	20.474	25,5%	-3,7%	Agricultural Census. 2017 (table 6755)
People aged 14 and over who did household chores at home (x1000)	9.927	-	-	-	1.691	17,0%	-	-	5.724	57,7%	2.396	24,1%	8.120	81,8%	-64,8%	PNADC/A. 2019 (table 7003)
<b>Age</b>																
Producer's age - Under 35 (Total)	12.366	11,3%	77	13,1%	3.901	9,0%	287	26,3%	7.319	10,4%	782	8,1%	8.101	10,1%	-1,1%	Agricultural Census. 2017 (table 6776)
Producer age - 35 to under 55 (Total)	46.674	39,8%	241	41,1%	15.428	35,5%	449	41,1%	27.131	38,4%	3.425	35,3%	30.556	38,0%	-2,5%	Agricultural Census. 2017 (table 6776)
Producer age - 55 to under 75 (Total)	52.549	40,6%	216	36,9%	18.324	42,2%	310	28,4%	29.248	41,4%	4.451	45,8%	33.699	41,9%	0,3%	Agricultural Census. 2017 (table 6776)
Producer age - 75 and over (Total)	13.900	8,3%	52	8,9%	5.782	13,3%	47	4,3%	6.965	9,9%	1.054	10,9%	8.019	10,0%	3,3%	Agricultural Census. 2017 (table 6776)
<b>Land and property</b>																
Establishments with an area between 0 and 1ha	15.819	12,6%	41	7,0%	4.519	10,4%	147	13,4%	9.582	13,6%	1.530	15,8%	11.112	13,8%	-3,4%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 1 and 5ha	52.211	41,6%	251	42,8%	16.460	37,9%	466	42,6%	30.672	43,4%	4.362	44,9%	35.034	43,6%	-5,7%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 5 and 50ha	50.171	40,0%	263	44,9%	19.073	43,9%	295	27,0%	27.070	38,3%	3.470	35,7%	30.540	38,0%	5,9%	Agricultural Census. 2017 (table 6759)
Establishments with an area over 50ha	6.262	5,0%	31	5,3%	3.121	7,2%	21	1,9%	2.838	4,0%	251	2,6%	3.089	3,8%	3,3%	Agricultural Census. 2017 (table 6759)
Producer with no area	6.139	4,9%	0	0,0%	262	0,6%	164	15,0%	501	0,7%	99	1,0%	600	0,7%	-0,1%	Agricultural Census. 2017 (table 6759)
Producers with title deeds	88.383	70,4%	412	70,3%	33.731	77,7%	487	44,6%	49.992	70,7%	6.507	67,0%	56.499	70,3%	7,4%	Agricultural Census. 2017 (table 6759)
Concessionaire or settler awaiting definitive title	8.724	7,0%	32	5,5%	2.373	5,5%	407	37,2%	5.733	8,1%	1.005	10,3%	6.738	8,4%	-2,9%	Agricultural Census. 2017 (table 6759)
<b>Agricultural Production</b>																
With access to technical assistance (Total)	21.123	16,8%	119	20,3%	7.694	17,7%	349	31,9%	11.530	16,3%	1.431	14,7%	12.961	16,1%	1,6%	Agricultural Census. 2017 (table 6779)
Main production: temporary crops	42.506	33,9%	202	34,5%	12.899	29,7%	602	55,1%	25.083	35,5%	3.720	38,3%	28.803	35,8%	-6,1%	Agricultural Census. 2017 (table 6759)
Main production: permanent crops	5.029	4,0%	19	3,2%	1.587	3,7%	81	7,4%	2.877	4,1%	465	4,8%	3.342	4,2%	-0,5%	Agricultural Census. 2017 (table 6759)
Main production: planted forests + native forests	3.786	3,0%	37	6,3%	942	2,2%	169	15,5%	2.255	3,2%	383	3,9%	2.638	3,3%	-1,1%	Agricultural Census. 2017 (table 6759)
Main production: livestock	69.411	55,3%	320	54,6%	26.632	61,3%	195	17,8%	37.590	53,2%	4.674	48,1%	42.264	52,6%	8,7%	Agricultural Census. 2017 (table 6759)
Main production: vegetable / fruit production	4.503	3,6%	8	1,4%	1.288	3,0%	23	2,1%	2.722	3,9%	462	4,8%	3.184	4,0%	-1,0%	Agricultural Census. 2017 (table 6759)
Main production: artisanal fishing	149	0,1%	0	0,0%	50	0,1%	14	1,3%	83	0,1%	2	0,0%	85	0,1%	0,0%	Agricultural Census. 2017 (table 6759)

## PROCASE II - Gender and Diversity

Indicators / Variables	Total Population		Yellow Population		White Population		Indigenous population		Brown Population		Black Population		Afrodescendant Population		References
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
<b>Sociodemographic characteristics</b>															
Total Population (2022 Census)	3.974.687	-	-	-	-	-	-	-	-	-	-	-	-	-	Demographic Census 2022 (Preview)
Total agricultural establishments classified as FA	125.489	76,9%	586	0,5%	43.435	34,6%	1.093	0,9%	70.663	56,3%	9712	7,7%	80.375	64,0%	Agricultural Census. 2017 (table 6776)
Total agricultural establishments classified as NAF	37.594	23,1%	188	0,5%	14.207	37,8%	289	0,8%	20.410	54,3%	2500	6,6%	22.910	60,9%	Agricultural Census. 2017 (table 6776)
Responsible for running the establishment - Women	30.126	24,0%	166	28,3%	9784	22,5%	414	37,9%	17210	24,4%	2552	26,3%	19.762	24,6%	Agricultural Census. 2017 (table 6776)
Responsible for running the establishment - Men	95.363	76,0%	420	71,7%	33651	77,5%	679	62,1%	53453	75,6%	7160	73,7%	60.613	75,4%	Agricultural Census. 2017 (table 6776)
Illiteracy - Women	10.785	35,8%	59	35,5%	3018	30,8%	145	35,0%	6352	36,9%	1211	47,5%	7.563	38,3%	Agricultural Census. 2017 (table 6755)
Illiteracy Men	45.914	48,1%	209	49,8%	14325	42,6%	268	39,5%	26855	50,2%	4257	59,5%	31.112	51,3%	Agricultural Census. 2017 (table 6755)
Never attended school - Women	5.862	19,5%	28	16,9%	1688	17,3%	122	29,5%	3343	19,4%	681	26,7%	4.024	20,4%	Agricultural Census. 2017 (table 6755)
Never attended school - Men	24.548	25,7%	101	24,0%	7778	23,1%	219	32,3%	14035	26,3%	2415	33,7%	16.450	27,1%	Agricultural Census. 2017 (table 6755)
Rate of household chores carried out by 14-year-old - Women (state of Bahia) x 1000		-	-	-		16,1%		-		59,4%		23,5%		-	PNADC/A. 2019 (table 7003)
Rate of household chores done by people over 14 - Men (state of Bahia) x1000		-	-	-		16,1%		-		57,3%		25,7%		-	PNADC/A. 2019 (table 7003)
<b>Age and Gender</b>															
Producer's age - Under 35 (Women)	3.830	12,7%	26	15,7%	1098	11,2%	126	30,4%	2348	13,6%	232	9,1%	2580	13,1%	Agricultural Census. 2017 (table 6776)
Producer's age - from 35 to under 55 (Women)	11.051	36,7%	64	38,6%	3333	34,1%	173	41,8%	6593	38,3%	888	34,8%	7481	37,9%	Agricultural Census. 2017 (table 6776)
Producer's age - 55 to under 75 (Women)	11.994	39,8%	63	38,0%	4012	41,0%	103	24,9%	6661	38,7%	1155	45,3%	7816	39,6%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over (Women)	3.251	10,8%	13	7,8%	1341	13,7%	12	2,9%	1608	9,3%	277	10,9%	1885	9,5%	Agricultural Census. 2017 (table 6776)
Producer's age - Under 35 (Men)	8.536	9,0%	51	12,1%	2803	8,3%	161	23,7%	4971	9,3%	550	7,7%	5521	9,1%	Agricultural Census. 2017 (table 6776)
Producer's age - 35 to under 55 (Men)	35.623	37,4%	177	42,1%	12095	35,9%	276	40,6%	20538	38,4%	2537	35,4%	23075	38,1%	Agricultural Census. 2017 (table 6776)
Producer's age - 55 to under 75 (Men)	40.555	42,5%	153	36,4%	14312	42,5%	207	30,5%	22587	42,3%	3296	46,0%	25883	42,7%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over (Men)	10.649	11,2%	39	9,3%	4441	13,2%	35	5,2%	5357	10,0%	777	10,9%	6134	10,1%	Agricultural Census. 2017 (table 6776)

## PROCASE II - Total Population (Rural + Urban) - Demographic Census 2022

Indicators / Variables	Total Population		Yellow Population		White Population		Indigenous population		Brown Population		Black Population		Afrodescendant Population		References
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
<b>Sociodemographic characteristics</b>															
Total Population (2022 Census)	3.974.687	-	4.912	0,1%	1.419.778	35,7%	25.478	0,6%	2.207.880	55,5%	316.572	8,0%	2.524.452	63,5%	Demographic Census 2022 (Table 9606)
Population Women Total	2.055.832	51,7%	2.772	56,4%	748.246	52,7%	12.991	51,0%	1.140.829	51,7%	150.962	47,7%	1.291.791	51,2%	Demographic Census 2022 (Table 9606)
Population Women Children (up to 15)	404.320	19,7%	371	7,6%	153.965	10,8%	3.328	25,6%	227.941	20,0%	18.710	12,4%	246.651	19,1%	Demographic Census 2022 (Table 9606)
Population Young Women (15 to 29 years)	445.900	21,7%	713	14,5%	151.442	10,7%	3.193	24,6%	258.417	22,7%	32.128	21,3%	290.545	22,5%	Demographic Census 2022 (Table 9606)
Population Adult Women (30 to 65 years)	953.366	46,4%	1.392	28,3%	335.367	23,6%	5.412	41,7%	532.980	46,7%	78.201	51,8%	611.181	47,3%	Demographic Census 2022 (Table 9606)
Population Elderly Women (over 65)	252.246	12,3%	296	6,0%	107.472	7,6%	1.058	8,1%	121.491	10,6%	21.923	14,5%	143.414	11,1%	Demographic Census 2022 (Table 9606)
Population Men Total	1.918.855	48,3%	2.140	43,6%	671.532	47,3%	12.487	49,0%	1.067.051	48,3%	165.610	52,3%	1.232.661	48,8%	Demographic Census 2022 (Table 9606)
Population Men Children (up to 15)	422.601	22,0%	426	19,9%	159.796	23,8%	3.416	27,4%	238.214	22,3%	20.744	12,5%	258.958	21,0%	Demographic Census 2022 (Table 9606)
Population Young men (15 to 29 years)	447.766	23,3%	501	23,4%	150.709	22,4%	3.170	25,4%	254.898	23,9%	38.476	23,2%	293.374	23,8%	Demographic Census 2022 (Table 9606)
Population Adult men (30 to 65 years)	862.097	44,9%	983	45,9%	289.074	43,0%	5.074	40,6%	479.289	44,9%	87.662	52,9%	566.951	46,0%	Demographic Census 2022 (Table 9606)
Population Elderly men (over 65)	186.391	9,7%	230	10,7%	71.953	10,7%	827	6,6%	94.650	8,9%	18.728	11,3%	113.378	9,2%	Demographic Census 2022 (Table 9606)



## Single Registry - PROCASE II data (01/11/2023)

Variables		Total	%
<b>Total number of registered families</b>	Poverty	710.522	60,9%
	Low Income	179.294	15,4%
	Above half the minimum wage	277.329	23,8%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>Rural and Urban People</b>	People registered in rural households	713.277	27,7%
	People registered in urban households	1.859.792	72,3%
	<b>Total</b>	<b>2.573.069</b>	<b>100%</b>
<b>Total People Income</b>	People registered Poverty	1.631.018	63,4%
	People registered Low income	496.290	19,3%
	People registered Above half the minimum wage	446.896	17,4%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>Total Rural Families Registered</b>	Families registered Extreme Poverty	185.298	61,5%
	Registered families Poverty	14.042	4,7%
	Registered families Low income	39.764	13,2%
	Registered families Above half the minimum wage	62.351	20,7%
	<b>Total</b>	<b>301.455</b>	<b>100%</b>
<b>Water supply (Families)</b>	General distribution network	737.658	63,2%
	Well or spring	128.956	11,0%
	Cistern	113.445	9,7%
	Another way	85.409	7,3%
	No Information	101.677	8,7%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>Form of Drainage (Families)</b>	Sewage or rainwater collection system	460.145	39,4%
	Septic tank	156.127	13,4%
	Rudimentary cesspit	362.400	31,1%
	Open ditch	22.203	1,9%
	Straight into a river, lake, or sea	5.612	0,5%
	Another way	10.506	0,9%
	No Information	150.152	12,9%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>People registered by color and race</b>	White	636.366	24,7%
	Black	100.911	3,9%
	Yellow	19.812	0,8%
	Brown	1.801.174	70,0%
	Indigenous	15.564	0,6%
	No Information	377	0,0%
	Afrodescendant (Black + Brown)	1.902.085	73,9%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>People Total (Sex)</b>	Women	1.154.067	44,8%
	Men	1.420.137	55,2%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>

## Single Registry - PROCASE II summed data (01/11/2023)

Variables		Total	%
<b>Age group (People)</b>	Between 0 and 4	207.354	8,1%
	Between 5 and 6	96.275	3,7%
	Between 7 and 15	429.183	16,7%
	Between 16 and 17	94.879	3,7%
	Between 18 and 24	304.802	11,8%
	Between 25 and 34	367.715	14,3%
	Between 35 and 39	183.771	7,1%
	Between 40 and 44	183.229	7,1%
	Between 45 and 49	167.699	6,5%
	Between 50 and 54	146.862	5,7%
	Between 55 and 59	133.321	5,2%
	Between 60 and 64	93.157	3,6%
	Greater than 65	165.957	6,4%
<b>Total</b>	<b>2.574.204</b>	<b>100%</b>	
<b>Level of Education (Schooling)</b>	No education	639.987	24,9%
	Elementary school incomplete	888.400	34,5%
	Complete primary education	162.535	6,3%
	High school incomplete	181.375	7,0%
	Complete high school	434.308	16,9%
	Incomplete university degree or more	58.194	2,3%
	No Information	209.405	8,1%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>Persons with disabilities</b>	Yes	144.655	100,0%
	<b>Total</b>	<b>144.655</b>	<b>5,6%</b>
<b>Family cisterns delivered by the MDS</b>	Drinking water (1st water)	90.859	91,8%
	Water for production (2nd water)	8.130	8,2%
	<b>Total</b>	<b>98.989</b>	<b>100%</b>
<b>Indigenous families</b>	Registered families Poverty	4.627	73,1%
	Registered families Low income	760	12,0%
	Registered families Above half the minimum wage	941	14,9%
	<b>Total</b>	<b>6.328</b>	<b>100%</b>
<b>Quilombola families</b>	Registered families Poverty	2.915	67,9%
	Registered families Low income	597	13,9%
	Registered families Above half the minimum wage	783	18,2%
	<b>Total</b>	<b>4.295</b>	<b>100%</b>
<b>Agrarian Reform Settler Families</b>	Families registered Extreme Poverty	3.646	61,1%
	Registered families Poverty	192	3,2%
	Registered families Low income	794	13,3%
	Registered families Above half the minimum wage	1.334	22,4%
<b>Total</b>	<b>5.966</b>	<b>100%</b>	
<b>Families of Waste Pickers</b>	Families registered Extreme Poverty	10.732	80,2%
	Registered families Poverty	797	6,0%
	Registered families Low income	832	6,2%

Registered families Above half the minimum wage	1.016	7,6%
<b>Total</b>	<b>13.377</b>	<b>100%</b>

### Single Registry - PROCASE II summed data (01/11/2023)

Variables		Total	%
<b>Families of Family Farmers</b>	Families registered Extreme Poverty	85.524	65,2%
	Registered families Poverty	6.240	4,8%
	Registered families Low income	16.990	12,9%
	Registered families Above half the minimum wage	22.451	17,1%
	<b>Total</b>	<b>131.205</b>	<b>100%</b>
<b>Families of Artisanal Fishermen</b>	Families registered Extreme Poverty	6.082	73,9%
	Registered families Poverty	559	6,8%
	Registered families Low income	929	11,3%
	Registered families Above half the minimum wage	660	8,0%
	<b>Total</b>	<b>8.230</b>	<b>100%</b>
<b>Extractivist (non-timber forest products collectors) families</b>	Families registered Extreme Poverty	20	76,9%
	Registered families Poverty	0	0,0%
	Registered families Low income	3	11,5%
	Registered families Above half the minimum wage	3	11,5%
	<b>Total</b>	<b>26</b>	<b>100%</b>
<b>River families</b>	Families registered Extreme Poverty	647	68,7%
	Registered families Poverty	37	3,9%
	Registered families Low income	112	11,9%
	Registered families Above half the minimum wage	146	15,5%
	<b>Total</b>	<b>942</b>	<b>100%</b>
<b>GPTE Families</b>	Single CAD families	169.727	58,3%
	PBF families	121.230	41,7%
	<b>Total</b>	<b>290.957</b>	<b>100%</b>
<b>GPTE People</b>	Single CAD people	401.336	56,2%
	PBF people	313.028	43,8%
	<b>Total</b>	<b>714.364</b>	<b>100%</b>

Data source: [https://cecad,cidadania,gov,br/tab\\_cad,php](https://cecad,cidadania,gov,br/tab_cad,php)

## PROCASE II - INDIGENOUS PEOPLE

Indicators / Variables	Total		Women		Men		Gap (H - M)	References
	Total	%	Total	%	Total	%	%	
<b>Sociodemographic characteristics</b>								
Total Indigenous Population (2010 Census)	10.266	100,0%	5.103	49,7%	5.163	50,3%	0,6%	Demographic Census. 2022 (table 9608)
Indigenous population of children (up to 15 years) (2010 Census)	3.236	31,5%	1.583	48,9%	1.653	32,0%	-16,9%	Demographic Census. 2022 (table 9608)
Indigenous population of young people (15 to 29 years old) (2010 Census)	2.939	28,6%	1.455	49,5%	1.484	28,7%	-20,8%	Demographic Census. 2022 (table 9608)
Indigenous population of adults (30 to 65 years) (2010 Census)	3.476	33,9%	1.734	49,9%	1.742	33,7%	-16,1%	Demographic Census. 2022 (table 9608)
Indigenous elderly population (over 65) (2010 Census)	615	6,0%	331	53,8%	284	5,5%	-48,3%	Demographic Census. 2022 (table 9608)
Total Indigenous Population (2022 Census)	36.492	100,0%	18.525	50,8%	17.967	49,2%	-1,5%	Demographic Census. 2022 (table 9608)
Indigenous population of children (up to 15 years) (Census 2022)	8.775	24,0%	4.278	48,8%	4.497	25,0%	-23,7%	Demographic Census. 2022 (table 9608)
Indigenous population of young people (15 to 29 years) (Census 2022)	9.338	25,6%	4.762	51,0%	4.576	25,5%	-25,5%	Demographic Census. 2022 (table 9608)
Indigenous population of adults (30 to 65 years) (Census 2022)	15.511	42,5%	7.985	51,5%	7.526	41,9%	-9,6%	Demographic Census. 2022 (table 9608)
Indigenous elderly population (over 65) (Census 2022)	2.868	7,9%	1.500	52,3%	1.368	7,6%	-44,7%	Demographic Census. 2022 (table 9608)
Population Indigenous people living on indigenous lands (2022 Census)	6.842	18,7%	-	-	-	-	-	Demographic Census. 2022 (table 9718)
Indigenous population living outside indigenous lands (2022 Census)	29.650	81,3%	-	-	-	-	-	Demographic Census. 2022 (table 9718)

## PROCASE II - QUILOMBOLAS

Indicators / Variables	Total		Women		Men		Gap (H - M)	References
	Total	%	Total	%	Total	%	%	
<b>Sociodemographic characteristics</b>								
Total Quilombola Population 74 municipalities (2010 Census)	16.765	100,0%	-	-	-	-	-	Demographic Census. 2022 (table 9578)
Quilombola population living on quilombola lands (2022 Census)	2.922	17,4%	-	-	-	-	-	Demographic Census. 2022 (table 9578)
Quilombola population living outside quilombola lands (2022 Census)	13.843	82,6%	-	-	-	-	-	Demographic Census. 2022 (table 9578)
Quilombola community title (including those in the regularization phase) Producer concessionaire or settler without definitive title	56	-	26	46,43%	30	53,57%	7,14%	Agricultural Census. 2017 (table 6774)
Titling of quilombola communities (including those in the regularization phase) Producer Owner	105	-	32	30,48%	73	69,52%	39,05%	Agricultural Census. 2017 (table 6774)

UF	MUNICIPALITY	IBGE CODE	COMMUNITY	FCP CASE NO.	OPENING DATE	CURRENT STAGE FCP PROCESS	LOGBOOK NUMBER	REGISTRATION NO.	SHEET NO.	ORDINANCE NO.	DATE OF ORDINANCE IN THE GAZETTE	RECTIFICATION IN THE GAZETTE	INCRA CASE NO.
PB	CATOLÉ DO ROCHA	2504306	LAGOA RASA	01420,000834/2006-31	24/04/2006	CERTIFIED	6	640	150	15/2006	28/07/2006		54320,001417/2011-67
PB	SÃO JOÃO DO TIGRE	2514107	CACIMBA NOVA	01420,100361/2017-23	24/10/2017	CERTIFIED	18	2.560	181	299/2017	20/11/2017		
PB	POMBAL	2512101	THE BARBOSAS	01420,010112/2015-85	03/09/2015	CERTIFIED	19	2.693	115	316/2018	23/11/2018		
PB	SANTA LUZIA	2513406	TALHADO MOUNTAIN RANGE	01420,000195/2004-41	14/04/2004	CERTIFIED	1	19	20	19/2004	04/06/2004		54320,000417/2005-00
PB	GURINHÉM   MOGEIRO	2509404	MATÃO	01420,000656/2004-86	28/09/2004	CERTIFIED	2	107	11	23/2005	25/05/2005		54320,000413/2005-13
PB	SAND	2501104	BONFIM MILL	01420,000042/2005-85	11/01/2005	CERTIFIED	3	207	13	23/2005	25/05/2005		54320,001528/2004-44
PB	INGÁ   SERRA REDONDA	2506806   2515807	WATER STONE	01420,000735/2005-78	18/04/2005	CERTIFIED	3	209	15	23/2005	25/05/2005		54320,000415/2005-11
PB	VÁRZEA	2517100	PITOMBEIRA	01420,000864/2005-66	03/05/2005	CERTIFIED	3	221	27	26/2005	08/06/2005		54320,000906/2005-53
PB	ALAGOA GRANDE	2500304	CAIANA DOS CRIoulos	01420,000267/1998-23	22/07/1998	CERTIFIED	3	230	36	26/2005	08/06/2005		54320,000416/2005-57
PB	SANTA LUZIA	2513406	SERRA DO TALHADO - URBAN	01420,001306/2005-18	16/06/2005	CERTIFIED	3	238	44	28/2005	12/07/2005		54320,001205/2007-01
PB	CONDE	2504603	MITUAÇU	01420,001192/2005-14	03/06/2005	CERTIFIED	4	314	21	32/2005	19/08/2005		54320,000053/2007-11
PB	CAJAZEIRINHAS	2503753	WINES	01420,003181/2005-61	20/12/2005	CERTIFIED	5	461	69	Feb/06	20/01/2006		54320,001207/2007-92
PB	RIACHÃO DO BACAMARTE	2512754	GRILLO	01420,000267/2006-12	10/02/2006	CERTIFIED	6	505	14	Aug/06	12/05/2006		54320,000289/2007-58
PB	CAJAZEIRINHAS	2503753	UMBURANINHA	01420,001012/2006-77	10/05/2006	CERTIFIED	6	562	72	Nov/06	07/06/2006		54320,001204/2007-59
PB	SÃO BENTO	2513901	CONTENDERS	01420,000835/2006-85	24/04/2006	CERTIFIED	6	578	88	Nov/06	07/06/2006		54320,001203/2007-12
PB	COLORS	2504801	SANTA TEREZA	01420,001196/2006-75	26/05/2006	CERTIFIED	6	620	130	Nov/06	07/06/2006		54320,001206/2007-48
PB	COLORS	2504801	MOTHER OF WATER	01420,001195/2006-21	26/05/2006	CERTIFIED	6	621	131	Nov/06	07/06/2006		54320,001209/2007-81
PB	COLORS	2504801	BLACK COMMUNITY OF BARREIRAS	01420,001197/2006-10	26/05/2006	CERTIFIED	6	622	132	Nov/06	07/06/2006		54320,001208/2007-37
PB	SERRA REDONDA	2515807	MATIAS SITE	01420,001618/2006-11	30/06/2006	CERTIFIED	6	657	167	15/2006	28/07/2006		54320,000288/2007-11
PB	JOÃO PESSOA	2507507	PARATIBE	01420,001402/2006-47	12/06/2006	CERTIFIED	6	658	168	15/2006	28/07/2006		54320,001383/2007-24
PB	CONDE	2504603	GURUGI	01420,001588/2006-34	29/06/2006	CERTIFIED	6	659	169	15/2006	28/07/2006		54320,000038/2007-73
PB	CONDE	2504603	IPIRANGA	01420,000836/2006-20	20/07/2006	CERTIFIED	6	688	198	29/2006	13/12/2006		54320,000145/2007-00
PB	CATOLÉ DO ROCHA	2504306	CURRALINHO/JATOBÁ	01420,002858/2006-24	09/11/2006	CERTIFIED	8	811	23	29/2006	13/12/2006		54320,000824/2009-32
PB	CATOLÉ DO ROCHA	2504306	SÃO PEDRO DOS MIGUÉIS	01420,002859/2006-79	09/11/2006	CERTIFIED	8	812	24	29/2006	13/12/2006		54320,000241/2014-79
PB	SÃO JOSÉ DE PRINCESA	2514552	LIVRAMENTO SITE	01420,000194/2007-40	31/01/2007	CERTIFIED	8	869	81	23/2007	02/03/2007		

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PB	DONA INÊS	2505709	GIRL'S CROSS	01420,000632/2008-51	12/03/2008	CERTIFIED	11	1.023	39	26/2008	10/04/2008		54320,001416/2011-12
PB	TAVARES	2516607	DOMINGOS FERREIRA	01420,001087/2007-39	07/05/2007	CERTIFIED	11	1.063	79	60/2008	04/08/2008		54320,001414/2011-23
PB	BOOKING	2508505	SUMMER SAND. VILA TEIMOSA and SUSSUARANA	01420,001965/2008-05	07/07/2008	CERTIFIED	11	1.068	84	94/2008	09/12/2008		54000,050252/2018-46
PB	CACIMBAS	2503555	SERRA FEIA	01420,001448/2007-47	06/06/2007	CERTIFIED	11	1.148	164	43/2009	05/05/2009		54320,000444/2011-12
PB	DIAMOND	2505600	ILOIS BAR	01420,001377/2009-44	10/06/2009	CERTIFIED	11	1.163	178	185/2009	19/11/2009		54320,001175/2009-97
PB	SAND	2501104	NEW WORLD MILL	01420,002234/2009-50	21/08/2009	CERTIFIED	12	1.194	9	185/2009	19/11/2009		54320,001147/2009-70
PB	MANAÍRA	2509008	FONSECA	01420,001449/2007-91	06/06/2007	CERTIFIED	12	1.196	11	185/2009	19/11/2009		54320,001415/2011-78
PB	DIAMOND	2505600	DEAD COW SITE	01420,002425/2009-11	18/09/2009	CERTIFIED	12	1.255	70	51/2010	24/03/2010		54320,001154/2009-71
PB	NEW PALM	2510303	SERRA DO ABREU	01420,002995/2010-45	24/07/2010	CERTIFIED	12	1.373	188	135/2010	04/11/2010		54000,168971/2019-01
PB	POMBAL	2512101	DANIEL	01420,004888/2011-32	28/04/2011	CERTIFIED	13	1.515	131	91/2011	17/06/2011		
PB	POMBAL	2512101	RUFINOS FROM SÍTIO SÃO JOÃO	01420,004861/2011-40	28/04/2011	CERTIFIED	13	1.516	132	91/2011	17/06/2011		
PB	CACIMBAS	2503555	ARACATI. CHÃ I AND II	01420,001451/2007-61	06/06/2007	CERTIFIED	16	2.016	35	176/2013	25/10/2013		54000,191153/2019-02
PB	SÃO BENTO	2513901	NEW LAND	01420#003988/2015-75	31/03/2015	CERTIFIED	17	2*348	168	104/2016	20/05/2016		
PB	BOA VISTA	2502151	SANTA ROSA	01420#102660/2018-83	10/09/2018	CERTIFIED	19	2*706	128	365/2018	19/12/2018		54000#052679/2020-01
PB	SERRA BRANCA	2515500	SITE CANTINHO	01420#102045/2019-58	24/10/2019	CERTIFIED	20	2*792	15	232/19	31/12/2019		
PB	TRIUMPH	2516805	40 BLACKS	01420#004576/2011-29	20/04/2011	CERTIFIED	20	2821	44	171	29/10/2020		
PB	CAMALAÚ	2503902	ROÇA VELHA/RUA PRETA	01420#100551/2020-46	02/04/2020	CERTIFIED	20	2838	61	84/2021	01/04/2021		
PB	SERRA BRANCA	2515500	LIGHT FROM BELOW	01420#100550/2020-00	02/04/2020	CERTIFIED	20	2837	60	86/2021	01/04/2021		
PB	SERRA BRANCA		LAGOINHA SITE	01420#100606/2021-07	04/05/2021	CERTIFIED	20	2842	65	124/2021	15/06/2021		

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 22 Gender Diagnosis**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department







Investing in rural people

## **TECHNICAL REPORT**

### **Gender Diagnosis in the PROCASE II Project Implementation Area**

**Alexandra Teixeira**

**March/2024**

## **Summary**

<b>List of Acronyms</b>	1
<b>Terminology and Definitions</b>	2
<b>Gender diagnosis methodology</b>	3
<b>Introduction</b>	4
<b>1. Identification</b>	5
<b>2. Socio-economic characterization</b>	6
2.1 Education	6
2.2 Economic activities	7
2.3 Work and income	7
2.4 Technical assistance and access to finance	9
2.5 Land security and access to land	10
2.6 Water resources, access to water and basic sanitation	11
2.7 Associative Activities	12
2.8 Food and Nutrition Security (FNS)	13
2.9 Gender-based violence and domestic violence	14
<b>3. Gender strategy</b>	15
3.1 Strategic Transformation Pathways	15
3.2 Gender policies with which the project is aligned	15
3.3 Theory of Change	17
<b>4. Recommendations</b>	18

## List of Acronyms

FF	Family Farming
AT	Technical Assistance
IDB	Inter-American Development Bank
CRAM	Women's Care Referral Center
IFAD	International Fund for Agricultural Development
IBGE	Brazilian Institute of Geography and Statistics
MHDI	Municipal Human Development Index
LNOB	<i>[leave no one behind] Leave no one behind</i>
NEAM	Women's Service Center
PRONAF	National Program to Strengthen Family Farming
PSA	Pro-Semiarid Project
FNS	Food and Nutrition Security
SISVANS	Food and Nutrition Surveillance System
SPM	State Secretariat for Women's Policies
SUS	Unified Health System
TI	Indigenous Lands

## Terminology and Definitions

*Gender:* "gender is a constitutive element of social relations based on the perceived differences between the sexes and is therefore a way of giving meaning to power relations"<sup>1</sup>. Through these established power relations, it is essential to recognize the multiple forms of oppression and discrimination that affect women according to their gender identity, race, class, ethnicity, sexuality, disability and other social or identity categories.

*Intersectionality:* "Intersectionality is a concept that seeks to capture the structural and dynamic consequences of the interaction between two or more axes of subordination. It deals specifically with the way in which racism, patriarchy, class oppression and other discriminatory systems create basic inequalities that structure the relative positions of women, races, ethnicities, classes, and others. In addition, intersectionality deals with how specific actions and policies generate oppressions that flow along such axes, constituting dynamic or active aspects of disempowerment."<sup>2</sup>

*Food and Nutrition Security (FNS):* is an integrated approach that combines two underlying concepts: food security and nutrition security. The concept of food security has evolved from *freedom from hunger*<sup>3</sup> to a broad concept, achieved when individuals have access to sufficient and nutritious food in adequate quantities. Today, it encompasses four dimensions: i) availability, ii) access, iii) utilization, and iv) stability. Nutrition security, in turn, evolved from UNICEF's multisectoral nutrition planning approach and conceptual framework, assessing the quality of food intake, and implying constant and equitable access to healthy, safe, sustainable, and affordable food, essential for a healthy life. Nutritional security has three determinants: i) access to adequate food, ii) care and feeding practices, and iii) sanitation and health.

*Multidimensional Approach to Poverty:* People in poverty face a range of deprivations, from social exclusion to barriers to accessing a stable income, quality education or health care. Poverty is multifaceted and therefore one-dimensional metrics, such as monetary poverty measures, are limited<sup>4</sup>.

*Leave no one behind [LNOB].* The idea of "leaving no one behind" challenges the conventional understanding of growth-based development and aims to guide policy decisions to address the 2030 sustainable development agenda in its 17 goals and 169 targets. Considering deprivation and social exclusion in their multiple forms, LNOB helps redirect the focus and efforts of development interventions towards improving the conditions of the most deprived and vulnerable people, such as those at risk and below the poverty line, supporting the closing of inequality gaps<sup>5</sup>.

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<sup>1</sup> SCOTT, Joan. Gender: a Useful Category of Historical Analysis. *Education and Reality*. 20 (2), p.71-99, 1995.

<sup>2</sup> CRENSHAW, Kimberlé. [Background Paper for the Expert Meeting on Gender Related Aspects of Race Discrimination](#).

<sup>3</sup> SEN, A. 1987. [Food and freedom](#). Sir John Crawford Memorial Lecture: Washington.

<sup>4</sup> FAO. [Measuring Poverty with a multidimensional approach: the rural multidimensional poverty index](#). 2022. BRAC. [Why we need to understand extreme poverty as multidimensional](#). 2021.

<sup>5</sup> Brics Policy Center. Fact Sheet - [SSC and the 2030 Agenda: Adopting and adapting the LNOB approach](#). 2019.

## Gender diagnosis methodology

Poverty and inequality are rooted in socio-economic, political, and cultural structures that perpetuate the exclusion of groups belonging to certain social categories. From this perspective, inequality is recognized as a historical-structural phenomenon, heterogeneous and emanating from a culture of privilege that has excluded various social groups, such as people living in poverty, women, young people, rural populations, people with disabilities and the Lesbian, Gay, Bi, Trans, Queer, Intersex, Asexual/Aromantic/Genderqueer, Pan/Poly, Non-binary population and more (LGBTQIAPN+).

The approach to gaps is in line with the IDB's Gender and Diversity Sector Framework, as well as the bank's Gender Action Plan and Diversity Action Plan. A *gap* implies inequality and is understood as a bottleneck that prevents the sustainable and inclusive development of a certain group in terms of social and economic equality. The gap approach seeks to identify these bottlenecks as a means of prioritizing certain public policies in favor of greater horizontal and vertical equity.

This socio-economic gender diagnosis is based above all on recognizing and analyzing vertical structural gaps, i.e. the disparities within the state of Paraíba that make up the PROCASE II Project region. It also seeks to identify how social categorizations such as gender and race/ethnicity may be creating overlapping and interdependent systems of discrimination, oppression, or disadvantage.

*Data collection methodology.* Evidence was collected and analyzed - mainly quantitative data - on multiple socio-economic dimensions of poverty (education, income, work, access to land, among others). The diagnosis is fed by secondary information and data sets from official databases<sup>6</sup>. Whenever possible, we tried to access micro-data from the 223 municipalities in the project's area of intervention and data disaggregated by gender. In addition, when official statistics were not available, articles from academic literature were used. Between February 20 and 23, 2024, a mission was carried out to communities in the project's area of intervention to gather additional information on the socio-economic situation and demands of the target groups.

*Data analysis methodology.* A first method aims to analyze the socio-economic challenges of the initial situation (baseline) and the structural conditions in which the Project will develop at the local level (municipalities) of the intervention area. A second exercise consists of examining the problems and cause and effect relationships identified and the associated constraints and opportunities. This effort starts from an approach to needs from the perspective of the direct beneficiaries (in particular women family farmers). This analysis will be used to make discrimination and social exclusion visible from a differential approach and to propose actions to close the gaps identified.

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<sup>6</sup> The following databases were consulted: Agricultural Census (2006 and 20017); Demographic Census (2022); Single Registry for Social Programs (2024); SISVAN (2023); Continuous PNAD (2019); IBGE (2024) - Gender Statistics: social indicators of women in Brazil - 3rd edition.

## Introduction

The **general objective** of the Paraíba Sustainable Rural Development Project (PROCASE II) is to reduce rural poverty levels by improving the productivity of agricultural activities, access to basic services and the adaptation of the rural population to climate change. The **specific objectives** are as follows: (i) improve access to water for human consumption and productive use; (ii) improve the environmental conditions of rural families and their environment; (iii) increase the adoption of agricultural technologies, including those for adapting to and mitigating climate change; (iv) improve the integration of rural producers into value chains; and (v) strengthen the capacities of government and civil society organizations working towards sustainable rural development.

The project's *intervention area* covers all 223 municipalities in the state of Paraíba, but the intervention will prioritize communities based on the following technical criteria: i) incidence of rural poverty (CadÚnico); ii) presence of traditional peoples and communities (PCTs); iii) incidence of food and nutritional insecurity; iv) concentration of rural women and young people; v) limited or no access to water for human consumption and production; vii) avoidance of overlap with the PROCASE I, Sertão Vivo and PDHC III interventions.

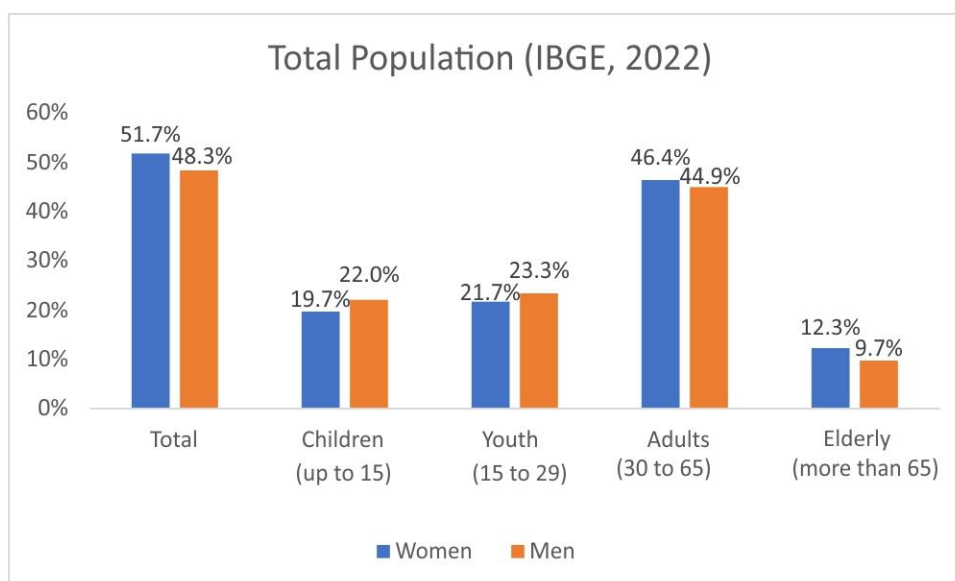
The project aims to directly benefit 60,000 families (around 210,000 people) in the family farming sector, of which 50% will be women, 20% young people, 5% Traditional Peoples and Communities (PCTs) and 2% will be People with Disabilities (PwD). The project's main target groups are: i) family farmers living in poverty and extreme poverty, ii) rural women, iii) rural youth, iv) PCTs, v) PWD and v) LGBTQIAPN+.

The *general objective* of the gender diagnosis is to analyze the gaps in women's inclusion in different socio-economic themes to support the design of PROCASE II Project activities to close the gaps identified. Its *specific objective* is to enhance the effectiveness of the project's interventions by collecting and analyzing information that will serve as input for recommending activities that improve the participation and benefits of women in the PROCASE II area.

*Structure of the diagnosis.* Section 1 identifies the general and specific figures for the project's main target groups, with particular attention to women. Section 2 is based on a quantitative analysis of the socio-economic characteristics of family farmers disaggregated by gender in the project's area of intervention, highlighting the *gaps in* women's social inclusion. In section 3, based on the evidence collected, a gender strategy is proposed, recommending appropriate activities, targets, and indicators for tackling existing inequalities, both in the productive sphere and in issues related to organization and representation in spaces for dialogue, defense, and protection of women's rights. Finally, in section 4, recommendations are made.

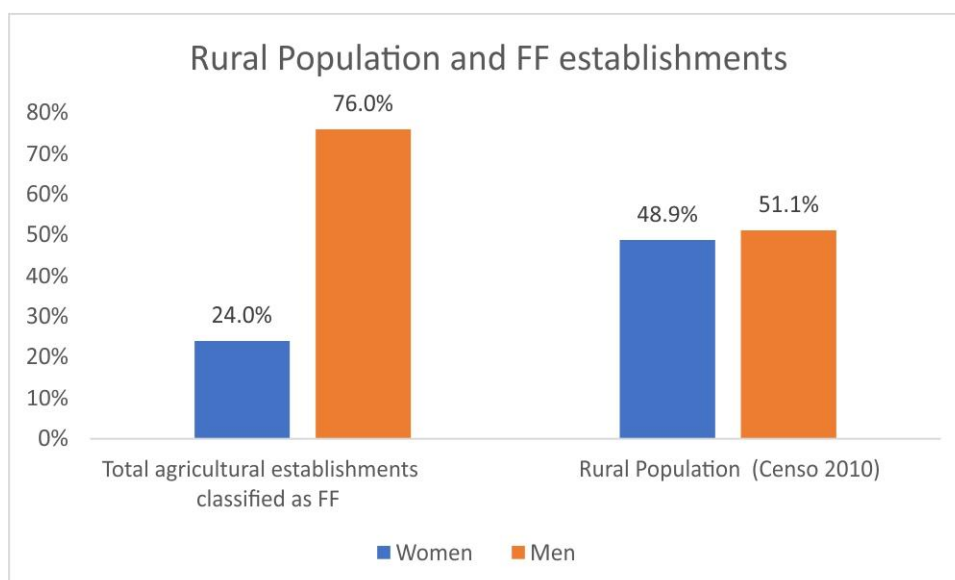
## 1. Identification

According to the 2022 Demographic Census, the population of the 223 municipalities in the intervention area is 3,974,687, of which 2,055,832 are women (51.7%) and 893,666 young people aged 15 to 29 (22.5%)<sup>7</sup> (Figure 1).



**Figure 1** - Total population by sex and age (Demographic Census, 2022).

According to the 2017 Agricultural Census<sup>8</sup>, in the project's area of intervention (223 municipalities), 76.9% of total establishments are family farms (125,489). Regarding those responsible for these establishments, there is a significant gender gap of 52% (Figure 2 - left). 76.0% of family farms are run by men (95,363) and only 24.0% by women (30,126).



**Figure 2 - Right:** Rural Population by gender (Demographic Census, 2010); **Left:** direction of FF establishments by gender (Agricultural Census, 2017).

In the Project area, 2,574,204 people are registered in the Unified Registry, of which 1,154,067 are women and 1,420,137 are men (data from November 2023). The total

<sup>7</sup> Among young people aged 15 to 29, 445,900 (21.7%) are young women and 447,766 (23.3%) are young men.

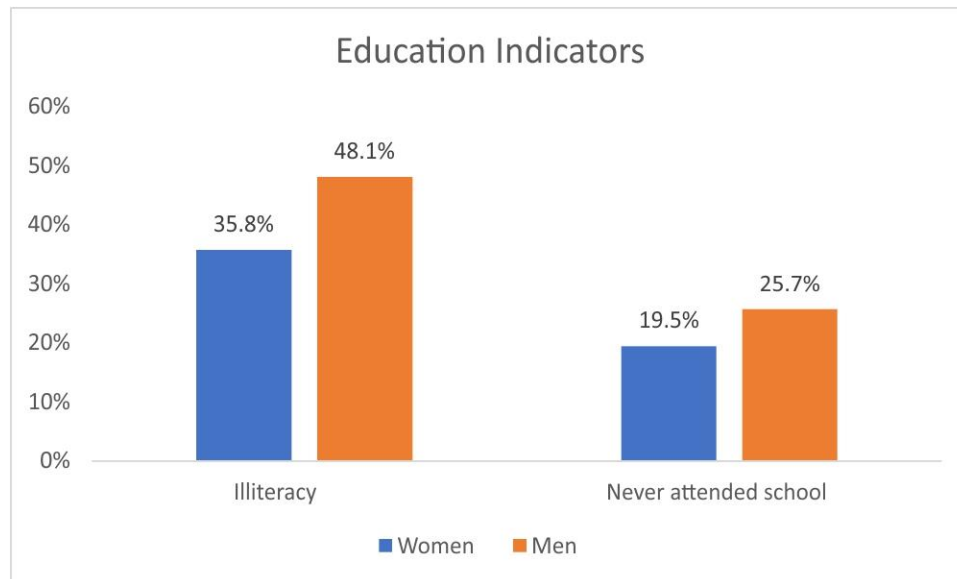
<sup>8</sup> This is the most recent Agricultural Census available with microdata for the municipalities in the project's area of intervention.



population living in rural households registered on the Unified Registry is 713,277 people, making up approximately 301,455 families.

## 2. Socio-economic characterization

### 2.1 Education



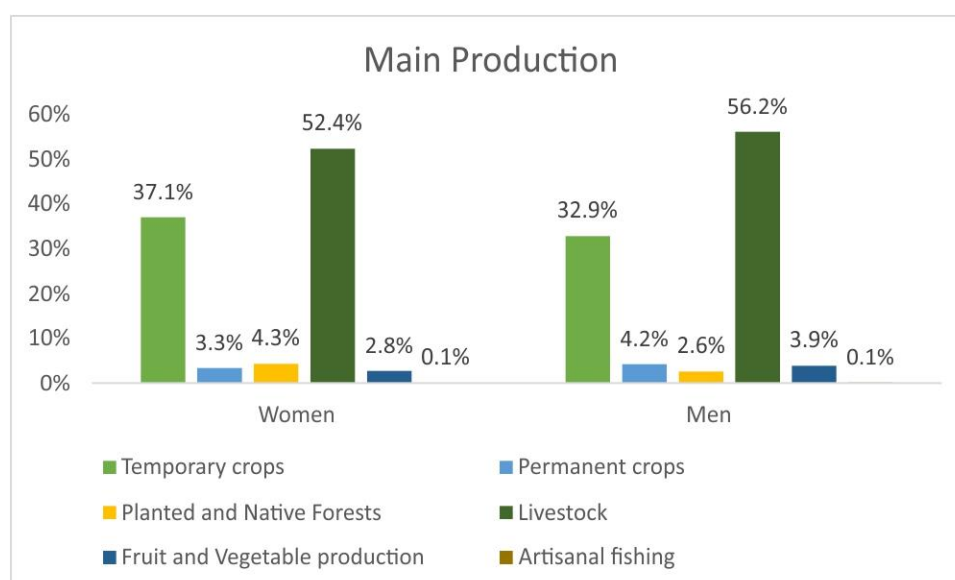
**Figure 3 - Left:** illiteracy rate by gender; **Right:** never attended school by gender (Agricultural Census, 2017).

*Illiteracy.* According to the 2017 Agricultural Census, 56,699 of the heads of family farming establishments were illiterate, 45.2% of the total. Among female family farmers, illiteracy reached 10,785 heads of establishments (35.8%), while among men illiteracy reached 45,914 heads (48.1%) - a positive gap of 12.3 percentage points (Figure 3 - left).

*Never attended school.* The same database shows that 30,410 heads of family farms have never attended school (24.2% of the total). Among female family farmers, 5,862 (or 19.5%) have never been to school, while among men, 24,548 (or 25.7%) have never been to school. There is therefore an exclusion gap for women of -6.2 percentage points (Figure 3 - right).

In this context, the selected indicators show that men are worse educated than women.

## 2.2 Economic activities



**Figure 4** - Main agricultural production by gender (Agricultural Census, 2017).

Data from the 2017 Agricultural Census shows that the main agricultural activities carried out in the project's area of intervention are livestock farming and cultivation of temporary crops. Figure 4 shows that, proportionally, women spend more time than men on temporary crops (37.1% versus 32.9%) and the production of planted/native forests, while men spend more time on permanent crops, livestock production (56.2% versus 52.4%) and horticulture/fruit growing (3.9% versus 2.8%).

## 2.3 Work and income

*Average usual monthly income:* The IBGE's gender statistics survey<sup>9</sup> shows that the lowest average usual incomes for all jobs are those received by women in the Northeast region, below BRL 1500.00. However, wage inequalities are smaller than those in the South, Southeast and Midwest regions.

In 2018, in the Northeast, women received an average of 86.5% of men's income, while in the South, for example, women received only 72.8% of men's income<sup>10</sup>.

*Average number of hours per week dedicated to caring for people and/or household chores.* In Brazil in 2022, women devoted almost twice as much time to caring for people and/or household chores as men (21.3 hours compared to 11.7 hours)<sup>11</sup>. In the Northeast, women devoted more hours to these activities (23.5 hours), and it is also the region with the greatest inequality in relation to men (11.8 hours), i.e. women have devoted almost twice as much time. The greater dedication to caring for people and/or household chores ends up restricting women's wider participation in the labor market.

<sup>9</sup> IBGE (2021). [Gender Statistics: Social indicators of women in Brazil](#). 2nd edition.

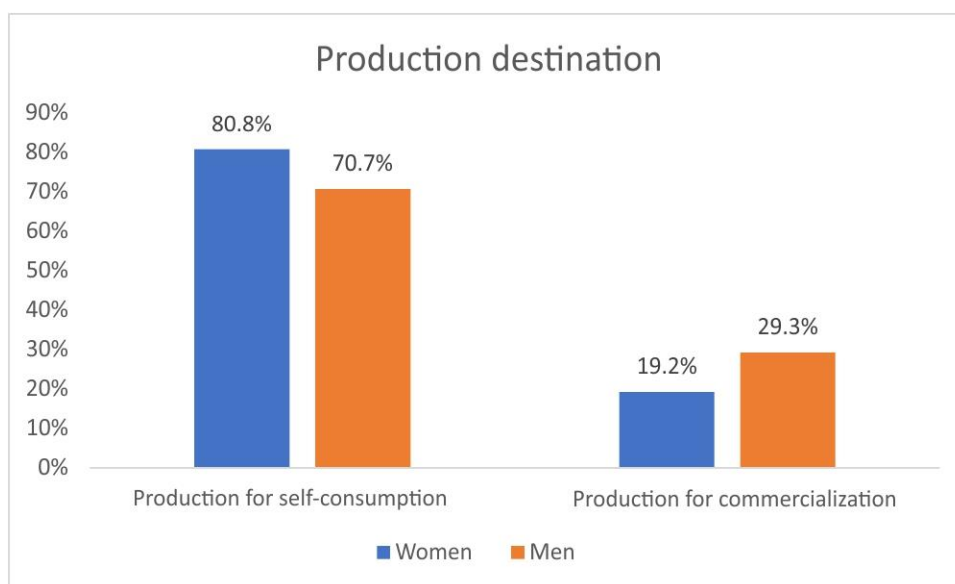
<sup>10</sup> Idem.

<sup>11</sup> IBGE (2024). Gender Statistics: social indicators of women in Brazil - 3rd edition. [https://biblioteca.ibge.gov.br/visualizacao/livros/liv102066\\_informativo.pdf](https://biblioteca.ibge.gov.br/visualizacao/livros/liv102066_informativo.pdf).

*Household income per capita:* Paraíba's nominal monthly household income per capita in 2023 was R\$ 1,320, eighteenth place among the 27 federation units<sup>12</sup>. However, this data is not available disaggregated by gender.

*Proportion of people in part-time work in the reference week:* In 2022, 28.0% of women were in part-time work (up to 30 hours a week), almost twice as many (14.4%) as men in Brazil. In the spatial breakdown, the Northeast is one of the regions with the highest proportions of women in part-time work, 36.5% (versus 22.3% of men)<sup>13</sup>.

In the 2017 Agricultural Census, the following data is available on the destination of agricultural production:



**Figure 5 - Left:** production for self-consumption by gender; **Right:** production for commercialization by gender (Agricultural Census, 2017).

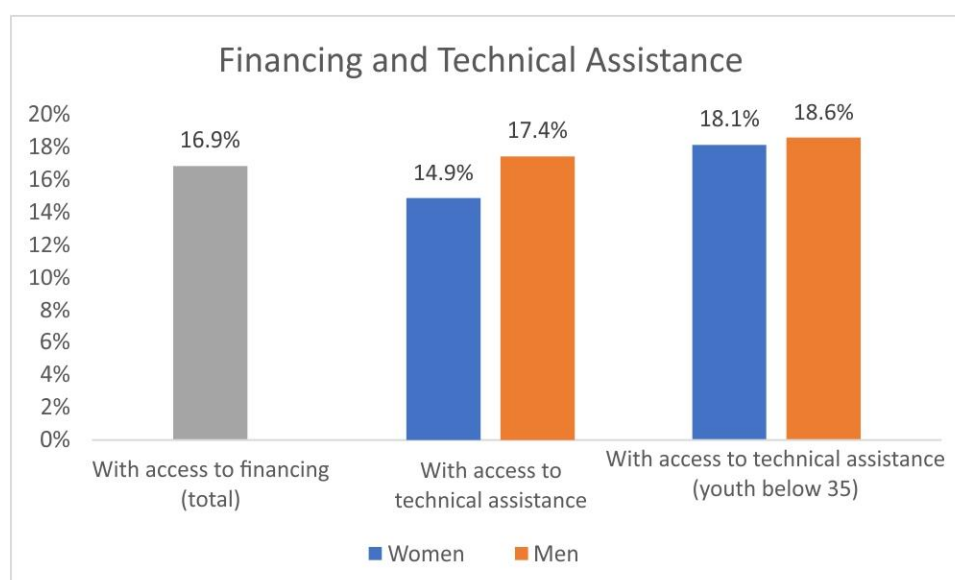
*Production for own consumption.* In the Project area, the 2017 Agricultural Census shows that 91,792 PA establishments produce for their own consumption (73.1% of the total). Among the establishments run by women, 24,332 produce for self-consumption (80.8%), while in relation to those run by men, 67,460 produce for self-consumption (70.7%), a difference of 10.1 percentage points (Figure 5 - left).

*Production for marketing.* 33,697 PA establishments in the Project area (26.9% of the total) produce for marketing. Among those run by women, 5,794 produce for marketing (19.2%) and among those run by men, 27,903 (29.3%) - a gap of 10.1 percentage points (Figure 5 - right).

<sup>12</sup> IBGE (2018). <https://cidades.ibge.gov.br/brasil/pb/panorama>.

<sup>13</sup> IBGE (2024). Gender Statistics: social indicators of women in Brazil - 3rd edition. [https://biblioteca.ibge.gov.br/visualizacao/livros/liv102066\\_informativo.pdf](https://biblioteca.ibge.gov.br/visualizacao/livros/liv102066_informativo.pdf).

## 2.4 Technical assistance and access to finance



**Figure 6 - Left:** Access to financing (total); **Center:** access to Technical Assistance by gender (total); **Right:** access to Technical Assistance by gender and youth below 35 (Agricultural Census, 2017).

*Technical Assistance.* The 2017 Agricultural Census shows that 21,123 managers of FA establishments had access to technical assistance (TA), 16.8% of the total. Among female family farmers, 4,486 received TA (14.9% of the total), while 16,637 male family farmers (or 17.4% of the total) received TA, which represents a gender gap of 2.5 percentage points (Figure 6 - center).

According to the same data source, among young female managers<sup>14</sup> (under 35), 2,283 (or 18.5% of the total) received TA - a positive difference of 1.7% for the total number of family farmer managers. Broken down by gender, access to TA was 18.1% among young women and 18.6% among young men. There is therefore a gap in access to TA of 0.1 percentage points between young male and female managers (Figure 6 - right).

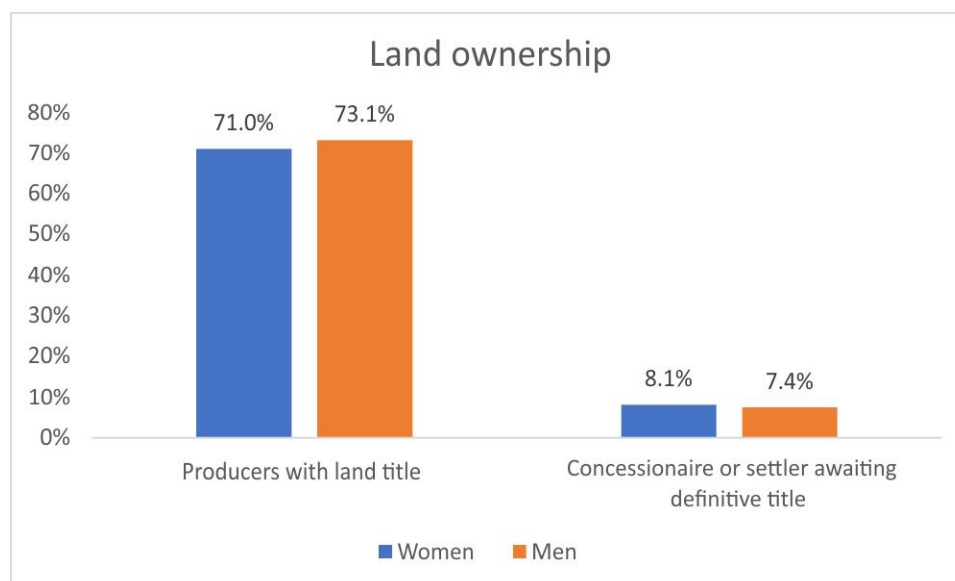
*Access to financing.* According to the 2017 Agricultural Census, 21,151 PA establishments in the project area had access to some kind of financing (16.9% of the total). Of those that received financing, 9,899 came from public credit programs, 72.8% from PRONAF. Details of which programs were accessed can be found in table 1. This data is not available broken down by gender.

**Table 1**

<b>Funds from Government Credit Programs</b>	Total	Percentage
They come from credit programs	9899	100.0%
Implementation and installation of settlements (INCRA)	54	0.5%
Promotion Program	31	0.3%
National Support Program for Medium-sized Rural Producers (PRONAMP)	92	0.9%
National Program to Strengthen Family Farming (PRONAF)	7210	72.8%
Terra Forte and Terra Sol Program	5	0.1%
Program to Support Infrastructure Projects and Services in Rural Territories (PROINF)	59	0.6%
Other programs (federal, state, or municipal)	2448	24.7%

<sup>14</sup> Although for PROCASE, young people between the ages of 15 and 29 are considered in accordance with the Youth Statute (Law No. 12.852/2013).

## 2.5 Land security and access to land



**Figure 7 - Left:** producers with land title by gender; **Right:** concessionaires and settlers awaiting land title by gender (Agricultural Census, 2017).

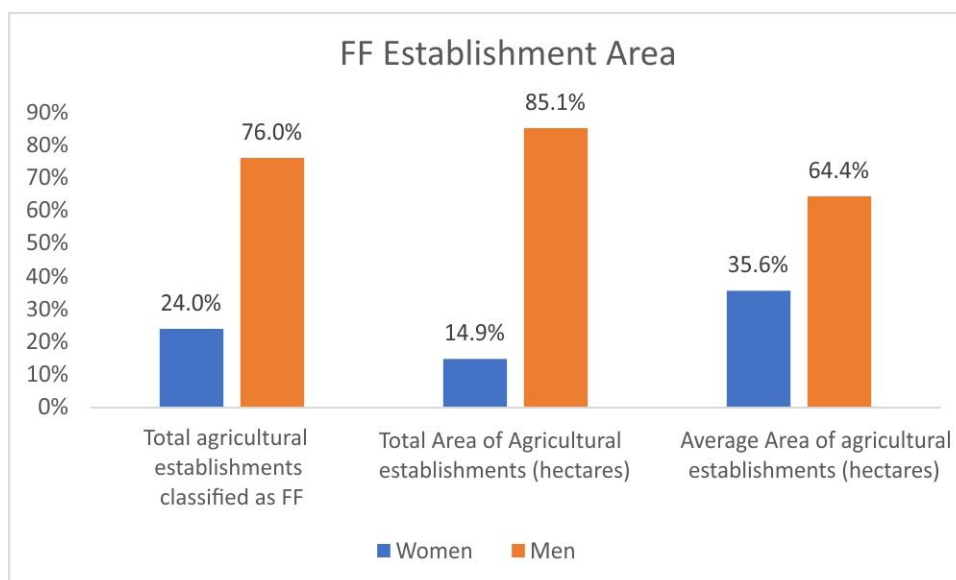
*Property title.* According to the 2017 Agricultural Census, in the project area, 88,383 managers of family farms have land titles, or 70.4% of the total. Among female family farmers, 21,379 or 71.0% have title deeds, while among men, 69,750 have title deeds or 73.1% of the total. It can therefore be seen that women have 2.1 percentage points less access to land titles (Figure 7 - left).

*Concessionaire or settler awaiting definitive title.* There is a total of 8,724 managers of PA establishments who are concessionaires or awaiting definitive title (7.0%), of which 2,452 are women (8.1%) and 7,098 (7.4%) are men.

*Index of perceived security of land tenure.* In Brazil, 23% of the adult population feels insecure about their land and property in general. Among women, 23% feel insecure, among men, 24%<sup>15</sup>.

22% of the adult population feel insecure about their housing rights, with men and women having the same percentage of perceived housing insecurity (22%). The landlord or tenant asking the individual to leave was the main reason cited for this insecurity (in 71% of cases).

<sup>15</sup> <https://www.prindex.net/data/brazil/>.



**Figure 8 – Left:** Total establishments, **Center:** percentage of total area (ha); **Right:** average area (ha) by gender (Agricultural Census, 2017).

*Area of establishments.* The total area in hectares of PA establishments run by men is significantly larger than those run by women. The total area of PA establishments run by women is 214,500 ha (14.9%), while that of men totals 1,226,714 ha (85.1%). In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.12 hectares, those run by men have an average of 12.86 hectares.

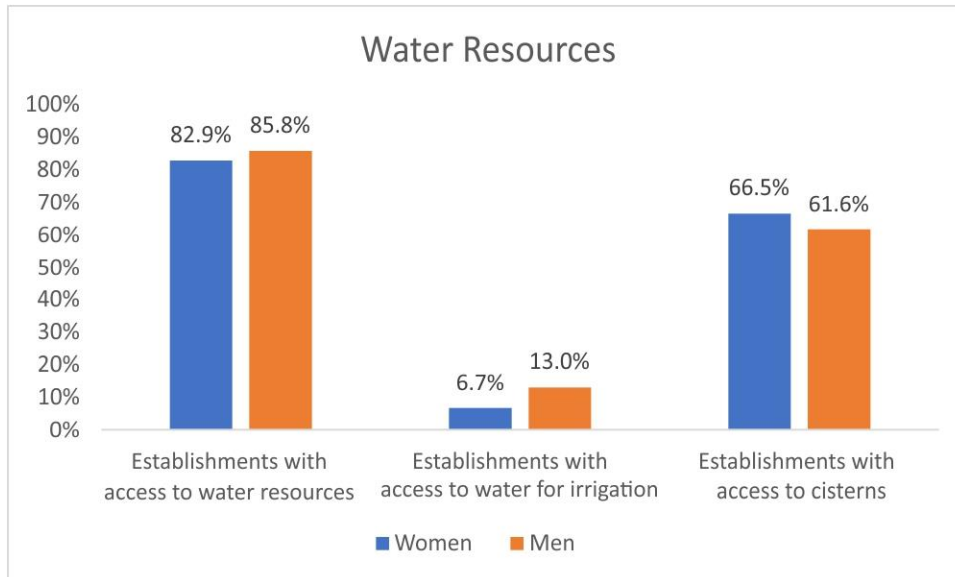
## 2.6 Water resources, access to water and basic sanitation

Research by the Trata Brasil Institute (2018) indicated that one in four women in Brazil did not have adequate access to sanitation infrastructure in 2018. In the North and Northeast regions, regular water service reached 53.2% of women. In addition, 70% of women who do not have a toilet at home live in the Northeast<sup>16</sup>. The lack of adequate sanitary facilities not only exposes women to a range of diseases, but also increases their vulnerability to violence, hindering their ability to move freely, earn income and learn. Furthermore, in the context of pregnancy and childbirth, a hygienic environment, including sanitation and drinking water, is fundamental to guaranteeing the health of the woman and her child<sup>17</sup>.

The 2017 Agricultural Census provides relevant indicators on access to water resources by family farmers in the PROCASE II area, broken down by gender.

<sup>16</sup> Trata Brasil Institute (2018). [Sanitation and the lives of Brazilian women 2018](#).

<sup>17</sup> ECLAC (2022). [Gaps, challenges and opportunities in water and gender in Latin America and the Caribbean](#).



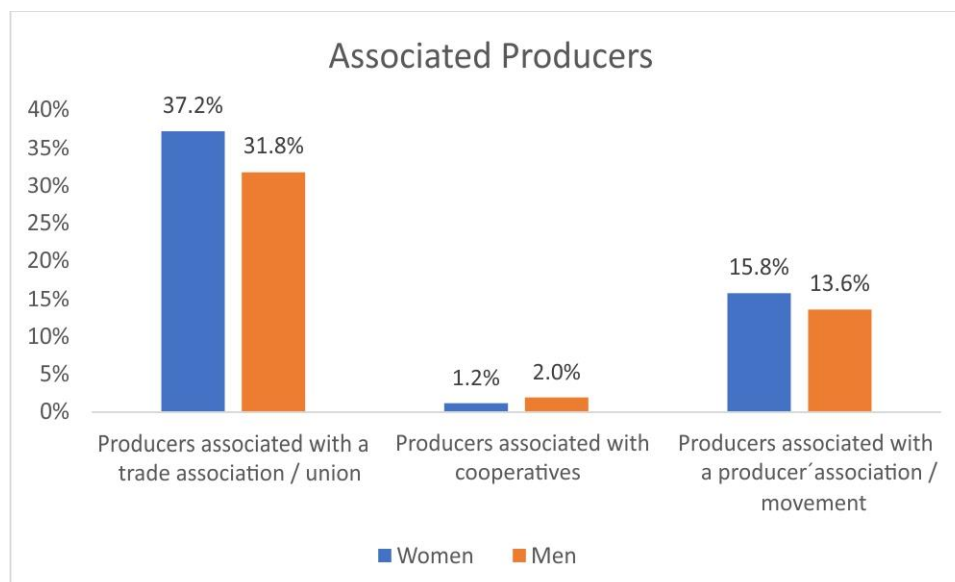
**Figure 9** - Water resources by type and gender (Agricultural Census, 2017).

*Establishments with access to water resources* (Figure 9). According to the 2017 Agricultural Census, 106,764 PA establishments (85.1%) have access to water resources, while 18,725 do not (14.9%). Among the establishments run by women, 24,967 (82.9%) have water resources compared to 81,797 of those run by men (85.8%) - a gap of 2.9 percentage points.

*Access to water for irrigation.* 14,394 PA establishments in the Project area (11.8% of the total) have access to water for irrigation. Among those run by women, 2,028 have access to irrigation water (6.7%); among those run by men, 12,366 (or 13.0%) do - a gap of 6.3 percentage points.

*Access to cisterns.* 78,824 PA establishments in the project area (62.8%) have access to cisterns. Among those run by women, 20,043 have access to cisterns (66.5%) and among those run by men, 58,781 (61.6%) - a gap of -4.9 percentage points.

## 2.7 Associative Activities



**Figure 10** - Associated producers by type of association and gender (Agricultural Census, 2017)

*Members of associations/trade unions.* In the Project area, 41,508 managers of PA establishments were members of professional associations (33.1% of the total) in 2017. Among female managers, 11,205 were members (37.2% of the total) and among men, 30,303 (31.8%) - a difference of 5.4 percentage points in favor of women.

*Cooperative members.* According to the 2017 Agricultural Census, 2,244 managers of PA establishments were associated with cooperatives (1.8%) in the project area. Among women managers, 361 were members (1.2%) and among men, 1,883 (2.0%) - a gap of 0.8 percentage points.

*Members of a producers' association/movement.* 17,734 managers of FA establishments were members of a producers' association or movement in 2017 (14.1%). Among female managers, 4,754 were members (15.8%) and among men, 12,980 (13.6%) - a gap of -2.2 percentage points.

## **2.8 Food and Nutrition Security (FNS)**

*Food Insecurity:* According to the II VIGISAN<sup>18</sup>, food insecurity (FI) in 2021/2022 affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it reached 68% of households, where 12.1 million people are going hungry, i.e. at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly hard hit. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of FI were observed in family farming families who have not yet been able to return to pre-pandemic conditions, especially those who have not been able to fully re-establish their production and marketed quantities. The most recent survey by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger). Food insecurity figures disaggregated by gender are not available.

*Nutrition.* Despite the process of nutritional transition, the state of Paraíba follows the national trend and the rest of the Northeast region and faces a double burden of malnutrition, marked by both undernutrition and an increase in the prevalence of overweight. 62.5% of adults in Paraíba are overweight (35.5% overweight and 27.0% obese)<sup>19</sup>. Growth retardation affects 4.9% of children under 5, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8% (figure 11).

The situation is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to suffer from socio-economic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% for the rest of Brazil<sup>20</sup>.

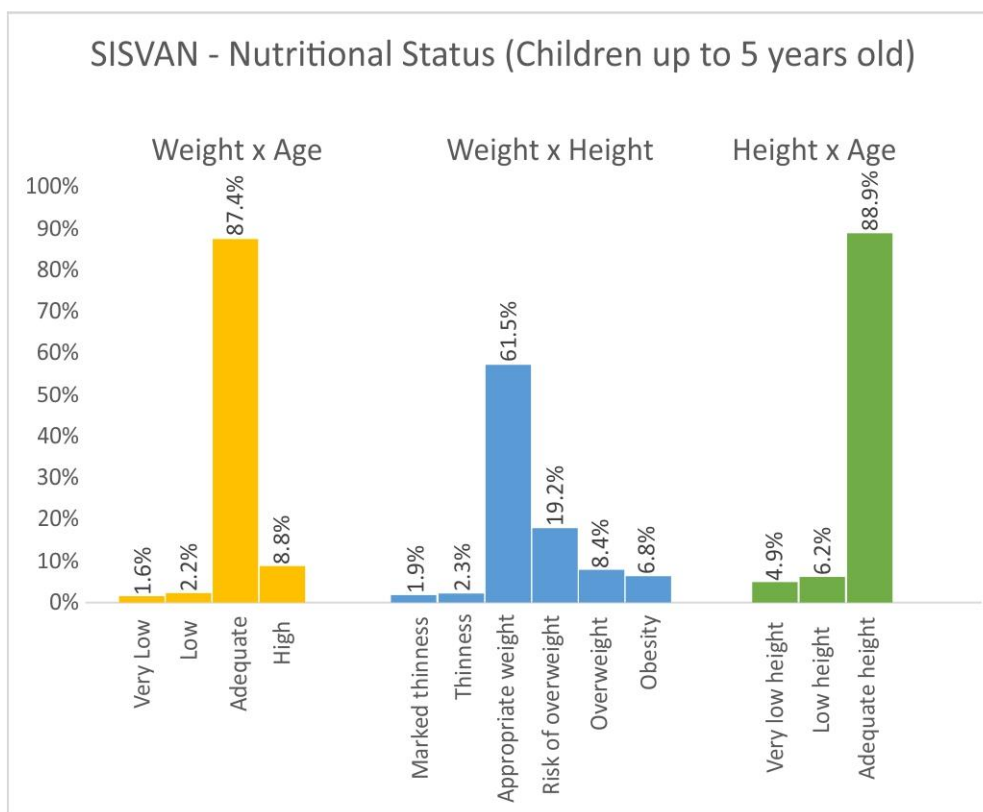
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<sup>18</sup> [II National Survey on Food Insecurity in the Context of the COVID-19 Pandemic in Brazil](#) [II VIGISAN: final report]. Brazilian Research Network on Food Sovereignty and Security - PENSSAN. São Paulo, SP : Friedrich Ebert Foundation. PENSSAN Network, 2022.

<sup>19</sup> Ministry of Health. Food and nutrition situation in Brazil: overweight and obesity in the adult population in Primary Health Care. [https://bvsms.saude.gov.br/bvs/publicacoes/atlas\\_situacao\\_alimentar\\_nutricional\\_populacao\\_adulta.pdf](https://bvsms.saude.gov.br/bvs/publicacoes/atlas_situacao_alimentar_nutricional_populacao_adulta.pdf).

<sup>20</sup> MELO, Maria Inês Bezerra de et al (2011). "Nutritional status of pregnant women assessed by three different anthropometric classification methods." *Revista de Nutrição* 24 (2011): 585-592.





**Figure 11** – Nutritional Status of children up to 5 years old (SISVAN, 2023).

The main root causes of food and nutritional insecurity in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and low levels of food and nutritional education. It is worth highlighting the direct correlation between food and nutritional insecurity and poverty rates (69.9% of family farmers registered in the Single Registry in the Project area live in poverty or extreme poverty)<sup>21</sup> and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality of water sources). Access to quality water and sanitation plays a fundamental role in combating different forms of malnutrition. Only 39.4% of households in the Project area have access to a public sewage system and 63.2% are connected to a public water supply system<sup>22</sup>.

## 2.9 Gender-based violence and domestic violence

Violence in rural areas is increasing every year, as shown by the growing number of murders of rural workers. The Report "Conflicts in the Countryside Brazil 2022" by the Pastoral Land Commission (CPT) shows that the number of conflicts in the countryside has increased from 804 cases in 2013 to 1500 in 2022; in 2022 alone 47 murders were recorded compared to 35 in 2013.

IPEA data for Paraíba indicates a femicide death rate of 3.9 women per 100,000 in 2018<sup>23</sup>. In 2023, 4,630 police inquiries were opened in Paraíba to investigate cases of domestic and

<sup>21</sup> Single Registry, November 2023. Available at: <https://aplicacoes.cidadania.gov.br/vis/data3/data-explorer.php>.

<sup>22</sup> Idem.

<sup>23</sup> IPEA (2020). Atlas of Violence. Available at: <https://forumseguranca.org.br/wp-content/uploads/2020/08/atlas-da-violencia-2020.pdf>.

sexual violence against women, according to the Coordination of Women's Police Stations in Paraíba (Coordeam)<sup>24</sup>.

In Paraíba, you can find the following networks through the Paraíba state government via the Women's Secretariat; the Maria da Penha Integrated Patrol Program - PIPMP; the State Women's Reference Centers; the Shelter House; and the Temporary Shelter House.

The lack of facilities in the Network to Combat Violence against Women makes rural women more vulnerable to violence and restricts their access to protection.

### 3. Gender strategy

Based on the diagnosis prepared in the previous sections, a preliminary Gender strategy was drawn up, which will be presented below and represents the main recommendation of this report.

#### 3.1 Strategic Transformation Pathways

PROCASE II will take a holistic approach to transforming gender relations, which focuses on the environmental, economic, political, and cultural causes of women's social vulnerability. This perspective aims to transform unequal power relations shaped by patriarchal structures, norms and practices and empower women to be more resilient. To this end, the project will: i) promote economic empowerment and equal access to and control over resources and assets, ii) address the issue of women's overload due to domestic and care work, iii) empower women and men to have equal voice and decision-making power in rural institutions and organizations<sup>25</sup>.

Through gender sensitization workshops, the project will work on important concepts in the formation of structural inequality in the state, with emphasis on intersectional discrimination based on race, gender, and class. The actions of the three strategic trajectories, detailed in the table below, will highlight the contributions of women, acting as important tools in restoring self-esteem and recognizing the work of women in Paraíba beyond the domestic sphere, stressing patriarchal values that place them only as the keepers of the home, in a position of subalternity. By having a positive impact on the lives of women, especially black women from the countryside and traditional peoples and communities (PCTs), the project has an impact on transforming the structure of society as a whole, as these target groups form the base of the social pyramid.

#### 3.2 Gender policies with which the project is aligned

The **Plano Nacional de Políticas para as Mulheres – PNPM (National Women's Policy Plan)**: is organized into 11 axes that represent priority themes and areas of concern raised by women at the National Conferences on Policies for Women:

- I. Economic autonomy and equality in the world of inclusion;
- II. Inclusive, non-sexist, non-racist, non-homophobic and non-lesbophobic education;
- III. Women's health, sexual rights and reproductive rights;

<sup>24</sup> <https://g1.globo.com/pb/paraiba/noticia/2024/03/09/violencia-contra-a-mulher-na-pb-acontece-principalmente-em-casa-por-pessoas-conhecidas.ghtml>.

<sup>25</sup> Each of these 3 trajectories is aligned with one of the 3 objectives of IFAD's policy on gender equity and women's empowerment, available at: <https://www.ifad.org/ja/-/document/ifad-policy-on-gender-equality-and-women-s-empowerment-new>.

- IV. Combating all forms of violence against women;
- V. Women's participation in spaces of power and decision-making;
- VI. Sustainable development in rural areas, the city and the forest, guaranteeing environmental justice, sovereignty and food security;
- VII. The right to land, decent housing and social infrastructure in rural and urban areas, considering traditional communities;
- VIII. Equal culture, democratic and non-discriminatory communication and media;
- IX. Combating racism, sexism and lesbophobia;
- X. Combating generational inequalities affecting women, with special attention to young and elderly women;
- XI. Managing and monitoring the plan.

The **Pronaf Mulheres (Pronaf Women)**: supports agricultural and non-agricultural activities through a specific line of credit for rural women, with facilitated payment conditions.

The **Política Nacional de Enfrentamento à Violência contra a Mulher (National Policy to Combat Violence against Women)**: aims to establish concepts, principles, guidelines and actions to prevent and combat violence against women, as well as to assist and guarantee the rights of women in situations of violence, in accordance with international human rights standards and instruments and national legislation.

The **Programa de Defesa dos Direitos das Mulheres Jovens Vulneráveis ao Abuso e à Exploração Sexual no Brasil (Program for the Defense of the Rights of Young Women Vulnerable to Sexual Abuse and Exploitation in Brazil)**: is part of the Program for the Defense of the Rights of Children and Adolescents and aims to promote the rights of girls, especially those at risk, in order to eliminate violence against them.

The **Programa Organização Produtiva e Econômica das Mulheres Rurais (Rural Women's Productive and Economic Organization Program)**: establishes the integration of public policies aimed at qualifying productive and economic processes and the production of healthy food.

The **Programa Nacional de Cidadania e Bem Viver (National Program for Citizenship and Good Living)**: one of its main actions is the Rural Workers' Documentation Workshops, which aim to raise awareness about the usefulness of civil and labor documentation, as well as providing guidance on access to public policies for women in agrarian reform and family farming and social security, issuing civil and labor documents and access to social security rights free of charge.

The **Programa Quintal Produtivo (Productive Backyard Program)**: aims to promote food and nutritional security and the economic autonomy of rural women. Initially, 10,000 productive backyard gardens will be created, benefiting thousands of women through access to the inputs, equipment, and tools needed to structure and manage the gardens. The action consists of associating backyard gardens with development, technical assistance, cisterns, and commercialization. By 2026, there will be 90,000 productive backyard gardens throughout Brazil. The action involves the Ministry of Agrarian Development (MDA), the Ministry of Development and Social Assistance, the Family and Fight against Hunger (MDS), and the BNDES.

**Empreender Mulher (Women's entrepreneurship)**: This line of credit was created by the Government of Paraíba and is run through a partnership between the Empreender PB Program and the State Secretariat for Women and Human Diversity, with the aim of rescuing the dignity of women in situations of social vulnerability, promoting economic autonomy and fostering female protagonism in entrepreneurship.

### 3.3 Theory of Change

<b>General Objective</b>	Increasing the impact of PROCASE II on gender equality and empowering women in Paraíba.		
<b>General goal</b>	At least 50% of the beneficiaries will be women.		
<b>Specific objectives</b>	Economic empowerment	Decision-making and representation	Balancing the workload
<b>Activities</b>	<ul style="list-style-type: none"> <li>- Increasing women's access to and control over resources - inputs, technologies, finances, and economic services - such as extension and training.</li> <li>- Generate new income opportunities for women emerging from the project's investments in agricultural and non-agricultural activities.</li> <li>- Create new opportunities for rural women's products to access the market.</li> <li>- Raising awareness among men and boys as a strategy to support women's economic engagement.</li> <li>- Strengthening women's right to land.</li> <li>- Promoting the use of agroecological notebooks as a feminist political pedagogical tool for empowerment.</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure the involvement of women in the development of Productive Investment Plans (PIP) and Business Plans (PN).</li> <li>- Encouraging and empowering women to take on leadership roles in rural and community organizations.</li> <li>- Promote and strengthen women's groups, networks, and organizations.</li> <li>- Increase dialogue on gender-specific policies.</li> </ul>	<ul style="list-style-type: none"> <li>- Implementing social technologies that reduce domestic work time.</li> <li>- Increasing access to water and basic sanitation.</li> <li>- Implement the childcare circles (cirandas) initiative to ensure that the children are looked after during the project's activities.</li> <li>- Promote mixed and thematic territorial meetings of women (guided by community demand) to raise awareness about the fair division of domestic labor.</li> </ul>
	Political engagement and raising awareness about gender-based violence through prevention campaigns. Awareness-raising campaigns on gender issues and women's rights, highlighting the specific challenges faced by rural women.		
<b>M&amp;A</b>	<ul style="list-style-type: none"> <li>- Women with income-generating opportunities in agriculture and non-agriculture.</li> <li>- Women farmers receiving productive investments and/or technologies.</li> <li>- Rural women trained.</li> </ul>	<ul style="list-style-type: none"> <li>- Women participating equally in rural and community organizations.</li> <li>- Women's networks formed and/or strengthened.</li> </ul>	<ul style="list-style-type: none"> <li>- Trained Cirandeira(o)s.</li> <li>- Territorial women's, mixed and thematic meetings on gender issues held.</li> </ul>

	- Women ATER technicians trained		
	- Women with gender equality and empowerment systematically addressed and ensured in the project. - Gender and Diversity Strategy and Action Plan drawn up and implemented.		

#### 4. Recommendations

To overcome the gaps identified in the diagnosis, the following actions are recommended:

**General recommendation:** It is recommended that the preliminary gender strategy described in the previous section serve as an initial basis for drawing up the PROCASE II Gender Strategy. This document should serve as a guide for the implementation of the project but should be updated whenever necessary to adapt to the different realities, challenges and opportunities found in the territories.

#### Recommendation of Implementation Measures:

- Setting targets for women as a percentage of beneficiaries, as well as ensuring that relevant indicators for all components are disaggregated by gender. This data should be collected and analyzed systematically throughout implementation.
- The project must have a specific budget line for the execution of specific Gender Equity and Women's Empowerment (GEWE) activities, which will be included in subcomponent 1.3.
- It is recommended that PROCASE I's good practices on gender be maintained and scaled up during PROCASE II, in particular the use of Agroecological Logbooks<sup>26</sup> and the maintenance of the Working Group on Gender, Generation, Race and Ethnicity Equality.
- A gender and diversity specialist should be hired to join the Project Management Unit team on an exclusive basis. This person will be responsible for gender and social inclusion issues (overseeing the implementation of the gender and diversity strategy and action plan, training staff, and helping colleagues to address gender equality and women's empowerment issues in the Project's operations, including knowledge management, M&E indicators, and results measurement. This specialist should be supported by gender focal points in each of the decentralized offices.
- Responsibility for gender mainstreaming should be included in service providers' terms of reference.
- In the event of low involvement of women in the project or unqualified participation, corrective actions should be promoted. Supervision missions, implementation support and the Mid-Term Review will play a key role in monitoring and evaluating the progress and bottlenecks in the implementation of the Gender and Diversity Strategy and Action Plan, as well as the achievement of the Project's goals related to gender and diversity.
- The studies carried out by the project, within the scope of Knowledge Management, must include a gender and diversity perspective

#### Specific recommendations by thematic area:

Theme	Recommendation
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<sup>26</sup> The agroecological report cards are a unique methodological tool that makes it possible to measure, value and give visibility to women's fundamental contributions to the family economy and community development, promote women's self-esteem and demonstrate how they contribute to healthy, diversified and safe family meals.

Social technologies	<p>Introduce social technologies for access to water that save women's time and work (e.g. cisterns, graywater reuse systems and renewable energies).</p> <p>Encouraging rural women's access to innovative social technologies that can increase productivity and efficiency, such as: drip irrigation, agroforestry systems, the development of crop varieties resistant to pests and diseases, nurseries, access to photovoltaic energy.</p> <p>Ensure that rural women take on greater social participation in water resource management.</p> <p>Training so that the social technologies are implemented by the women themselves.</p> <p>Integrate basic notions of hygiene, sanitation, and health by providing technical assistance to the target groups, adapted to the reality of rural women.</p>
Access to land	<p>Ensure that the project's environmental and land regularization activities prioritize rural women and PCTs, setting specific outreach targets for these priority groups.</p>
Access to credit	<p>Through Technical Assistance (TA), support rural women's access to civil documentation, to meet the requirements for access to credit and other public policies. This could be done through</p> <ul style="list-style-type: none"> <li>- Specific training on how to access public and private credit systems.</li> <li>- Promoting coordination between rural women, the technical advisory team and credit operators.</li> <li>- Encouraging the creation of revolving funds among women as an alternative way of accessing credit.</li> </ul>
Access to qualified AT	<p>Offer technical assistance that provides training and skills for family farming, financial management, entrepreneurship, and agricultural technology specifically for rural women.</p> <p>Ensure that the TA team has experience in working with rural women and is trained in gender-related issues to ensure that they meet the specific demands of this group.</p> <p>Create a Gender Working Group made up of all the TA entities contracted to discuss content and methodologies for working with women, strengthening the quality of the project's gender interventions, and ensuring ongoing training.</p> <p>Create minimum quotas for women technical assistants in the hiring notices of TA organizations.</p>
Expanding employment and income generation	<p>Train women in agricultural and non-agricultural subjects, so that they have greater and more diversified opportunities to generate income and occupations.</p> <p>Strengthen existing agroecological experiences in the project's area of operation and promote exchanges in agroecology between farmers, prioritizing women.</p> <p>Ensuring that the project's productive investments reach women by setting specific outreach targets for this group and ensuring that they participate in the drafting, implementation and monitoring of Investment Plans and Business Plans.</p>
Access to markets	<p>Training women to access the market, including public purchases such as the PNAE and PAA and the basics of online purchases.</p> <p>Promoting feminist agroecological fairs.</p>
Participation and decision-making	<p>Encourage the participation of women in leadership positions in associations, cooperatives, and local government bodies.</p> <p>Train women in associativism, cooperativism and leadership so</p>

	<p>that they have an equal voice and decision-making power in economic and community organizations.</p> <p>Encourage an affirmative quota policy in cooperatives (e.g. number of women in leadership positions), as these are spaces where there is less participation by women.</p> <p>Strengthening existing women's groups and networks in Paraíba, many of which are still informal.</p> <p>Establish support networks between rural women, where they can share knowledge, experiences, and resources. This can be done through exchanges between groups of women farmers, cooperatives, and local associations.</p>
<p>Reducing the workload and valuing women's unpaid work</p>	<p>Carry out work that involves men and women in recognizing and valuing the unpaid work of rural women, which often includes looking after the family, the house, and the animals, as well as farming. This could involve promoting actions that encourage the redistribution of family responsibilities and the recognition of domestic work as an economic contribution (e.g. agroecological passbooks).</p> <p>To ensure women's full participation in the project's activities, we recommend offering childcare services through "Cirandas das Crianças" (Children's Circles). This initiative allows the trainers to address educational topics with the children, such as agroecology, gender, health, environmental education, and coexistence with the semi-arid region.</p> <p>Introducing social technologies that save women's time and work (e.g. cisterns, graywater reuse systems and eco-efficient stoves).</p>
<p>Improving Food and Nutrition Security</p>	<p>Communication and Knowledge Management (KM): integrate the topic of nutrition into the KM materials to be developed by the project and disseminate them among rural women. Promote an awareness campaign on issues related to gender equality and nutrition (early pregnancy, sexual and reproductive health).</p> <p>Promoting nutritional education and food diversification through TA (an activity that should be tailored to the characteristics of the target groups, such as women).</p> <p>Valuing and increasing the dissemination of relevant traditional knowledge related to nutrition.</p> <p>Increasing the production of nutrient-rich crops and diversifying the production of nutritious food in agroecological backyards (a space where rural women often play a leading role) for the family's own consumption.</p> <p>Create partnerships with actors working on nutrition-related issues, such as the Pastoral Health Ministry and Municipal Health Departments.</p>
<p>Strengthening Institutional Capacity</p>	<p>It is recommended that the project support the institutional strengthening of TA organizations by training their teams in gender and diversity issues.</p> <p>Offer specific support to strengthen women's associations and groups through the activities of subcomponent 1.3.</p> <p>Business plan investments in women-led enterprises, such as community kitchens.</p>
<p>Access to public policies</p>	<p>Prioritize women's access to public policies, such as access to land regularization, access to water (cisterns for production and consumption, wells, desalination plants, underground dams), seed banks, credit, and agricultural inputs. This can</p>

	involve policies that promote gender equality in access to microcredit programs aimed specifically at women (e.g., Empreender Mulher).
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## PROCASE II - General Data

Indicators / Variables			References
	Total	%	
<b>Sociodemographic characteristics</b>			
Total agricultural establishments classified as FA	125.489	76,9%	Agricultural Census. 2017 (table 6776)
Total agricultural establishments classified as NAF	37.594	23,1%	Agricultural Census. 2017 (table 6776)
Total population (Census 2022)	3.974.687	100%	Demographic Census 2022 (Table 9606)
Population of children (up to 15 years) - Total	826.921	20,8%	Demographic Census 2022 (Table 9606)
Population of young people (15 to 29 years) - Total	893.666	22,5%	Demographic Census 2022 (Table 9606)
Adult population (30 to 64 years) - Total	1.815.463	45,7%	Demographic Census 2022 (Table 9606)
Elderly population (over 65) - Total	438.637	11,0%	Demographic Census 2022 (Table 9606)
Total population (2010 Census)	3.766.528	100%	2010 Demographic Census (Table 3175)
Rural population (2010 Census)	927.850	24,6%	2010 Demographic Census (Table 3175)
Population of children (up to 15 years) - rural	255.625	27,6%	2010 Demographic Census (Table 3175)
Population of young people (15 to 29 years) - rural	249.780	26,9%	2010 Demographic Census (Table 3175)
Adult population (30 to 64 years) - rural	338.372	36,5%	2010 Demographic Census (Table 3175)
Elderly population (over 65) - rural	84.073	9,1%	2010 Demographic Census (Table 3175)
Illiteracy	56.699	45,2%	Agricultural Census. 2017 (Table 6755)
Never attended school	30.410	24,2%	Agricultural Census. 2017 (Table 6755)
Average number of residents per household (Total number of municipalities in the project area)	3,5	-	Demographic Census. 2010 (Table 156)
<b>Age</b>			
Producer's age - Under 35	12.366	9,9%	Agricultural Census. 2017 (Table 6776)
Producer's age - from 35 to under 55	46.674	37,2%	Agricultural Census. 2017 (table 6776)
Producer's age - from 55 to under 75	52.549	41,9%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over	13.900	11,1%	Agricultural Census. 2017 (table 6776)
Producers who are members of the trade organization/union	41.508	33,1%	Agricultural Census. 2017 (table 6851)
Producers associated with the cooperative	2.244	1,8%	Agricultural Census. 2017 (table 6851)
Producers associated with the producers' association/movement	17.734	14,1%	Agricultural Census. 2017 (table 6851)

## PROCASE II - General Data

Indicators / Variables			References
	Total	%	
<b>Single Registry</b>			
Households connected to the public water supply network	1.167.145	100,0%	Single Registry. November 2023
Households connected to the public sewage system	460.145	39,4%	Single Registry. November 2023
Rural Families - Extreme Poverty	185.298	61,5%	Single Registry. November 2023
Rural Families - Poverty	14.042	4,7%	Single Registry. November 2023
Rural Families - Low Income	39.764	13,2%	Single Registry. November 2023
Rural Families - Above half the minimum wage	62.351	20,7%	Single Registry. November 2023
Total Rural Families Registered	301.455	100,0%	Single Registry. November 2023
<b>Land and property</b>			
Establishments with an area between 0 and 1ha	15.819	12,6%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 1 and 5ha	52.211	41,6%	Agricultural Census. 2017 (table 6759)
Establishments with an area between 5 and 50ha	50.171	40,0%	Agricultural Census. 2017 (table 6759)
Establishments with an area over 50ha	6.262	5,0%	Agricultural Census. 2017 (table 6759)
Producers without land	6.139	4,9%	Agricultural Census. 2017 (table 6759)
Producers with title deeds	88.383	70,4%	Agricultural Census. 2017 (table 6759)
Concessionaire or settler awaiting definitive title	8.724	7,0%	Agricultural Census. 2017 (table 6759)
Total area of agricultural establishments in hectares	1.441.215	-	Agricultural Census. 2017 (table 6753)
Average area of agricultural establishments in hectares	11,48	-	Agricultural Census. 2017 (table 6753)
<b>Water Resources</b>			
Establishments without access to water resources (Total)	18.725	14,9%	Agricultural Census. 2017 (table 6861)
Establishments with access to water resources (Total)	106.764	85,1%	Agricultural Census. 2017 (table 6861)
Establishment with access to water for irrigation	14.394	11,5%	Agricultural Census. 2017 (table 6861)
With access to cisterns	78.824	62,8%	Agricultural Census. 2017 (table 6861)
<b>Agricultural Production</b>			
With access to technical assistance (Total)	21.123	16,8%	Agricultural Census. 2017 (table 6779)
With access to financing	21.151	16,9%	Agricultural Census. 2017 (table 6895)
Main production: temporary crops	42.506	33,9%	Agricultural Census. 2017 (table 6759)
Main production: permanent crops	5.029	4,0%	Agricultural Census. 2017 (table 6759)

## PROCASE II - General Data

Indicators / Variables			References
Agricultural Production (Continued)	Total	%	
Forestry production (planted forests + native forests)	3.786	3,0%	Agricultural Census. 2017 (table 6759)
Main production: livestock	69.411	55,3%	Agricultural Census. 2017 (table 6759)
Main production: vegetable / fruit production	4.503	3,6%	Agricultural Census. 2017 (table 6759)
Main production: artisanal fishing	149	0,1%	Agricultural Census. 2017 (table 6759)
Production for own consumption	91.792	73,1%	Agricultural Census. 2017 (table 6762)
Production for sale	33.697	26,9%	Agricultural Census. 2017 (table 6762)
Agricultural establishments that earned income from agricultural production	121.201	96,6%	Agricultural Census. 2017 (table 6901)

## PROCASE II - Gender

Indicators / Variables	Total		Women		Men		Gap (H - M)	References
	Total	%	Total	%	Total	%	%	
<b>Sociodemographic characteristics</b>								
Total agricultural establishments classified as FA	125.489	76,2%	30.126	24,0%	95.363	76,0%	52,0%	Agricultural Census. 2017 (table 6776)
Total Population (2022 Census)	3.974.687	100,0%	2.055.832	51,7%	1.918.855	48,3%	-3,4%	Demographic Census. 2022 (table 9514)
Rural population (2010 Census)	927.850	100,0%	453.291	48,9%	474.559	51,1%	2,3%	Demographic Census. 2010 (table 3175)
Population of children (up to 15 years) - rural	255.625	27,6%	124.596	27,5%	131.029	27,6%	0,1%	Demographic Census. 2010 (table 3175)
Population of young people (15 to 29 years) - rural	249.780	26,9%	120.114	26,5%	129.666	27,3%	0,8%	Demographic Census. 2010 (table 3175)
Adult population (30 to 65 years) - rural	338.372	36,5%	165.680	36,6%	172.692	36,4%	-0,2%	Demographic Census. 2010 (table 3175)
Elderly population (over 65) - rural	84.073	9,1%	42.901	9,5%	41.172	8,7%	-0,8%	Demographic Census. 2010 (table 3175)
Illiteracy	56.699	45,2%	10.785	35,8%	45.914	48,1%	12,3%	Agricultural Census. 2017 (table 6755)
Never attended school	30.410	24,2%	5.862	19,5%	24.548	25,7%	6,3%	Agricultural Census. 2017 (table 6755)
People aged 14 and over who did household chores in their own home (x1000)	9.927	100%	5.712	57,5%	4.215	42,5%	-15,1%	PNADC/A. 2019 (table 7003)
<b>Age and Gender</b>								
Producer's age - Under 35	12.366	9,9%	3.830	12,7%	8.536	9,0%	-3,8%	Agricultural Census. 2017 (table 6776)
Producer's age - from 35 to under 55	46.674	37,2%	11.051	36,7%	35.623	37,4%	0,7%	Agricultural Census. 2017 (table 6776)
Producer's age - from 55 to under 75	52.549	41,9%	11.994	39,8%	40.555	42,5%	2,7%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over	13.900	11,1%	3.251	10,8%	10.649	11,2%	0,4%	Agricultural Census. 2017 (table 6776)
Producers who are members of the trade organization/union	41.508	33,1%	11.205	37,2%	30.303	31,8%	-5,4%	Agricultural Census. 2017 (table 6851)
Producers associated with the cooperative	2.244	1,8%	361	1,2%	1.883	2,0%	0,8%	Agricultural Census. 2017 (table 6851)
Producers associated with the producers' association/movement	17.734	14,1%	4.754	15,8%	12.980	13,6%	-2,2%	Agricultural Census. 2017 (table 6851)
<b>Land and property</b>								
Producers with title deeds	88.383	70,4%	21.379	71,0%	69.750	73,1%	2,2%	Agricultural Census. 2017 (table 6753)
Concessionaire or settler awaiting definitive title	8.724	7,0%	2.452	8,1%	7.098	7,4%	-0,7%	Agricultural Census. 2017 (table 6753)
Producer with no area	6.139	4,9%	252	0,8%	774	0,8%	0,0%	Agricultural Census. 2017 (table 6753)
Total area of agricultural establishments (hectares)	1.441.215	100%	214.500	14,9%	1.226.714	85,1%	70,2%	Agricultural Census. 2017 (table 6753)

## PROCASE II - Gender

Indicators / Variables	Total		Women		Men		Gap (H - M)	References
	Total	%	Total	%	Total	%	%	
<b>Land and property (Continued)</b>								
Average area (ha) of agricultural establishments in hectares	11,48	-	7,12	35,6%	12,86	64,4%	28,7%	Agricultural Census. 2017 (table 6753)
<b>Water Resources</b>								
Establishments with access to water resources	106.764	85,1%	24967	82,9%	81797	85,8%	2,9%	Agricultural Census. 2017 (table 6861)
Establishment with access to water for irrigation	14.394	11,5%	2028	6,7%	12366	13,0%	6,2%	Agricultural Census. 2017 (table 6857)
Establishments with access to cisterns	78.824	62,8%	20043	66,5%	58781	61,6%	-4,9%	Agricultural Census. 2017 (table 6857)
<b>Agricultural Production</b>								
With access to technical assistance	21.123	16,8%	4.486	14,9%	16.637	17,4%	2,6%	Agricultural Census. 2017 (table 6779)
With access to technical assistance (Young people under 35)	2.283	18,5%	695	18,1%	1.588	18,6%	0,5%	Agricultural Census. 2017 (table 6779)
Main production: temporary crops	42.506	33,9%	11.169	37,1%	31.337	32,9%	-4,2%	Agricultural Census. 2017 (table 6768)
Main production: permanent crops	5.029	4,0%	1.008	3,3%	4.021	4,2%	0,9%	Agricultural Census. 2017 (table 6768)
Main production: planted forests + native forests	3.786	3,0%	1.299	4,3%	2.487	2,6%	-1,7%	Agricultural Census. 2017 (table 6768)
Main production: livestock	69.411	55,3%	15.788	52,4%	53.623	56,2%	3,8%	Agricultural Census. 2017 (table 6768)
Main production: vegetable / fruit production	4.503	3,6%	830	2,8%	3.673	3,9%	1,1%	Agricultural Census. 2017 (table 6768)
Main production: artisanal fishing	149	0,1%	20	0,1%	129	0,1%	0,1%	Agricultural Census. 2017 (table 6768)
Production for own consumption	91.792	73,1%	24.332	80,8%	67.460	70,7%	-10,0%	Agricultural Census. 2017 (table 6762)
Production for sale	33.697	26,9%	5.794	19,2%	27.903	29,3%	10,0%	Agricultural Census. 2017 (table 6762)

PROCASE II - Gender and Diversity															
Indicators / Variables	Total Population		Yellow Population		White Population		Indigenous population		Brown Population		Black Population		People of African descent		References
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
<b>Sociodemographic characteristics</b>															
Total Population (2022 Census)	3.974.687	-	-	-	-	-	-	-	-	-	-	-	-	-	Demographic Census 2022 (Preview)
Total agricultural establishments classified as FA	125.489	76,9%	586	0,5%	43.435	34,6%	1.093	0,9%	70.663	56,3%	9712	7,7%	80.375	64,0%	Agricultural Census. 2017 (table 6776)
Total agricultural establishments classified as NAF	37.594	23,1%	188	0,5%	14.207	37,8%	289	0,8%	20.410	54,3%	2500	6,6%	22.910	60,9%	Agricultural Census. 2017 (table 6776)
Responsible for running the establishment - Women	30.126	24,0%	166	28,3%	9784	22,5%	414	37,9%	17210	24,4%	2552	26,3%	19.762	24,6%	Agricultural Census. 2017 (table 6776)
Responsible for running the establishment - Men	95.363	76,0%	420	71,7%	33651	77,5%	679	62,1%	53453	75,6%	7160	73,7%	60.613	75,4%	Agricultural Census. 2017 (table 6776)
Illiteracy - Women	10.785	35,8%	59	35,5%	3018	30,8%	145	35,0%	6352	36,9%	1211	47,5%	7.563	38,3%	Agricultural Census. 2017 (table 6755)
Illiteracy Men	45.914	48,1%	209	49,8%	14325	42,6%	268	39,5%	26855	50,2%	4257	59,5%	31.112	51,3%	Agricultural Census. 2017 (table 6755)
Never attended school - Women	5.862	19,5%	28	16,9%	1688	17,3%	122	29,5%	3343	19,4%	681	26,7%	4.024	20,4%	Agricultural Census. 2017 (table 6755)
Never attended school - Men	24.548	25,7%	101	24,0%	7778	23,1%	219	32,3%	14035	26,3%	2415	33,7%	16.450	27,1%	Agricultural Census. 2017 (table 6755)
Rate of household chores carried out by people over 14 - Women (state of PB) x 1000		-	-	-		16,1%		-		59,4%		23,5%		-	PNADC/A. 2019 (table 7003)
Rate of household chores done by people over 14 - Men (state of PB) x1000		-	-	-		16,1%		-		57,3%		25,7%		-	PNADC/A. 2019 (table 7003)
<b>Age and Gender</b>															
Producer's age - Under 35 (Women)	3.830	12,7%	26	15,7%	1098	11,2%	126	30,4%	2348	13,6%	232	9,1%	2580	13,1%	Agricultural Census. 2017 (table 6776)
Producer's age - from 35 to under 55 (Women)	11.051	36,7%	64	38,6%	3333	34,1%	173	41,8%	6593	38,3%	888	34,8%	7481	37,9%	Agricultural Census. 2017 (table 6776)
Producer's age - 55 to under 75 (Women)	11.994	39,8%	63	38,0%	4012	41,0%	103	24,9%	6661	38,7%	1155	45,3%	7816	39,6%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over (Women)	3.251	10,8%	13	7,8%	1341	13,7%	12	2,9%	1608	9,3%	277	10,9%	1885	9,5%	Agricultural Census. 2017 (table 6776)
Producer's age - Under 35 (Men)	8.536	9,0%	51	12,1%	2803	8,3%	161	23,7%	4971	9,3%	550	7,7%	5521	9,1%	Agricultural Census. 2017 (table 6776)
Producer's age - 35 to under 55 (Men)	35.623	37,4%	177	42,1%	12095	35,9%	276	40,6%	20538	38,4%	2537	35,4%	23075	38,1%	Agricultural Census. 2017 (table 6776)
Producer's age - 55 to under 75 (Men)	40.555	42,5%	153	36,4%	14312	42,5%	207	30,5%	22587	42,3%	3296	46,0%	25883	42,7%	Agricultural Census. 2017 (table 6776)
Producer's age - 75 and over (Men)	10.649	11,2%	39	9,3%	4441	13,2%	35	5,2%	5357	10,0%	777	10,9%	6134	10,1%	Agricultural Census. 2017 (table 6776)

PROCASE II - Total Population (Rural + Urban) - Demographic Census 2022															
Indicators / Variables	Total Population		Yellow Population		White Population		Indigenous population		Brown Population		Black Population		People of African descent		References
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
<b>Sociodemographic characteristics</b>															
Total Population (2022 Census)	3.974.687	-	4.912	0,1%	1.419.778	35,7%	25.478	0,6%	2.207.880	55,5%	316.572	8,0%	2.524.452	63,5%	Demographic Census 2022 (Table 9606)
Population Women Total	2.055.832	51,7%	2.772	56,4%	748.246	52,7%	12.991	51,0%	1.140.829	51,7%	150.962	47,7%	1.291.791	51,2%	Demographic Census 2022 (Table 9606)
Population Women Children (up to 15)	404.320	19,7%	371	7,6%	153.965	10,8%	3.328	25,6%	227.941	20,0%	18.710	12,4%	246.651	19,1%	Demographic Census 2022 (Table 9606)
Population Young Women (15 to 29 years)	445.900	21,7%	713	14,5%	151.442	10,7%	3.193	24,6%	258.417	22,7%	32.128	21,3%	290.545	22,5%	Demographic Census 2022 (Table 9606)
Population Adult Women (30 to 65 years)	953.366	46,4%	1.392	28,3%	335.367	23,6%	5.412	41,7%	532.980	46,7%	78.201	51,8%	611.181	47,3%	Demographic Census 2022 (Table 9606)
Population Older Women (over 65)	252.246	12,3%	296	6,0%	107.472	7,6%	1.058	8,1%	121.491	10,6%	21.923	14,5%	143.414	11,1%	Demographic Census 2022 (Table 9606)
Population Men Total	1.918.855	48,3%	2.140	43,6%	671.532	47,3%	12.487	49,0%	1.067.051	48,3%	165.610	52,3%	1.232.661	48,8%	Demographic Census 2022 (Table 9606)
Population Men Children (up to 15)	422.601	22,0%	426	19,9%	159.796	23,8%	3.416	27,4%	238.214	22,3%	20.744	12,5%	258.958	21,0%	Demographic Census 2022 (Table 9606)
Population Young men (15 to 29 years)	447.766	23,3%	501	23,4%	150.709	22,4%	3.170	25,4%	254.898	23,9%	38.476	23,2%	293.374	23,8%	Demographic Census 2022 (Table 9606)
Population Adult men (30 to 65 years)	862.097	44,9%	983	45,9%	289.074	43,0%	5.074	40,6%	479.289	44,9%	87.662	52,9%	566.951	46,0%	Demographic Census 2022 (Table 9606)
Population Elderly men (over 65)	186.391	9,7%	230	10,7%	71.953	10,7%	827	6,6%	94.650	8,9%	18.728	11,3%	113.378	9,2%	Demographic Census 2022 (Table 9606)

## Single Registry - PROCASE II summed data (01/11/2023)

Variables		Total	%
<b>Total number of registered families</b>	Poverty	710.522	60,9%
	Low Income	179.294	15,4%
	Above half the minimum wage	277.329	23,8%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>Rural and Urban People</b>	People registered in rural households	713.277	27,7%
	People registered in urban households	1.859.792	72,3%
	<b>Total</b>	<b>2.573.069</b>	<b>100%</b>
<b>Total People Income</b>	People registered Poverty	1.631.018	63,4%
	People registered Low income	496.290	19,3%
	People registered Above half the minimum wage	446.896	17,4%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>Total Rural Families Registered</b>	Families registered Extreme Poverty	185.298	61,5%
	Registered families Poverty	14.042	4,7%
	Registered families Low income	39.764	13,2%
	Registered families Above half the minimum wage	62.351	20,7%
	<b>Total</b>	<b>301.455</b>	<b>100%</b>
<b>Water supply (Families)</b>	General distribution network	737.658	63,2%
	Well or spring	128.956	11,0%
	Cistern	113.445	9,7%
	Another way	85.409	7,3%
	No Information	101.677	8,7%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>Form of Sanitary Drainage (Families)</b>	Sewage or rainwater collection system	460.145	39,4%
	Septic tank	156.127	13,4%
	Rudimentary cesspit	362.400	31,1%
	Open ditch	22.203	1,9%
	Straight into a river, lake, or sea	5.612	0,5%
	Another way	10.506	0,9%
	No Information	150.152	12,9%
	<b>Total</b>	<b>1.167.145</b>	<b>100%</b>
<b>People registered by color and race</b>	White	636.366	24,7%
	Black	100.911	3,9%
	Yellow	19.812	0,8%
	Brown	1.801.174	70,0%
	Indigenous	15.564	0,6%
	No Information	377	0,0%
	Afro-descendant (Black + Brown)	1.902.085	73,9%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>People Total (Sex)</b>	Women	1.154.067	44,8%
	Men	1.420.137	55,2%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>

## Single Registry - PROCASE II summed data (01/11/2023)

Variables		Total	%
<b>Age group (People)</b>	Between 0 and 4	207.354	8,1%
	Between 5 and 6	96.275	3,7%
	Between 7 and 15	429.183	16,7%
	Between 16 and 17	94.879	3,7%
	Between 18 and 24	304.802	11,8%
	Between 25 and 34	367.715	14,3%
	Between 35 and 39	183.771	7,1%
	Between 40 and 44	183.229	7,1%
	Between 45 and 49	167.699	6,5%
	Between 50 and 54	146.862	5,7%
	Between 55 and 59	133.321	5,2%
	Between 60 and 64	93.157	3,6%
	Greater than 65	165.957	6,4%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>Level of Education</b>	No education	639.987	24,9%
	Elementary school incomplete	888.400	34,5%
	Complete elementary school	162.535	6,3%
	High school incomplete	181.375	7,0%
	Complete high school	434.308	16,9%
	Incomplete university degree or more	58.194	2,3%
	No Information	209.405	8,1%
	<b>Total</b>	<b>2.574.204</b>	<b>100%</b>
<b>People with disabilities</b>	Yes	144.655	100,0%
	<b>Total</b>	<b>144.655</b>	<b>5,6%</b>
<b>Family cisterns delivered by the MDS</b>	Drinking water (1st water)	90.859	91,8%
	Water for production (2nd water)	8.130	8,2%
	<b>Total</b>	<b>98.989</b>	<b>100%</b>
<b>Indigenous families</b>	Registered families Poverty	4.627	73,1%
	Registered families Low income	760	12,0%
	Registered families Above half the minimum wage	941	14,9%
	<b>Total</b>	<b>6.328</b>	<b>100%</b>
<b>Quilombola families</b>	Registered families Poverty	2.915	67,9%
	Registered families Low income	597	13,9%
	Registered families Above half the minimum wage	783	18,2%
	<b>Total</b>	<b>4.295</b>	<b>100%</b>
<b>Agrarian Reform Settler Families</b>	Families registered Extreme Poverty	3.646	61,1%
	Registered families Poverty	192	3,2%
	Registered families Low income	794	13,3%
	Registered families Above half the minimum wage	1.334	22,4%
	<b>Total</b>	<b>5.966</b>	<b>100%</b>
<b>Families of Waste Pickers</b>	Families registered Extreme Poverty	10.732	80,2%
	Registered families Poverty	797	6,0%
	Registered families Low income	832	6,2%
	Registered families Above half the minimum wage	1.016	7,6%
	<b>Total</b>	<b>13.377</b>	<b>100%</b>



## Single Registry - PROCASE II summed data (01/11/2023)

Variables		Total	%
<b>Families of Family Farmers</b>	Families registered Extreme Poverty	85.524	65,2%
	Registered families Poverty	6.240	4,8%
	Registered families Low income	16.990	12,9%
	Registered families Above half the minimum wage	22.451	17,1%
	<b>Total</b>	<b>131.205</b>	<b>100%</b>
<b>Families of Artisanal Fishermen</b>	Families registered Extreme Poverty	6.082	73,9%
	Registered families Poverty	559	6,8%
	Registered families Low income	929	11,3%
	Registered families Above half the minimum wage	660	8,0%
	<b>Total</b>	<b>8.230</b>	<b>100%</b>
<b>Extractivist (non-timber forest products collector) families</b>	Families registered Extreme Poverty	20	76,9%
	Registered families Poverty	0	0,0%
	Registered families Low income	3	11,5%
	Registered families Above half the minimum wage	3	11,5%
	<b>Total</b>	<b>26</b>	<b>100%</b>
<b>River families</b>	Families registered Extreme Poverty	647	68,7%
	Registered families Poverty	37	3,9%
	Registered families Low income	112	11,9%
	Registered families Above half the minimum wage	146	15,5%
	<b>Total</b>	<b>942</b>	<b>100%</b>
<b>GPTE Families</b>	Single CAD families	169.727	58,3%
	PBF families	121.230	41,7%
	<b>Total</b>	<b>290.957</b>	<b>100%</b>
<b>GPTE People</b>	Single CAD people	401.336	56,2%
	PBF people	313.028	43,8%
	<b>Total</b>	<b>714.364</b>	<b>100%</b>

Data source: [https://cecad,cidadania,gov,br/tab\\_cad,php](https://cecad,cidadania,gov,br/tab_cad,php)

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 23 Rural Paraiba Diagnosis**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



## PARAIBA RURAL SUSTAINABLE DEVELOPMENT PROJECT - PROCASE II

### Annex - Context / Diagnosis of Rural Paraíba

#### General information about Paraíba

The state of Paraíba has an area<sup>1</sup> of 56,467 km<sup>2</sup>, occupying 4% of the area of the Northeast region and 0.7% of that of the country. According to data from the 2022 Demographic Census, the state's total population is 3,974,687 inhabitants, 51.7% of whom are women. It is estimated that the rural population represents 24.6% of the total (approximately 977,000 inhabitants). Paraíba's population density is 70.4 inhabitants/km<sup>2</sup>, which is twice the density of the Northeast region and almost three times the national population density. The 2010 Census portrayed a relatively young population, 44% of which was under the age of 25 and the average age was 29<sup>2</sup>. In the 2022 Census, the average age of the population of Paraíba rose to 34, which is very close to the national average. This evolution in the average age shows that there was a significant aging process in the period.

According to the Regional Accounts of Brazil 2021 (IBGE), in terms of GDP size, Paraíba ranks 19th among the 27 units of the Federation, and 6th in the Northeast. In the same year, Paraíba's GDP represented 0.9% of the national GDP<sup>3</sup>. In terms of GDP per capita, with a value of R\$ 19,181 per inhabitant (for the year 2021), Paraíba ranks 26th (second last) in the national ranking or hierarchy<sup>4</sup>. This GDP per capita figure represents 45% of Brazil's GDP per inhabitant for the same year, which was R\$ 42,247.

Paraíba's Human Development Index (HDI) for 2021 was 0.698<sup>5</sup>, which is considered 'average'<sup>6</sup>. As has been the case throughout the country, this index has been improving since it was first measured in 1991. That year it was 0.362, rising to 0.484 in 2000 and 0.658 in 2010. In the last measurement of this index (2021), the state ranked 21st out of the 27 Brazilian federative units. However, the better 'scores' of the state's larger cities somewhat mask the situation of the smaller and more eminently rural municipalities. Thus, the MHDÍ of 152 of Paraíba's 223 municipalities (68.2%) is considered 'low' (i.e., between 0.5 and 0.599)<sup>7</sup>.

Data from the IBGE's 2022 PNAD indicates that Paraíba is the third state in Brazil with the highest illiteracy rate among people aged at least 15. There are 13.6% illiterate people in the state, ahead of only Piauí (14.8%) and Alagoas (14.4%) and worse than the national (5.6%) and regional (11.7%) averages<sup>8</sup>.

#### – Paraíba's major regions

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<sup>1</sup> Source: <https://www.ibge.gov.br/cidades-e-estados/pb/html>.

<sup>2</sup> The median age is an indicator for monitoring the ageing of a population, which means the age at which a population can be divided into two groups: the youngest 50% and the oldest 50%. **In practice:** half (50%) of the population is below the median age and the other half (50%) is above the median age. The higher the median age, the older the population. Cf. <https://jornaldaparaiba.com.br/economia/censo-2022-paraiba>

<sup>3</sup> Source: [https://pt.wikipedia.org/wiki/Lista\\_de\\_unidades\\_federativas\\_do\\_Brasil\\_por\\_PIB](https://pt.wikipedia.org/wiki/Lista_de_unidades_federativas_do_Brasil_por_PIB).

<sup>4</sup> Data from the IBGE Regional Accounts System 2021. Available at: [https://pt.wikipedia.org/wiki/Lista\\_de\\_unidades\\_federativas\\_do\\_Brasil\\_por\\_PIB\\_per\\_capita](https://pt.wikipedia.org/wiki/Lista_de_unidades_federativas_do_Brasil_por_PIB_per_capita).

<sup>5</sup> Source: <https://cidades.ibge.gov.br/brasil/pb/pesquisa/37/30255?tipo=ranking&ano=2021>.

<sup>6</sup> Average' HDI values are those between 0.600 and 0.699. The information cited in this paragraph is from the 'Atlas of Human Development in Brazil'. Cf.: [http://atlasbrasil.org.br/2013/pt/perfil\\_uf/paraiba](http://atlasbrasil.org.br/2013/pt/perfil_uf/paraiba) (Source: UNDP - João Pinheiro Foundation - IPEA)

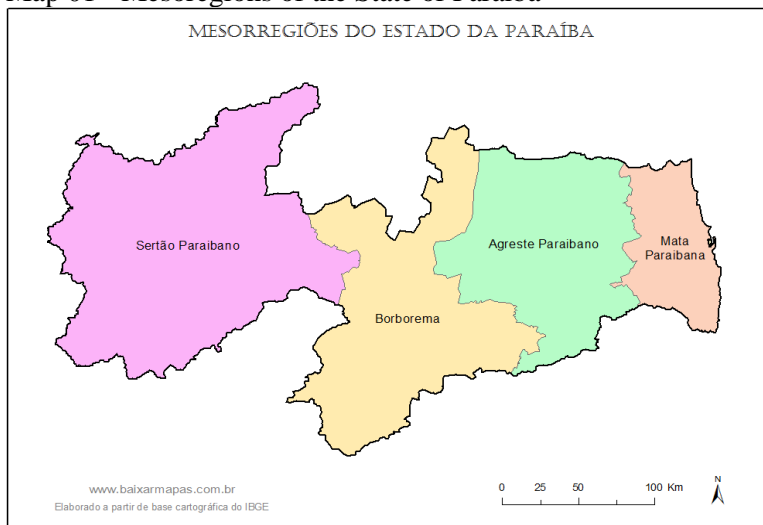
<sup>7</sup> Source: <http://www.atlasbrasil.org.br/perfil/uf/25>.

<sup>8</sup> Data released by the website: <https://g1.globo.com/pb/paraiba/noticia/2023/06/07/paraiba-tem-o-terceiro-maior-indice-de-analfabetismo-do-brasil-aponta-estudo-do-ibge.ghtml>.

The state of Paraíba is divided into four mesoregions: Mata Paraibana, Agreste, Borborema and Sertão. The last three, which include 193 of the state's 223 municipalities, covering 92% of the state's area<sup>9</sup> (the equivalent of approximately 51,900 km<sup>2</sup>), are considered to be part of the semiarid region of the Brazilian Northeast, generally dominated by the Caatinga biome<sup>10</sup>. These 193 semiarid municipalities comprise around 62% of the state's total population. This region is more rural than the coast: 85% of the state's rural population lives here<sup>11</sup>. In addition to these characteristics, the semiarid region has social indicators that point to its greater vulnerability. One example is the municipal HDI. An analysis of 2010 data showed that of the 193 municipalities in the Semiarid region, 129 have an index significantly lower than the general index, with values between 0.500 and 0.599, which places them in the 'low human development' category<sup>12</sup>.

In contrast, the Mata Paraibana mesoregion, located in the far east, which covers only 30 of the state's 223 municipalities, is the domain of the Atlantic Forest biome. Even though it covers only 8% of the state's surface area, the Mata Paraibana region is home to 38% of its population (approximately 1,510,000 inhabitants).

Map 01 - Mesoregions of the State of Paraíba



Source: <http://www.baixarmapas.com.br/mapa-da-paraiba-mesorregioes/>

#### - *The weather*

Given its proximity to the Equator, the state of Paraíba has a tropical climate. However, the rainfall factor is the key element that characterizes the climate and determines a series of factors that express the region's potential, especially when it comes to agricultural and extractive production. Based on this parameter, it is possible to distinguish two climatic sub-types: the humid tropical climate in the coastal Zona da Mata and the semiarid tropical climate that covers the other westernmost mesoregions of the state: Agreste, Borborema and Sertão. The isopleth map below shows this characteristic of Paraíba's climate. It shows that in the eastern part the annual averages range from 1,100 to over 1,700 mm. At the same time, it shows that the driest region of the state is the central region, where annual averages vary from 300 to 700 mm.

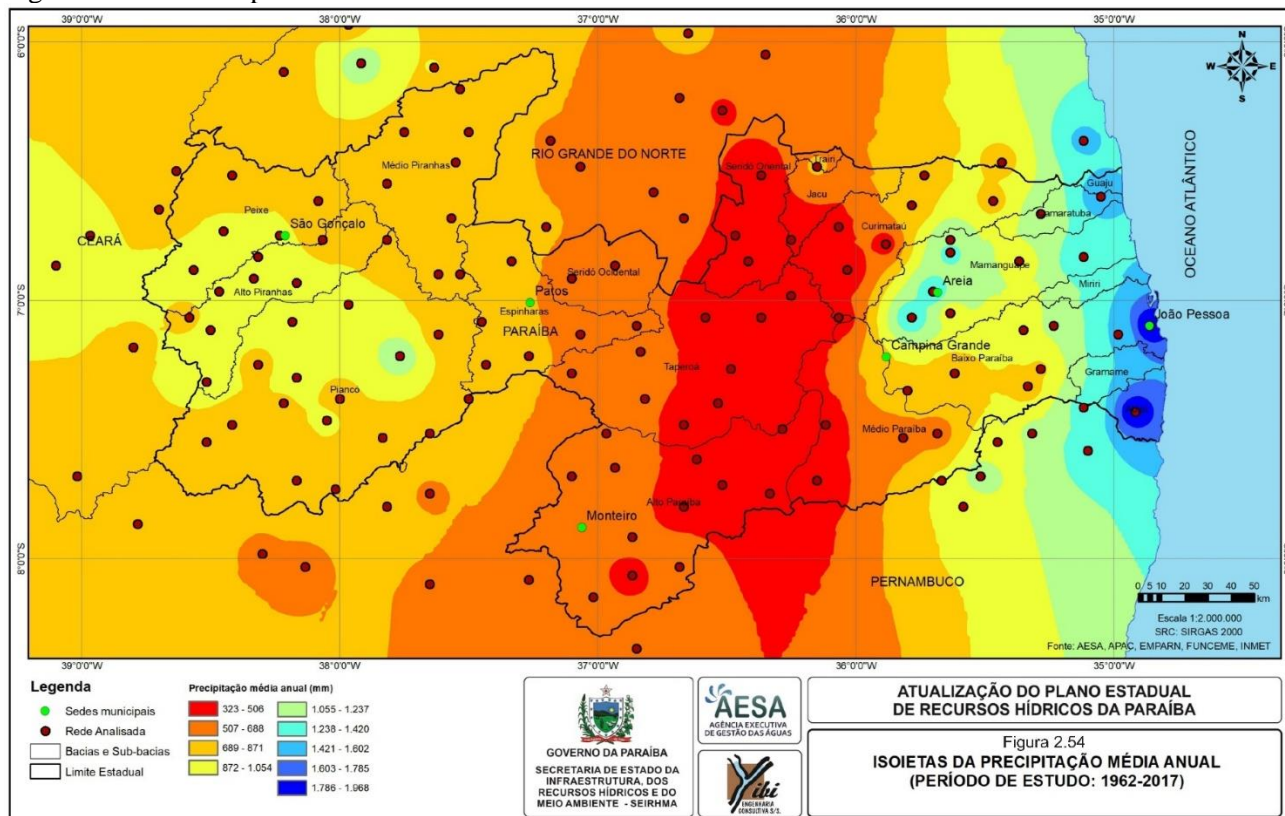
<sup>9</sup> Source: IBGE - Link: [IBGE | Brazil in brief | territory](http://www.ibge.gov.br/territorio/). See Table 02.

<sup>10</sup> Even though it officially belongs to the semiarid region, the Agreste Paraibano mesoregion, being a climate transition region between the humid coast and the drier semiarid, is a very diverse region. There are some municipalities - for example, in the Brejo Paraibano micro-region - where the natural conditions are more favorable and the predominant natural vegetation is the Atlantic Forest.

<sup>11</sup> Percentage calculated using data from the 2010 Demographic Census (IBGE).

<sup>12</sup> Source: [http://www.atlasbrasil.org.br/2013/pt/o\\_atlas/perguntas\\_frequentes/](http://www.atlasbrasil.org.br/2013/pt/o_atlas/perguntas_frequentes/)

Figure 01 - Isoiet map for the state of Paraíba



Source: (PARAÍBA.GOVERNO-DO-ESTADO, 2022) (<http://www.aesa.pb.gov.br/aesa-website/wp-content/uploads/2022/10/RF-02-A-DIAGN%C3%93STICOS-vol-1.pdf>)

Although rainfall is variable in the region, it is possible to state that there is little rainfall in the Semiarid Region of Paraíba, especially when comparing rainfall to the very high evapotranspiration - which can reach more than  $2,000 \text{ mm/year}^{-1}$  (MONTENEGRO; MONTENEGRO, 2012) - which is characteristic of the region. In the semiarid region, average annual rainfall ranges from 330 to 1,000 mm. This rainfall is concentrated in a short 'winter' period, which rarely exceeds four months a year (generally occurring between January and May in the westernmost of the Paraíba Semiarid regions, and a little later in the easternmost parts of the region). This already characterizes a very marked seasonality, and it is absolutely normal to have a drought or 'summer' of several months without rain. But the most important climatic factor is certainly the variability of the rainy season. The average deviation (compared to the average annual rainfall) reaches, in certain regions of the Semiarid region of Paraíba, rates of over 50%, which is one of the most significant in the world (NIMER, 1989). This means that rainfall in this region is **scarce** and, above all, **irregular**.

### Droughts

The semiarid region usually experiences a shortage of rainfall, which takes different forms. Unlike the drought or 'summer' without rain that normally occurs each year, a 'drought' is configured when the rainfall in the rainy months is lower than the rates recorded in years of rainfall considered normal (i.e., close to the historical average annual rainfall) (DUARTE; FARIAS; SOUSA; SOUZA *et al.*, 2018). The greater the deficit, the more severe the year's drought. But it can also happen that drought years (as defined here) follow one another. This leads to a 'great drought'. There are historical records of periods of this type in the northeastern semiarid regions as far back as the 16th century. The 'great drought' of 1877-79, which wiped out almost half of the region's population and practically the entire herd, is famous (CGEE; WORLD BANK, 2016). However, although these 'droughts' and 'great droughts' are not a new phenomenon, there are indications that this type of phenomenon is happening more frequently, especially since 1970 (MARENGO, 2007). It is worth noting that, in the recent period - 2012 to 2017, the worst drought in many decades occurred throughout the northeast hinterland. We will talk about this event in a subsequent section.

Rainfall totals are higher in the Zona da Mata, ranging from 1,100 to 1,800 mm per year. There is also a seasonality to the rainfall in the Zona da Mata, with the rainfall or 'winter' season generally lasting from February to August. The average temperature is high, but lower than in the Semiarid regions and, conversely, the relative humidity is higher on the coast than in the Semiarid regions, making evaporation important but lower than in the Semiarid region, at around 1,350 mm/year<sup>13</sup>.

#### - *Climate change*

Currently, there are many studies working on climate change. In general, an analysis of these studies indicates that in the Northeast there will be an increase in temperature extremes (minimum and maximum)<sup>14</sup>, a reduction in the volume of average rainfall and a greater number and frequency of dry days (CHOU; LYRA; MOURÃO; DEREZYNSKI *et al.*, 2014; CONFALONIERI; LIMA; BRITO, 2014; CUNHA; OLIVEIRA, 2023; INTERGOVERNMENTAL-PANEL-ON-CLIMATE-CHANGE-IPCC, 2013) (INTERGOVERNMENTAL-PANEL-ON-CLIMATE-CHANGE-IPCC, 2021; MARENGO; CUNHA; NOBRE, 2020). The effects are expected to be more intense from the second half of the 21st century onwards. It should be noted that these effects have great spatial variability. In the case of the Northeast, for example, coastal areas are less impacted; the Semiarid region is expected to experience greater extremes of heat and, above all, much lower rainfall volumes (CUNHA; OLIVEIRA, 2023). Additionally, there is an increase in consecutive dry days and a much wider range of climate variability (including an increase in extreme rainfall (50 to 80 mm.day<sup>-1</sup>) on the coast of the Northeast and a significant reduction in the Semiarid region), including an increase in extreme rainfall (50 to 80 mm.day<sup>-1</sup>) on the coast of the Northeast and a significant reduction in the Semiarid region, common characteristics found in various simulations for the macro-region of Northeast Brazil (CHOU; LYRA; MOURÃO; DEREZYNSKI *et al.*, 2014; CORTEZ; PIRES; AVILA-DIAZ; PAIVA *et al.*, 2022).

The agricultural sector is one of those suffering the greatest negative impacts from climate change. The main conclusion of the research is that droughts, greater rainfall variability, rising average temperatures and heat extremes, as well as high atmospheric concentrations of carbon dioxide, are already causing crop losses and reduced agricultural productivity and food and water security, as well as various health problems. These problems are likely to intensify in future climate change scenarios (JÄGERMEYR; MÜLLER; RUANE, 2021; MÜLLER; FRANKE; JÄGERMEYR, 2016). Such damage makes it difficult to overcome other major global challenges, especially poverty, income inequality, food insecurity and hunger.

There is a large and growing body of literature on the impacts of climate change on Brazilian agriculture. Although there are major differences in modeling and, consequently, uncertainties about the magnitudes of the effects, these studies agree that Brazilian agriculture will be negatively affected (ASSUNÇÃO; CHEIN, 2016). The study by Nazareth, Cunha, and Gurgel (2020), for example, demonstrates how Brazilian regions can be

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<sup>13</sup> Source: GEOCONSULT. Environmental Impact Study - EIA, Environmental Impact Report - RIMA: Elizabeth Cimentos - Alhandra/PB. Available at: <http://sudema.pb.gov.br/consultas/downloads/arquivos-eia-rima/elizabeth-cimentos>. 2011.

<sup>14</sup> In relation to the present, in the Northeast region, the models predict increases in maximum temperature, which could vary from 0.92°C to 2.74°C by 2050 and from 1.98°C to 4.51°C by 2100 ('intermediate' - SSP2-4.5 and 'pessimistic' - SSP5-8.5 scenarios, respectively). (CUNHA; OLIVEIRA, 2023).

affected differently, accentuating the socioeconomic disparities that already exist. The results of this study confirm that the North and Northeast will suffer significant negative impacts, while the South could even benefit.

The work of Tanure and colleagues (TANURE; DOMINGUES; MAGALHÃES, 2023; 2024) present a very detailed overview of the impacts of climate change on family farming in Brazil, as well as in the North and Northeast regions. Unlike the majority of studies dealing with Brazil, which focus only on the main export *commodities*, without distinguishing the type of producer, the authors mentioned consider a wide range of agricultural activities, which represent the diversity of national production, and have broken it down into family farming (FF) and employer agriculture. In these studies, climate change was represented by two IPCC-AR scenario 5 (INTERGOVERNMENTAL-PANEL-ON-CLIMATE-CHANGE-IPCC, 2013) - RCP 4.5 ("intermediate") and RCP 8.5 ("pessimistic") - with simulations of productivity shocks and economic impacts for the period from 2021 to 2050. Among the main conclusions of these studies are:

- (i) Some crops important for feeding FF (cassava, corn, beans, bananas, for example) will suffer major productivity losses in both scenarios;
- (ii) The negative impacts are greater in Family Farming than in Patronal Farming;
- (iii) (iii) The losses in terms of agricultural economic activity are approximately four times greater in FF than in Patronal - for the intermediate scenario. Patronal - for the intermediate scenario.

These same studies calculated the possible impacts for the different states of the Northeast. In Paraíba, in the 'intermediate' scenario, a loss of productivity of 40% is expected by 2050. This figure rises to 45% in the 'pessimistic' scenario (TANURE; DOMINGUES; MAGALHÃES, 2024) apud (CUNHA; OLIVEIRA, 2023).

Recent data indicates that changes in average temperatures and precipitation can already be detected, especially in the semiarid region, which confirms the forecasts mentioned here. In addition, other more specific studies corroborate these major trends of increasing maximum temperatures and decreasing precipitation for the region (RIBEIRO NETO; ROLIMA DA PAZ; DA SILVA, 2016) and, above all, of increasing climate variability (MACHADO FILHO; MORAES; BENNATI; DE et al., 2016b), with a greater frequency of extreme events (essentially more pronounced and prolonged droughts and, sometimes, the occurrence of floods). An analysis of drought events in the northeastern semiarid region from 1981 to 2016 confirms these predictions, revealing that the intensity of droughts over the last 36 years has increased and that recent droughts have been more frequent, more severe and have affected a larger area with significant impacts on economic activities and the population in general (BRITO; CUNHA; CUNNINGHAM; ALVALÁ *et al.*, 2017). As a consequence of this larger scenario, a significant reduction in the availability of surface and groundwater is also being predicted. From 2012 to 2017, Paraíba experienced a 'great drought'. This event can be categorized as one of those 'extreme events' that climate scientists say are likely to happen with increasing frequency because of climate change. More information on the effects of this 'great drought' on the state of Paraíba will be presented in a later section.

#### - *Hydrological and geological factors*

We saw in the previous section that the water issue is crucial for the semiarid region. But it is important to emphasize that the availability of water is not solely a result of the climate. It also depends on hydrological factors which, in turn, depend on two major geological situations (MOLLE; CADIER, 1992). Given the hydrological and geological conditions of the region, the semiarid region of Paraíba has only temporary rivers, through which water flows during the rainy season. To summarize, in the areas of sedimentary bedrock (more present in the coastal region and in some restricted areas in the Semiarid - such as the Sousa and Pombal regions in the Alto Sertão), there is good quality groundwater, which is generally difficult to access, but the permeable soils make it difficult to store water on the surface (in reservoirs, etc.). In the crystalline basement regions (most of the semiarid region of Brazil), the situation is different. On the one hand, the soils are generally shallow, which makes drainage difficult. In this context, it is essential to take advantage of surface runoff by building water collection and storage structures (weirs, dams, etc.). On the other hand, as far as groundwater is concerned, due to the geological characteristics of crystalline rocks, the aquifer systems are of the fissure-type and have low flow rates, generally well below 3,000 liters/hour, with very high salt contents (SILVA; MOURA; KILL; BRITO *et al.*, 2010). In the semiarid region of Paraíba, areas of crystalline bedrock predominate, although there are some areas where sedimentary basins occur - for example, in the aforementioned region of Sousa and Pombal (LIMA; NASCIMENTO; BRANDÃO; GUILERA *et al.*, 2007).



The situation is different in the Zona da Mata. The watercourses (streams, creeks, rivers, etc.) are often perennial, providing a permanent source of water for the population. In addition, the geology of this region allows water to infiltrate and accumulate in water tables, making it possible to drill wells in many places. (AESAs, 2006).

- *The original vegetation and deforestation*

In addition to the climate and aridity aspects discussed in the previous section, the main characteristic of the semiarid region of Paraíba is the predominant presence of vegetation known as *Caatinga*. This typical predominant biome of the Brazilian semiarid region is made up of different arrangements of flora, arranged over a mosaic of soils (TRAVASSOS, 2012). Although diverse, this vegetation has common characteristics: the Caatinga is made up of plants adapted to semiarid conditions, capable of going into long periods of dormancy, taking efficient advantage of the short and irregular periods of rain for their reproductive cycles. The Caatinga is predominantly of the hyper xerophilous type, characterized as a low shrubby vegetation, rarely arboreal, with small leaves and thorny stems, fully adapted to contain the effects of very intense evapotranspiration (BRASIL-CODEVASF, 2006). Human occupation and the use/replacement of this vegetation in productive activities have had a degrading effect on the Caatinga in many regions, an effect that climate change is likely to exacerbate. Currently, 54% of the original vegetation of the Paraíba Caatinga is preserved, having lost more than 46%, equivalent to around 2.4 million hectares. This part has been significantly altered by human activities, i.e., transformed into pastures, farmland, roads, rural properties, towns, and cities (BRASIL-MMA, 2010; COELHO JR.; MEDEIROS; NUNES; MACIEIRA *et al.*, 2020). A study by the MMA estimated that the Caatinga was deforested at a rate of 0.28% per year (2,352 km<sup>2</sup> / year) between 2002 and 2008, a rate comparable to that of deforestation in the Amazon. (BRASIL-MMA, 2010). Currently, the remnants of the Caatinga's most preserved native vegetation are quite fragmented. Today there are vast areas of capoeira. Riparian forests and dry forests have been largely replaced by open vegetation formations, which have affected local and regional rainfall and resulted in the silting up of rivers and streams. However, the Caatinga is still present and is a resource crucial for family farming families. When well-managed, this vegetation is fully adapted to the semiarid environment and can provide good quality fodder for animal farming (goats, sheep, and cattle) and pasture for bees, as well as other products.

Paraíba's Zona da Mata is the domain of the Atlantic Forest. The original vegetation of the Atlantic Forest (with its various forms, including ombrophilous forest, restingas, mangroves and semi-deciduous and deciduous forest formations) covered practically all of this area. However, since colonial times it has been cleared for forestry and, above all, to make way for agricultural and, in some cases, livestock use. A survey on the coverage of the Atlantic Forest in Brazil (SOS-MATA-ATLÂNTICA, 2023), which is based on the year 2021-2022, can be used as an approximate indicator of the current state of the Atlantic Forest vegetation in the Project area. This study detected deforestation of approximately 45 hectares per year for the period 2016 to 2022. This same survey shows that in the state of Paraíba, of the almost 600,000 hectares that this vegetation originally covered (11% of the state's total area)<sup>15</sup>, currently only 54,200 hectares remain (counting areas of forest, sandbanks, mangroves, and other vegetation), which represents only 9% of the original area.

- *Income, Poverty, and Inequality*

There is a consensus among scholars of the social issue in Brazil that the economic and social conditions of the population improved in the two decades between 1995 and 2015. As an indicator of this process, between 2000 and 2010, monthly per capita income rose significantly in the state of Paraíba, from R\$ 299.09 to R\$ 474.94. This means a growth of almost 59% over a decade.

However, even with this process, Brazil is still a country in which poverty persists, particularly in the North and Northeast regions. For example, data from the 2010 Demographic Census (IBGE) shows that 28.9% of

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<sup>15</sup> Considering here the area of the state included in the delimitation made with reference to the Atlantic Forest Law.

the population of Paraíba was in poverty<sup>16</sup>, while at the other extreme, in Santa Catarina the percentage of poor people is 3.9% and the same rate at the national level was 10.4%<sup>17</sup>.

The process of socioeconomic progress that began at the end of the last century was interrupted by the various crises in Brazil since 2015. Thus, the proportion of poor people (with a per capita household income of less than R\$140.00, at August 2010 prices), which had fallen from 28.93% in 2010 to 15.92% in 2020, rose sharply in 2021, to 24.91%. To cite a second example, between the years 2020-2021, according to data from the PNAD Continuous, monthly per capita income experienced a decrease in the state of Paraíba, from R\$497.15 to R\$465.74 (at August 2010 prices), which is equivalent to a variation of -6.32% in the period, in real terms. These figures show a stagnation and even regression in the per capita income of the population of Paraíba.

Unfortunately, data from the latest Demographic Census (2022) is not available for the rural population of Paraíba. Considering the 2010 data, we can see that the proportion of the rural population living in poverty (48.5%) is considerably higher than that of the urban population (22.5%), which confirms that poverty in Paraíba has a strong rural connotation.

In terms of inequality, Paraíba's situation has been improving. According to IBGE data, in 2000, the Gini index was 0.63. It fell to 0.61 in 2010. In 2021, Paraíba's Gini Index was 0.562. Although this index has improved, the state's situation on the national stage is not the best. With this value, Paraíba was in 7th place in the national ranking of greatest inequality, with a value higher than the national average (0.544) and the regional average of 0.556<sup>18</sup>.

The table below summarizes the main data from this section on Income, Poverty, and Inequality.

Table 01 - Households and poor households in Brazil, Paraíba, and the Semiarid Region of Paraíba

	2000 (a)	2010 (b)	2021 (c)	
Per capita income (in R\$ 2010)	299,09	474,94	465,74	
Gini index	0,63	0,61	0,56	
Proportion of extremely poor population (in %)	25,17	13,39	12,95	
Proportion of poor population (in %)	49,61	28,93	24,91	

Sources: (a) IBGE, 2000 Demographic Census; (b) IBGE, 2010 Demographic Census; (c) IBGE, Continuous PNAD 2021

#### - *Family Farming in Paraíba*

Agricultural production is the main economic activity for the vast majority of the rural population in general and, in particular, family farming. According to the 2017 Agricultural Census, there were 163,218 agricultural establishments in the state. Of these, 125,489 (76.9%) were family farms, while 37,729 (23.1%) were non-family or patronal<sup>19</sup>. A significant proportion of the family units (15,050 establishments, or 12%) are Agrarian Reform settlers (SANTOS; FORTINI; BRAGA, 2021). It should be noted that, despite being the vast majority, family farms as a whole occupy only 42.1% of the state's agricultural area, with this proportion being even lower in the Zona da Mata (20.2%) and slightly higher (50.7%) in the Semiarid region of Paraíba (SANTOS; FORTINI; BRAGA, 2021). It should be noted that Family Farming in Paraíba is responsible for 47.8% of the total value of agricultural production in the state, which is the second highest proportion in the Northeast and the sixth highest in the country.<sup>20</sup>

<sup>16</sup> The (official) definition of 'state of poverty' used in the 2010 Census was as follows: a family with a monthly *per capita* income of less than ¼ of the Minimum Wage is 'poor'. The monthly value of the MW in 2010 was R\$ 510.00. So, this threshold was a per capita income of R\$128.00 per month. At the value of the US dollar at the time, this corresponded to US\$ 73.00 / month or US\$ 2.40 / day. Note: this definition of 'state of poverty' also includes families in 'extreme poverty' (those with a monthly per capita income of up to 1/8 of the Minimum Wage).

<sup>17</sup> Source: <https://sidra.ibge.gov.br/tabela/1161> <https://nacoesunidas.org/numero-de-pobres-no-brasil-tera-aumento-de-no-minimo-25-milhoes-em-2017-aponta-banco-mundial/>

<sup>18</sup> Source: <https://g1.globo.com/pb/paraiba/noticia/2022/12/02/mais-de-15percent-da-populacao-da-pb-vivia-em-situacao-de-extrema-pobreza-em-2021-diz-ibge.ghtml>.

<sup>19</sup> Source: IBGE - 2017 Agricultural Census. Link: <https://sidra.ibge.gov.br/pesquisa/censo-agropecuario/censo-agropecuario-2017/resultados-definitivos>.

<sup>20</sup> Source: IBGE - 2017 Agricultural Census. Link: <https://sidra.ibge.gov.br/pesquisa/censo-agropecuario/censo-agropecuario-2017/resultados-definitivos>.

Table 02 - Family and non-family farming in Paraíba, according to the 2017 Agricultural Census

	Total number of establishments	Family Farming		Non-family farming	
		No. of establishments	%	No. of establishments	%
Paraíba	163.218 - (100%)	125.489	76,9	37.729	23,1
Semiarid PB <sup>21</sup>	142.016 - (87,0%)	109.264	76,9	32.752	23,1
Mata Paraibana	21.202 - (13,0%)	16.225	76,5	4.977	23,5

Source: IBGE - Agricultural Census 2017

- *Environmental degradation and a growing susceptibility to desertification*

As we saw in the previous section, the deforestation of the Caatinga and the Atlantic Forest is quite intense.

According to the United Nations Conference to Combat Desertification (UNCCD), when environmental degradation occurs in the semiarid regions of the world, it often creates desert-like conditions. Environmental degradation occurs everywhere but it is defined as desertification when it occurs in semiarid regions. It is the result of several factors, including climatic variations and human activities (UNCCD, 1994). Researchers have observed that more than 50% of the Brazilian semiarid region is already in the process of desertification and 94% of the Northeast region is under moderate to high susceptibility (VIEIRA; TOMASELLA; ALVALÁ; SESTINI *et al.*, 2015).

As is the case in other regions of the Northeastern semiarid, anthropogenic action on the Caatinga in Paraíba is quite intense, and there are now significant areas of degraded pastureland where the Caatinga once existed. This action on the original vegetation is quite pronounced, reaching 63% of the total area. This figure is high when compared to the general figure for deforestation in the Caatinga, which is around 45% (SEIMARH, 2011). The causes of the degradation in many areas of Paraíba are excessive deforestation, overgrazing and other more specific causes, such as the inappropriate use of irrigation or mining activities (SEIMARH, 2011). All production units in the region have contributed to this process to a greater or lesser extent.

We can consider the Areas Susceptible to Desertification (ASD) to be indicative of the intensity of degradation that can be found in the semiarid region of Paraíba. It is possible to stratify this degradation into different levels, depending on various criteria, such as the degree of vegetation cover, level of soil cover, etc. The following table shows the distribution of ASDs in Paraíba. It is noteworthy that there are areas with distinct levels of desertification in the Mata Paraibana region, which is an indication of the existence of areas with a high degree of degradation in this biome as well.

Table 03 - Levels of desertification in the Mesoregions of Paraíba

Mesoregion	Area (in km ) <sup>2</sup>	Low (%)	Average (%)	High (%)	No risk (%)
Semiarid region of Paraíba	22.720	2,62	38,65	57,43	0
Borborema	15.573	3,14	27,84	68,26	0
Agreste Paraibano	12.914	22,80	21,59	55,36	0
Mata Paraibana	5.232	15,31	5,20	20,05	59,44
State of Paraíba	56.439	8,56	28,66	56,48	5,51

Source: (SEIMARH, 2011)

***Sustainable rural development: the main problems and challenges of the semiarid region of Paraíba***

- *Poverty and food insecurity: manifestations of the rural population's vulnerability*

As we saw earlier, Paraíba has many people living in poverty and extreme poverty. Approximately 80% of the population had a per capita income of less than one minimum wage in 2021. At the same time, 63.9% of households face some degree of food insecurity in Paraíba, with 10.6% of them facing severe food insecurity (REDE-PENSSAN, 2022a). The state also faces the double burden of malnutrition. 62.5% of Paraíba's adults

<sup>21</sup> Semiarid Paraíba in this table includes the mesoregions of Agreste Paraibano, Borborema and Sertão Paraibano.

are over nourished (35.8% overweight and 32.8% obese). Dwarfism affects 4.9% of children under 5, emaciation 4.2%, overweight 8.4% and obesity 6.8%<sup>22</sup>.

Family farming, the largest rural social group in Paraíba, faces very harsh and challenging conditions for the development of their livelihoods. This is most clear in the family farming units of the semi-arid region. A large part of the population living in rural areas is directly linked to farming activities and seeks its livelihood from the natural resource base existing on or around their properties. The production from these activities - which provides food and income for these families - depends on various factors. In particular, the product of the activity is highly dependent on rainfall and due to climatic adversities, with cycles of severe droughts, this results in strong vulnerability for families (SILVA; MOURA; KILL; BRITO *et al.*, 2010). The livelihoods of these farming families are already severely stressed due to the historical degradation of the productive and ecological functions of their agro-ecosystems. This situation is the result of a series of factors, including the increasing scarcity of land resources and climate variability (especially drought events). It is possible to say that, in general terms and with existing production systems, the smaller the area available to the farming family, the greater their vulnerability. In many cases, the lack of documents certifying land ownership also contributes to further weakening family units in the region. At the same time, the very characteristics of family systems and their evolution have generally increased their fragility.

But the vulnerability of rural society has another dimension, which was clearly evident during the last great drought: all rural social groups - from family farmers to the rest of the population - have encountered difficulties in simply supplying water, an essential requirement for survival, and this condition is most acute in the semi-arid region. This difficulty has threatened not only the domestic life of families living in the semi-arid (both in rural areas and urban settlements), but also, to a greater or lesser extent, all the productive activities that take place in the region.

This vulnerability, which we can call intrinsic, has been significantly increased by ongoing climate change. According to Confalonieri *et al.*, family farmers in the semi-arid northeastern region are highly vulnerable to the impacts of climate change (CONFALONIERI *et al.*, 2014). According to Mesquita *et al.*, this region is considered to be the most susceptible to the impacts of climate change due to the high levels of vulnerability that already exist. As mentioned above, the predicted consequences of changes in precipitation (including greater frequency and severity of droughts) and temperature in the region will cause a loss of food crops and degradation of agricultural areas. Increased migration from rural to urban areas is also predicted for this region, mainly due to the failure of agricultural systems and the lack of water in rural areas (MESQUITA; WITTMAN; MOTA, 2016).

The vulnerability of rural Paraíba, and more particularly the semi-arid region, to climate change is directly related to two mutually reinforcing factors, described below: a) water problems and b) the growing unsustainability of production systems. Other factors, such as the high incidence of poverty, deforestation, and desertification, also contribute to the high vulnerability found in the region.

- *Illustration of a crucial dimension of rural vulnerability: the impacts of the extreme weather event of the last 'great drought' - 2012 to 2017*

As explained earlier, Paraíba experienced a 'great drought' from 2012 to 2017. It had a particularly important impact on the semi-arid region, although it was felt all the way to the state's coast. In the state of Paraíba, the last 'winter' considered 'good' before this 'drought' was that of 2011. According to data compiled by AESA<sup>23</sup>, there were high rainfall deficits between 2012 and 2016 (see Table 02 below). This drought had a negative impact on the climate in all of the state's mesoregions, although it was more intense in the semi-arid regions. The greatest rainfall deficits were recorded in the Borborema mesoregion, which is, in fact, the driest region in the state. In 2012, Borborema had its biggest deficit, when it was 69.0% below average. That same year, the Semi-arid region of Paraíba mesoregion in Paraíba had a deficit of 56.3% (MEDEIROS; BRITO, 2017). The data presented in this table confirms that the Borborema mesoregion, besides having the lowest 'normal' rainfall, was the region that suffered the most in this 'great drought'. At the same time, they confirm that the drought was felt in the Zona da Mata but was less intense.

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<sup>22</sup> Source: SISVAN (2023). Public Reports. <https://sisaps.saude.gov.br/sisvan/relatoriopublico/index>.

<sup>23</sup> AESA - Executive Agency for Water Management (of the Government of Paraíba).

Table 04 - Precipitation deficits recorded in the mesoregions of Paraíba from 2012 to 2016 (in %, compared to 'normal' historical averages)

Mesoregion	2012	2013	2014	2015	2016
Semiarid region of Paraíba	- 56,3	- 20,2	- 12,9	- 38,3	- 30,4
Borborema	- 69,0	- 46,2	- 23,3	- 45,3	- 42,4
Agreste Paraibano	- 33,4	- 11,9	- 13,6	- 21,1	- 16,6
Mata Paraibana	- 23,6	+ 0,9	- 18,2	- 15,8	- 19,8

Source: (MEDEIROS; BRITO, 2017) based on data from AESA.

Other information gathered from various sources suggests that 2017 still had below-average rainfall, while 2018 was close to normal. It is therefore possible to say that this last major drought lasted six years (2012 to 2017).

It is worth mentioning that recent studies carried out by researchers from the National Center for Natural Disaster Monitoring and Alerts (CEMADEN) confirm the severity of this latest 'great drought', not just for Paraíba, but for the entire Semiarid region. The results of these surveys show that the last 5-year period (2011 to 2016) was in fact the most intense drought in a long time, in terms of duration, severity and geographical range of occurrence, which extended to the entire Semiarid region of Brazil NE (BRITO; CUNHA; CUNNINGHAM; ALVALÁ *et al.*, 2017). Seen as the worst drought in the last hundred years, it is considered representative of the extreme weather events that are likely to become more frequent with climate change.

Although it is a recent event, the effects of the 'great drought' 2012 - 2017 are already beginning to be measured. Referring to the semiarid region of the state, Medeiros and Brito (MEDEIROS; BRITO, 2017) have recorded significant impacts in several areas: agriculture, livestock, and the availability of water for the population. Regarding rainfed agriculture, there was a very significant drop in the production of the main crops in the semiarid region of Paraíba: corn, beans, and cassava. Production fell significantly and remained at very low levels for six consecutive years. This has certainly had a negative impact on families' diets and incomes, especially those of the Family Farming social group. This drought has also had a significant impact on livestock. It is estimated that there were losses amounting to approximately 40% of ruminant herds, recorded mainly in the first two years of the event - 2012 and 2013. Paraíba also suffered a significant drop in milk production (which essentially comes from the semiarid region) (MEDEIROS; BRITO, 2017).

This same study also highlights the effect of the 'drought' on water resources, an issue that goes beyond the agricultural sector and the strictly rural population, to affect the entire population (MEDEIROS; BRITO, 2017). In the rural areas of practically the entire state, water sources for more everyday use (such as first-water cisterns) dry up every year, but there are usually other sources (such as dams, cisterns, or wells) in or near the communities, which allow for supply when this happens. But in this 'great drought', these 'secondary' sources have dried up and it has been necessary to wait for the arrival of water tankers, which have brought water from increasingly distant sources. And this situation of great hardship has highlighted the fact that first-water cisterns, although widespread, are still not present in all rural households in Paraíba.

The succession of several bad rainfall years meant that the region's 'strategic' springs (basically the region's largest reservoirs) could not be recharged, which meant that the stored water capacity became critical in 2015, 2016 and 2017. In December 2016, the region's water storage systems fell to alarming levels, ranging from 1.1% to, at best, 14.4% of total water capacity (MEDEIROS; BRITO, 2017). According to AESA, this problematic situation with the level of the larger reservoirs lasted until at least 2019, even after two years of 'reasonable' rainfall<sup>24</sup>. In addition to the enormous difficulties experienced in rural areas, there has been a 'collapse' in several urban water supply systems. Many municipalities have declared themselves in a state of emergency. For example, the Boqueirão reservoir, which supplies water to the city of Campina Grande (a city of more than 300,000 inhabitants) reached its lowest level in history, with 3% of its water volume, in 2017. In this case, the total collapse of the supply was only avoided with the arrival of the waters from the transposition of the São Francisco River, which took place in April of the same year<sup>25</sup>. It is worth noting that this impossibility of recharging the water sources has other effects, in addition to affecting the supply to homes in

<sup>24</sup> Cf.: <http://www.aesa.pb.gov.br/aesa-website/monitoramento/volume-diario/?tipo=atual>

<sup>25</sup> Cf.: <https://g1.globo.com/pb/paraiba/noticia/aguas-do-rio-sao-francisco-chegam-ao-acude-de-boqueirao-apos-41-dias-na-pb.ghtml>

the hinterland. For example, in several municipalities, irrigated agricultural production had to be halted. At the same time, the lack of water has also significantly affected livestock.

– *The productive trajectories and challenges of Family Farming in Paraíba*

*An overview of the production challenges facing Paraíba's agricultural sector.* Agricultural production is the main economy of the vast majority of the rural population in general, and family farming in particular. As can be seen, data from the IBGE's municipal surveys (for the year 2022) highlight the following productions by planted area and herd size: i) poultry, cattle, goats and sheep account for 92% of the value of livestock; ii) of permanent crops, bananas, passion fruit, Bahia's coconut and tangerines are the main productions in terms of value, and iii) pineapple, corn, cassava and sugar cane are the most important temporary crops.

Table 05 - Distribution of herds in the state's mesoregions - Year 2022

Flocks	Hinterland		Borborema		Agreste		Mata Paraibana		Total	
	Cab.	%	Cab.	%	Cab.	%	Ha.	%	Ha.	%
Cattle	651.802	47,5	194.558	14,2	425.925	31,1	99.281	7,2	1.371.566	100
Goats	193.187	24,2	445.646	56,0	144.936	18,2	12.703	1,6	796.472	100
Sheep	264.535	34,0	300.154	38,6	199.002	25,6	14.099	1,8	777.790	100
Pigs (total)	99.582	34,5	53.642	18,6	115.221	40,0	19.915	6,9	288.360	100
Chickens (total)	1.591.958	12,6	972.474	7,7	6.202.433	48,9	3.902.640	30,8	12.669.505	100
Quail	--		850		37.754		150.600		189.204	

Source: IBGE - Municipal Livestock Survey. Link: <https://sidra.ibge.gov.br/tabela/3939>

Table 06 - PB's main crops. Planted areas, total and by Mesoregion - Year 2022

Cultures	Hinterland		Borborema		Agreste		Mata Paraibana		Total	
	Ha.	%	Ha.	%	Ha.	%	Ha.	%	Ha.	%
Total planted area	73.448	20,3	36.612	10,1	126.579	35,1	124.371	34,5	361.010	100
Sugarcane	339	0,3	--	--	5.035	4,9	97.025	94,8	102.399	
Corn	40.617	41,1	18.260	18,5	38.889	39,9	1.090	1,1	98.856	
Beans	25.671	30,3	15.534	18,4	41.822	49,4	1.615	1,9	84.642	
Cassava	602	4,0	84	0,6	6.371	42,7	7.859	52,7	14.916	
Banana	505	4,8	57	0,5	9.401	90,1	467	4,5	10.430	
Bean	661	6,4	409	3,9	8.711	83,9	602	5,8	10.383	
Pineapple	--	--	--	--	2.783	30,3	6.396	69,7	9.179	
Bahia's coconut	644	10,2	103	1,6	374	5,9	5.176	82,2	6.297	
Sisal	75	1,5	230	4,7	4.638	93,8	--	--	4.943	
Sweet potatoes	829	17,8	344	7,4	1.718	36,8	1.777	38,1	4.668	
Cashew - nut	331	12,4	385	14,4	1.448	54,3	502	18,8	2.666	
Rice	2.034	100	--	--	--	--	--	--	2.034	
Tangerine	--	--	--	--	1.791	100	--	--	1.791	
Passion fruit	28		179		567		298		1.072	
Cotton	527	55,1	70	7,3	359	37,6	--	--	956	
Tomatoes	85	12,9	454	68,8	116	17,6	5	0,8	660	
Planted area (considering the crops listed here)	72.948		36.109		124.371		122.812		[355.892]	

Source: IBGE - Municipal Agricultural Survey. Link: <https://sidra.ibge.gov.br/tabela/5457>

The tables above show, for the year 2022: (i) the distribution by mesoregion, using the planted area criterion, of Paraíba's 16 main agricultural products; (ii) the distribution, by mesoregion, of Paraíba's herds. As we will see below, this data highlights the more agricultural vocation of the Zona da Mata. On the other hand, it is also possible to observe some characteristics of the Semiarid systems (which will be discussed later), such as the relative importance of ruminant herds, the strong presence of corn and bean fields and the tiny presence of cotton.

Family farming in Paraíba faces very severe and challenging conditions, especially in the semiarid region, which include low income, low productivity in farming activities, difficulties in accessing to water for human consumption and production and high risk related to climatic events. To increase the production, productivity and family farming income, it is necessary to resolve obstacles related to the lack of access to financing to make the necessary investments, technical assistance and rural extension that supports the learning of new technologies, difficulty in accessing markets and inserting producers into value chains, which in turn is related to the weakness of rural organizations. An important element is the scant presence of irrigation: according to

the 2017 Agricultural Census (IBGE, 2019) only 11.7% of agricultural establishments have access to water for irrigation. In addition to the low productivity of agricultural activities that depend on the availability of water, there is the use of unsuitable production techniques. For example, 32% of Family Farming Units (UAF) use agrochemicals, and 39% do not adopt any conservation practices. In the case of mechanization, for every 130 farmers, 1 has the support of a tractor, seed drill, etc. Less than 1% of family farms apply lime or other soil pH correctors.

In an effort to better understand the challenges facing FF (Family Farming) in Paraíba, a brief analysis of this issue in the different regions of the state is presented.

*In the eastern region of the Atlantic Forest*, agrarian systems were built up from the 16th century onwards around the cultivation of sugar cane in a 'plantation' system (on large estates with enslaved labor until the end of the 19th century and wage labor from the 20th century onwards). For many years, the food crops (such as manioc, corn, beans) that existed in the marginal areas between the sugarcane plantations were cultivated by peasantry on very small plots, using rudimentary methods. Sugar production has experienced cycles of expansion and retraction since colonial times. When it expanded, it occupied more land, competing more intensely with peasant plantations. In the downturn, the opposite occurred<sup>26</sup> (PALACIOS, 2004). Sugarcane cultivation went into decline towards the end of the last century, (CUENCA; MANDARINO, 2007) but the introduction of ethanol production has given it an important survival. The area dedicated to sugarcane in the state at the beginning of the 21st century has ranged from 100,000 to 120,000 hectares, and (CONAB, 2023). However, the crises at the end of the last century facilitated the establishment of several Agrarian Reform settlements in the Zona da Mata. As a result, the number of family farms grew, adding to those previously existing.

The agricultural production data from the IBGE<sup>27</sup> confirms that the 30 municipalities in the Zona da Mata are a region of strong agricultural production. If we consider planted area data, the Zona da Mata, which has only 13% of agricultural establishments (family and non-family), accounts for 34.5% of the agricultural production area. Considering the parameter of the value of agricultural production, these same municipalities account for 59.8% of the total value. The main agricultural products in the region are (in descending order): sugar cane, pineapple, cassava, beans, sweet potatoes, coconut, other fruits (guava, citrus, papaya, etc.).

On the other hand, the figures show that animal farming is less important in the Zona da Mata. The exception here is the significant number of chickens in the Zona da Mata and Agreste, which refers to the existence of 'integrated' poultry farms<sup>28</sup> in these regions.

Returning to the discussion of agricultural production, particularly in the Zona da Mata, it is true that a significant part of the agricultural production mentioned in the paragraph above is carried out on large non-family farms. This is the case with sugar cane production, for example. But, in general, this data also confirms that family farming systems in this region are dominated by agricultural production. They are dedicated to food production - tubers (cassava, yams, sweet potatoes), beans and corn, permanent fruit trees (guava, acerola, banana) and temporary fruit trees (pineapple) and vegetables. Some of these crops can be irrigated. It should be noted that there are also family establishments that produce sugar cane and sell it to mills in the region. Family units in the Zona da Mata also raise animals more as a complementary activity, often poultry and pigs.

This productive structure of family units, which favors the agricultural component over the livestock component, is evidenced by the composition of the income collected by families: according to data from the 2017 Agricultural Census, crop production accounts for 80% of the total value of family production, while the share of livestock production is 20%. It is worth mentioning that this type of predominantly agricultural family unit can be found in some of the wetter micro-regions of Agreste Paraibano (such as Brejo Paraibano and Guarabira, for example). Because they are small units, farming systems of this type are quite intensive, in the sense that the same areas are cultivated year after year. So, in this context, the main challenge is to find systems

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<sup>26</sup> PALACIOS, G. **Campesinato e escravidão no Brasil: agricultores livres e pobres na capitania Geral de Pernambuco (1700 - 1817)**. Brasília: Ed. UNB, 2004.

<sup>27</sup> IBGE. Municipal Agricultural Production, 2022. Link: <https://www.ibge.gov.br/estatisticas/economicas/agricultura-e-pecuaria/9117-producao-agricola-municipal-culturas-temporarias-e-permanentes.html>.

<sup>28</sup> Integrated poultry farming is where the producer establishes an agreement/contract with a company/industry whereby the latter provides the producer with all the inputs and technical assistance and buys all the production.

that allow production to be maintained or increased without degrading (or restoring, where necessary) the natural resources that sustain them.

*Family agro-ecosystems in the semiarid region* generally combine livestock and agricultural production. They almost always include a plot or field of intercropped rainfed crops (the 'roçado'), which produces corn, beans<sup>29</sup> and can often include other crops, chosen from pumpkin, watermelon, maxixe, cassava, fava beans, peanuts, sesame, etc. The systems also include a herd, usually mixed, of goats, sheep and sometimes cattle. The data presented in Tables 04 and 05 corroborate this structure of production systems. It should be noted that the configuration of ruminant herds is slightly different in the three semiarid mesoregions: the herds in the semiarid region have a higher proportion of cattle, while goats, for example, are more characteristic of Borborema.

In colonial times, the main agricultural activity in the semiarid region was livestock farming. The swiddens of this colonial era were of little importance, dedicated exclusively to producing subsistence food for the sparse population of the semiarid region. But although livestock farming remained important, agricultural production in the semiarid region grew a lot throughout the 20th century, mainly due to cotton. However, this crop went into crisis from the 1980s onwards, which led to a significant decrease in its productivity and, ultimately, in the areas under cultivation. Today, cotton production in the semiarid region of Paraíba is extremely low. Corn and bean fields in general have decreased in importance, although it is still very common for families that live in the semiarid region of Brazil to have such fields. Although the arrival of a pest insect (the 'cotton bollworm')<sup>30</sup> played a very important role in the cotton crisis, it is important to note here that other factors also played a part in the crisis. Among these factors was the decrease in the price paid for cotton<sup>31</sup> as well as other factors such as the growing population density and the consequent decrease in agricultural land available to families, combined with other causes such as the growth of livestock and the end of 'free land'. In this context, it should be noted that various traditional practices, especially soil preparation (including the use of the slash and burn system), played a role in the aforementioned process of decline of the roçados. Neither the inventiveness of the farmers nor the conventional system of production/dissemination of agricultural innovations has been able to produce an adequate solution to the problems of the rainfed crops in the semiarid ("roçado sertanejo").

As a result of the trajectory described here, the family units in the hinterland are currently more dedicated to animal farming. As a result, animal production accounts for most of the produce of peasant family units in the semiarid region of Paraíba. Data from the 2017 Agricultural Census proves this when it shows that between 69 and 93% of the total production value of family production units in the Semiarid region of Paraíba comes from animal production<sup>32</sup>.

As we have seen above, the agro-ecosystems of the semiarid region are in crisis. But on the other hand, even though traditional livestock farming has always been their main productive bulwark, it has always been quite extensive and low productivity. Let us cite the example of goat milk production. A study carried out by researchers from EMBRAPA Goats and Sheep analyzed systems of this type in various regions of the country. In the case of the Northeast region, the herds are characterized by being mixed herds, worked in a semi-intensive system that keeps the animals in the field in areas of native pasture, with a low degree of intervention and herd management, associated with supplementation at the trough during the driest time of the year. A number of problems were identified in the areas of health, food and reproductive management. These factors are manifested in an individual productivity per animal of 0.556 kg.day<sup>-1</sup>, considered low by the authors of the study (PERDIGÃO; OLIVEIRA; CORDEIRO, 2016).

As we have seen above, in the semiarid region both farmland and animal production systems have problems. This situation has called for innovations in production systems, since many of the usual agricultural practices

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<sup>29</sup> These are almost always macassar or string beans (*Vigna unguiculata*), not common beans (*Phaseolus vulgaris*).

<sup>30</sup> The boll weevil's scientific name is *Anthonomus grandis*.

<sup>31</sup> On the price paid for cotton. From the 1930s onwards, there was a significant growth in cotton production in the states of São Paulo and Paraná. By the 1940s, cotton production in this new producing region had already far surpassed that of the Northeast (GONÇALVES; GONÇALVES, 2008). This had an impact on the price of the product, which began to be influenced by the parameters established in this new producing region. But the evolution of the fall in the international price of cotton in the 1980s and the opening up of the national economy to imports, which became very significant in the early 1990s, also began to weigh on the economic equation (BELTRÃO, 2003). In this scenario, the price obtained for cotton from the sertanejo became less and less attractive.

<sup>32</sup> IBGE data. 2017 Agricultural Census. Prepared by DIEESE. These percentages vary between 69% and 93% according to the different micro-regions of the state's semiarid region.



have become increasingly inappropriate, and the most recent problems (such as the weevil) have not been solved.

Although the conventional solutions tested in the semiarid region to the problem of cotton plantations have not worked to their satisfaction, there are currently several promising experiences in Paraíba of growing organic cotton through 'agroecological consortium' systems. Although the number of families involved is still small, it is growing year on year<sup>33</sup> (SANTIAGO; BLACKBURN; SIDERSKY; MELO *et al.*, 2022a; b; c; SILVA, 2015).

But in general, the innovations introduced into the Semiarid agro-ecosystems have been characterized by their 'simplification', with a marked reduction in biodiversity. Cultivated areas are, in this context, areas in which the vegetation cover has been drastically reduced. This happens both in the areas of traditional food crops and in the cultivated areas more directly related to animal farming. At the same time, the poultry areas, although a little more 'complex' than the cultivated areas, are also impoverished, and there are processes of alteration in the species composition, generally to the detriment of the most valued plants. This trend towards 'simplification' makes production systems in the hinterland increasingly vulnerable to climatic crises, particularly droughts. In this context, the rather gloomy predictions about possible losses in food crop production in the region due to climate change make even more sense (MACHADO FILHO; MORAES; BENNATI; DE *et al.*, 2016).

Taking the example of ruminant rearing systems, given their growing importance in recent times, there have been efforts to improve the performance of this activity (see the Annex to this Diagnosis for more details on the subject). One line of work has been the dissemination of forage processing practices (hay and silage) and an expansion in the cultivation of species for this purpose. Work is also being done to introduce the cultivation of perennial forage species that are resistant to semiarid conditions (ARAÚJO; ALBUQUERQUE; GUIMARÃES FILHO, 2006) and innovative ways of managing the Caatinga (ARAÚJO FILHO, 2013) to increase its forage productivity and, at the same time, preserve it. Other innovations, such as the introduction of trampling grasses to replace the Caatinga, have been less successful. Efforts are also being made to improve herd management to avoid the animal overcrowding that is so common today.

It is hoped that, with the various innovative practices being introduced, it will be possible to halt the processes of environmental impoverishment, which end up leading to a vicious circle of unsustainability, aggravated by ongoing climate change. The aim is to avoid a situation in which production systems collapse, leading to an acute crisis in the livelihoods of the people of the hinterland.

– *Deforestation and a growing susceptibility to desertification: problems related to environmental degradation*

The deforestation of large areas for agricultural use or as pasture is the most visible environmental problem throughout the state of Paraíba. As mentioned earlier, it is estimated that in the Zona da Mata, natural vegetation currently occupies only 9% of its original area.

In the regions of the Caatinga biome, it is estimated that today deforestation has reached approximately 50% of the original area. In addition, the use of unsustainable soil management practices, such as burning, the removal of vegetation cover and the use of unsustainable soil preparation techniques, has resulted in increased exposure of soils to atmospheric agents, which has accentuated their degradation.

It has already been said that, as in other regions of the country, anthropogenic action on Paraíba's native vegetation is intense. In the case of the Caatinga, for example, anthropogenic action has reached 63% of the total area, which is high when compared to the general figure for deforestation in the Caatinga, which is around 45% (SEIMARH, 2011). In the Atlantic Forest, the remaining native vegetation covers only 9% of the area.

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<sup>33</sup> For more information on organic cotton production in Paraíba, see the links below: (a) ACEPAC: <https://www.algodaoagroecologico.com/cultivo-do-algodao-em-consorcios-agroecologicos-na-prata-pb-tem-promovido-a-geracao-de-renda-e-riqueza-circulante-na-regiao/>; (b) Polo da Borborema / AS-PTA: <https://www.brasildefato.com.br/2022/10/13/algodao-agroecologico-na-paraiba-respeita-a-natureza-e-favorece-sustentabilidade-da-moda>; (c) Rede Borborema de Agroecologia: <https://www.embrapa.br/busca-de-projetos/-/projeto/219667/sistemas-integrados-organicos-para-cultivo-de-algodao-sisal-e-culturas-alimentares-nos-territorios-da-borborema-agreste-e-curimatau-na-paraiba>.

The causes of the degradation found in many areas of both biomes in Paraíba are, firstly, excessive deforestation - motivated by the opening of new areas for agriculture and livestock and, in certain regions, by the extraction of firewood for commercial purposes. Overgrazing and other more specific causes, such as the inappropriate use of irrigation or mining activities, also play a role (SEIMARH, 2011). Practically all agricultural establishments in the region have contributed to this process to a greater or lesser extent.

Considering that the Areas Susceptible to Desertification (ASD)<sup>34</sup> can be considered indicators of the intensity of degradation found in Paraíba, we would point out that, according to various sources, only 6% of the state is not classified as 'susceptible to desertification' to some degree (COSTA, 2021; SEIMARH, 2011). It is striking that this phenomenon is also present in 40% of the Atlantic Forest region.

- *The problem of water resources*

Access to quality water for domestic consumption is a rare service in rural areas of the state of Paraíba. Data from the National Sanitation Information System (SNIS) indicates that, in this state, the proportion of the population without access to water for domestic consumption is almost 24%<sup>35</sup>. This proportion reaches 60% in rural areas<sup>36</sup>. But for family farming, the issue of water is not limited to domestic supply. In reality, peasant family units in the Brazilian Northeast, and especially in the semiarid region, have a significant demand for water, which goes far beyond drinking water to include other 'domestic' water (for personal hygiene, washing clothes, etc.) and water for various productive uses (livestock, small irrigation, etc.). To meet this wide-ranging demand, families generally need access to more than one "source" of water and, often, to transport and store this water so that it can be used in the appropriate place and at the appropriate time. This set of demands, sources of supply and the tools and mechanisms that allow the family to accumulate, access and use water constitute what can be called the family unit's 'water system'. Wells, ponds, small dams and also domestic water cisterns are the fundamental parts that make up family water systems. Most of them are structures (of different sizes, shapes, and ways of working) that allow rainwater to be collected and stored. (For more details, see Annex B - On the 'water systems' of Family Farming in the Northeastern Semiarid Region).

Paraíba's peasant families are constantly working to set up and then improve their 'water systems', trying to obtain more and better-quality water and get it to where it will be used (the house, the yard, the corral, the small irrigated plot, etc.). However, strengthening the water system requires investment. For a long time, families had little or no support for this effort. As a result, given the precarious economic situation of most of these families, progress in structuring family water systems was very slow. Fortunately, from the end of the 1990s onwards, the view that it was possible to create better conditions for 'living with the semiarid' was affirmed, and that this better living implied strengthening families' water systems. After some experimental initiatives at the end of the 1990s, public policies aimed at strengthening these systems emerged at the beginning of the 21st century. The first and best known of these policies is the 1 Million Cisterns Program (P1MC), or more simply, the Cisterns Program. Officially set up in 2003<sup>37</sup>, it focused its efforts on setting up cisterns for domestic consumption (the so-called '1st water' cistern) (CASTRO, 2021). This was followed by other programs, such as P1+2 (Programa 1 Terra e 2 Águas), dedicated to building complementary structures to capture and store water for production (for livestock and irrigation of small areas). Other initiatives have also emerged, such as the drilling of wells, the installation of desalination equipment, support for the implementation of small dams, etc.

Many families joined the first initiatives of this kind. Progress has been made with these programs, especially regarding domestic consumption cisterns: according to the 2017 Agricultural Census, 73.8% of family establishments in the state of Paraíba reported having a cistern<sup>38</sup>. But despite the progress made, the work done

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<sup>34</sup> According to the United Nations Conference to Combat Desertification (UNCCD), when environmental degradation occurs in the semiarid regions of the world, it often creates desert-like conditions. Environmental degradation occurs everywhere, but it is defined as desertification when it occurs in semiarid regions. It is the result of several factors, including climatic variations and human activities (UNCCD, 1994).

<sup>35</sup> Sources: a) <https://www.painelsaneamento.org.br/localidade?id=29>; b) <http://www.snis.gov.br>.

<sup>36</sup> Sources: a) 2010 Demographic Census, IBGE; b) (Cf. <http://www.meioambiente.ba.gov.br/modules/conteudo/conteudo.php?conteudo=190>).

<sup>37</sup> According to Castro, "in 2003, the National Program to Support Rainwater Harvesting and Other Social Technologies (Cistern Program) was created by the federal government to finance the construction of cisterns throughout the semiarid region" (CASTRO, 2021).

<sup>38</sup> Source: IBGE. **Agricultural Census 2017**. Rio de Janeiro, IBGE, 2019. Available at: <https://bit.ly/3DE6hsY>.

to date is only a start. The proportion of family units with other sources of water is much lower<sup>39</sup>. This is undoubtedly the main reason only 11.5% of family units in the state manage to work with some kind of irrigated area<sup>40</sup>. There is still a lot of work to be done in this area of strengthening family water systems in rural Paraíba.

– *Family farming organizations and their weaknesses*

Often, tackling the problems posed by Paraíba's rural population's vulnerability is difficult at the individual or family level. Generally, actions of this kind require a capacity for joint or collective action. One of the issues that reinforces the processes of unsustainability mentioned above, which accentuate vulnerabilities, concerns local organizations (SIDERSKY; JALFIM; RUFINO; SANTIAGO *et al.*, 2013).

Traditional rural communities are characterized by the existence of a system of social institutions that organize local social life. These mechanisms - such as kinship networks and traditional mechanisms of reciprocity - enable several types of collective action to take place, covering issues such as the management of common resources, the holding of community festivals, the organization of religious events, etc. (SABOURIN, 2009). However, today these structures do not work well in all communities, and in many cases, there is an 'erosion' of traditions<sup>41</sup>. This has led to a weakening of traditional social structures. On the other hand, reality has presented new demands for community organization, mainly related to the actions of other social actors with whom families/communities establish relations. This situation has stimulated the creation of new forms of organization, generally more formalized, which may take on responsibility for old practices, but are essentially created to take on new functions. Among these new forms of organization, community associations stand out first and foremost.

There are currently many community associations in rural Paraíba. However, it must be recognized that they have shortcomings. One of the barriers reinforcing the *status quo* of unsustainability involves the role of the 'community association' as an effective means of representation and, above all, of organizing collective action at the local level. As various studies have shown, the creation of associations is not enough. It has been found that it is very difficult for these associations to play their potential positive role in the processes of promoting more resilient development spontaneously (UPHOFF, 1993). Previous experience of various IFAD-supported rural development projects has shown that the role of representing the group of families vis-à-vis government agencies has posed major challenges for community associations, as far as these new relationships require associations to perform tasks that are entirely unknown to them. In the case of associations assisted by development projects, one such task is that of managing community 'projects'.

On the other hand, there is the case of economic organizations, which were created (usually in the institutional format of cooperatives) with the aim of carrying out activities that seek to promote access to markets (such as packaging, processing and marketing local products), which have also encountered many difficulties in establishing themselves in this role. These organizations have significant shortcomings in terms of capacity on issues such as i) administration and finance (including access to sources of funding for working capital), ii) the ability to design and implement marketing strategies, both the more conventional ones and those that work with more innovative and diversified options, iii) the composition of teams with little representation of women and young people, among other diverse groups. They also often have significant limitations from the point of view of their production infrastructures, which do not always allow them to diversify their products, comply with health and environmental legislation, use renewable energy sources in their processes or treat their waste properly. These factors end up limiting the ability of these organizations to function, as well as their own sustainability, including economic sustainability. As a result, producers access the market precariously and at low prices, with difficulties in adding value to their production. In this context, intermediaries are predominant.

The situation outlined here indicates that most of the existing local organizations - especially community associations and family farmers' cooperatives - will need support, especially in terms of capacity building, if

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<sup>39</sup> For example, in the same 2017 Census, the proportion of Paraíba family units with access to a tube well was 20.7%.

<sup>40</sup> Source: IBGE. **Agricultural Census 2017**. Rio de Janeiro, IBGE, 2019. Available at: <https://bit.ly/3DE6hsY>.

<sup>41</sup> For example, it's not uncommon to hear from farmers in various regions of the northeast of Brazil that collective action instruments such as 'mutirões' (joint work) worked much better before than they do today. Sabourin mentions other symptoms of this "erosion": some farmers go so far as to pay a day laborer "instead of guaranteeing the service directly. They thus assume their material duty but, according to the community, do not respect their social duty" (SABOURIN, 2003).

they are to play an active and effective role in implementing the various sustainable development initiatives they are called upon to carry out.

On the other hand, the existing organizations mentioned above only group together and represent a fraction of Paraíba's Family Farmers, and there is still a significant part of this population that does not belong to any organization. Data from the 2017 Agricultural Census indicates that only 48% of farmers are members of some kind of organization (association, union, movement, etc.) Considering only the members of cooperatives, this proportion drops to just 3.7% (SANTOS; FORTINI; BRAGA, 2021). This is then a second major front for action, which deals with expanding the coverage of existing organizations and creating new ones of this type.

– *Problems linked to land and environmental regularization*

Land and environmental regularization of rural properties is a significant challenge faced by family farmers, especially regarding properties in priority groups. Since at least the 19th century, the instrument that attested to the regularization of a rural property was the title registered at a notary's office. Many of Paraíba's peasant communities have occupied land for generations. In some cases, the properties may even have had a registered title in the past, but the inheritance/inventory processes did not go through the notary's office. Furthermore, in countless other cases, purchase-sale transactions, and other forms of access to land have never gone through the regularization process. There are also other cases, such as federal and state settlements, made up of families who are in the process of accessing land, but who have not completed the regularization process.

In this same context, the case of land owned by quilombola communities<sup>42</sup> deserves special mention - which formally would be vacant land and is awaiting state action to be regularized, as is the case with Agrarian Reform settlers. As mentioned in the previous section, in Paraíba there are 47 quilombola communities with recognized certificates of self-definition with approximately 16,000 people. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have their territory officially delimited. Information provided by INCRA's Superintendence in Paraíba confirms that none of the quilombola communities in the state has a property title<sup>43</sup>. In the case of the Agrarian Reform settlers, it is worth mentioning that there are 280 federal settlements in the state, according to data collected from the INCRA Superintendence in Paraíba, with 13,535 settled families. Of these, only 1,835 (13.5%) have land titles.

In addition to these more common problems, a recent law - the Georeferencing Law (Law 10.267/01) in force since 2001 - changed the formal requirements for land regularization, requiring the owner of rural property to inform the National Institute for Colonization and Agrarian Reform (INCRA) of its exact position, characteristics and extension, as well as its adjoining landowners, for registration in the National Rural Registration System (SNCR) and inclusion in the Land Management System (SIGEF), which became requirements for full regularization. With this, a general and unique land registry was created in Brazil for the first time, with the intention of better organizing a dimension of the rural world that presents major difficulties.

This whole situation means that, at present, a large number of family units in Paraíba do not have full legal documentation and there is a lack of formal recognition of these properties. In many cases, not even the owners are fully aware of this situation. The lack of land-title regularization weakens the situation of farming families/communities in the event of agrarian disputes and conflicts. It also prevents the issuance of grants and water licenses necessary for the exploitation of wells or the use of springs and can hinder access to credit and pensions. The lack of land regularization can lead to legal insecurity, social vulnerability, and limitations on access to rights and benefits. This situation directly harms the quality of life of these communities, hindering sustainable socioeconomic development.

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<sup>42</sup> The sources referring to quilombola communities used in this paragraph/text box are as follows: (a) IBGE. **Demographic Census 2022. Quilombolas. First results of the universe**. Rio de Janeiro: IBGE, 2023. 99 p. + Appendices. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (b) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

<sup>43</sup> Sources: (i) : IBGE. Demographic Census 2022. Quilombolas. First results of the universe. Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> e (ii) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

On the other hand, there are also problems in the environmental regulatory dimension. The Rural Environmental Registry (CAR), established by the Brazilian Forest Code of 2012 (Law 12.651/2012), is an important instrument for monitoring and environmentally regularizing rural properties. In Paraíba, the CAR has been widely implemented since it was made compulsory in 2012. However, this instrument still faces important challenges, mainly related to the lack of precision in the delimitation of rural properties, compromising the reliability of the information recorded. Thus, in Paraíba there are just over 181,000 establishments registered with the CAR<sup>44</sup> agencies and in defining responsibilities and environmental preservation actions. These problems hinder decision-making and the implementation of appropriate environmental preservation in [00]. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of the CAR preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of CAR preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of CAR preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of CAR preservation actions. These problems hinder decision-making and the implementation of appropriate environmental policies in the context of the CAR.

– *Limited access to support services - technical assistance and financing*

Family farmers in Paraíba also face difficulties in minimally structuring their agricultural activities, as well as incorporating innovations to be able to intensify their production in a sustainable way due to limited access to technical assistance and credit.

*Technical Assistance (TA)*. After millennia in which knowledge of agricultural and livestock practices was only passed down between generations of the population dedicated to agriculture, modern rural education and extension services emerged in Europe and the United States in the 19th century to work on new agricultural technologies and practices (CASTRO, 2015). In Brazil, TA services began to be implemented after the Second World War, expanding nationally as a public service over several decades. Despite the crises experienced by this TA, the expectation remains that a quality Technical Assistance and Rural Extension (TA) service can play a fundamental role in Brazilian rural development, with emphasis on strengthening family farming, access to public policies, the social organization of farmers, the management of properties and enterprises, the marketing and certification of products, production management, the transition to organic or agroecological systems, the training of farmers, among other issues (DELGROSSI; VIEIRA; AVILA; PERAFÁN *et al.*, 2024; VARGAS; AQUINO; CARVALHO, 2022). These positive expectations related to TA<sup>45</sup> were confirmed in a recent study, which proved the positive impact - mainly due to the increase in agricultural production and income - of the provision of TA services by the Dom Hélder Câmara II Project in various territories of the Brazilian Northeast (DELGROSSI; VIEIRA; AVILA; PERAFÁN *et al.*, 2024).

However, despite this widely accepted positive outlook, and even though there was significant investment by the federal government in TA between 2003 and 2015, the 2017 Agricultural Census records that in Brazil only 19,9% of family farms had access to some form of TA (SANTOS; FORTINI; BRAGA, 2021). In Paraíba, 16.8% of establishments had access to TA. Although this figure is higher than that for the Northeast region (which is 7.4%), this proportion is still considered small (LUIZ, 2019).

As of 2017, federal funding for the TA service has been severely cut again, leaving millions of Brazilian family farmers without any kind of guidance (LUIZ, 2019; VARGAS; AQUINO; CARVALHO, 2022). With this redirection of the national TA policy from 2017-18 onwards, there have been further resources available to finance TA services between 2018 and 2022 (DIESEL; NEUMANN; DIAS; FROEHLICH, 2022; VARGAS; AQUINO; CARVALHO, 2022). Given this situation, it is very likely that the proportion of family farms served by TA will be much lower than it was at the time of the 2017 Agricultural Census.

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<sup>44</sup> BRAZIL-MMA. **Environmental Regularization. Newsletter. Data declared up to October 3, 2023.** Brasília, DF: Brazilian Forest Service - Ministry of the Environment, 2023. 37 p. Available at: [https://www.gov.br/mma/pt-br/composicao/servico-florestal-brasileiro/regularizacao-ambiental/boletins-informativos-car/BoletimCAR\\_OUT03\\_2023.pdf](https://www.gov.br/mma/pt-br/composicao/servico-florestal-brasileiro/regularizacao-ambiental/boletins-informativos-car/BoletimCAR_OUT03_2023.pdf)

<sup>45</sup> Internationally, there are also studies that attest to the added value of providing ATER services. Here we will mention a study carried out by the IDB's *Office of Evaluation and Oversight*, entitled "*Does Technical Assistance Matter? An Impact Evaluation Approach to Estimate its Value Added*" (MARCANO; RUPRAH, 2009).

In addition, this low coverage rate, information gathered during field visits during the design mission indicates that there is a lack of preparation and qualification of the technicians from the point of view of knowledge of agroecological practices, which allows production systems to adapt to climate change, among other aspects. Without the support of qualified professionals, farmers cannot implement more intensive, sustainable, and efficient agricultural practices, as well as adapt to climate change and the challenges of market access and access to finance. Correlating this information with the profile of the producers, data from the 2017 Agricultural Census (IBGE, 2019), show that in 47.4% of the establishments that reported applying pesticides, the person responsible cannot read and write and that in 80.4% of cases, pesticide applications were carried out without any technical guidance.

On the other hand, in recent years (especially since 2020), there have been important methodological innovations in the field of TA. Traditionally, TA actions took place face-to-face, in direct interaction between the TA agent and their audience (the farmers). With the advance and popularization of information technology and the Internet, and mainly stimulated and conditioned by the moment of mandatory social isolation imposed by the Covid-19 pandemic, forms of remote and digital interaction and communication have been gaining ground and importance in TA processes, driving a broad process of innovation and learning in the use of instruments for dialogue, interaction and exchange of knowledge at a distance or remotely (CARVALHO; XENOFONTE; ROCHA; DIAS, 2021; ROCHA JR.; GARCÍA; BARRETO; CHAMMA *et al.*, 2021).

In this process, TA actions have combined the remote tools already in use (such as TV and especially radio) with a whole range of digital tools such as instant messaging applications/platforms (WhatsApp, Telegram), social networks (Instagram, Facebook), institutional websites, YouTube channels (for broadcasting videos). There has also been an increase in the use of meeting/live/videoconferencing apps, such as Google Meet, Zoom, as well as tools such as platforms specially designed for training events, and themed 'chats' on institutional websites. (EMATER-MG, 2020; LOPES; ZUIN; OLIVEIRA, 2022).

Thus, the use and application of digital resources in the activities of the technical assistance and rural extension service, which has been called 'digital TA' in some institutional, political, and academic circles, has enabled farmers to expand their ways of accessing information and technical assistance, constituting an excellent complementary means to the face-to-face TA service (DE DEUS; MACHADO; FERRAZ; LOPES *et al.*, 2024; LOPES; ZUIN; OLIVEIRA, 2022).

*Access to credit.* According to the 2017 Agricultural Census, in the state of Paraíba, only 21,151 family establishments (16.9% of all such establishments) accessed some form of financing (IBGE, 2019; SANTOS; FORTINI; BRAGA, 2021). According to Santos et al. *better access to financing for family farmers means contributing to greater dynamism in the agricultural sector in the state of Paraíba. The existence of a significant percentage of family farmers without an efficient financing system, both in terms of the quantity of monetary resources and the technical quality of the projects, reflects the extent to which public policies (financing) policies need to progress to get closer to universal access"* (SANTOS; FORTINI; BRAGA, 2021).

It is interesting to note that 76,5% of the families received financing for investment purposes. Furthermore, only 46.8% of these establishments received funding from government credit programs, PRONAF being the main one (same source).

– *Deficit in access to other public policies to support Family Farming*

Since the last few years of the last century, an important set of public policies to support Family Farming has been built up in Brazil. This process was led by the federal government and many states followed suit with similar state policies. It is worth mentioning the following programs: PRONAF (funding and investment credit), Seguro Safra (agricultural insurance), PAA, PAA Leite and PNAE (public food purchases), P1MC and P1+2 (support for Social Technologies for water storage), PNCF (land credit) and the Rural Development Program. In Paraíba, the State Seed Distribution Program should be mentioned. The expansion of this set of policies lasted until 2015, when some of these programs saw a reduction in resources. This process intensified significantly from 2017 onwards, with a significant reduction in federal funding for practically all of these policies, leading some of them to be paralyzed (such as P1MC and P1+2). However, this trend has been reversed since the beginning of 2023, with the prospect of PA once again being able to count on a fairly wide range of incentive policies.

The existence of these policies, however, does not guarantee access for families. On the contrary, many families find themselves on the margins. Various sources show that few family establishments access them, as shown above in relation to the percentage of family farmers who regularly receive technical assistance services or manage to access credit (especially via PRONAF lines). Access to the PNAE is also limited. According to data from the FNDE, in 2022 Paraíba received only 2% of the Program's total resources, while the number of family farming establishments in Paraíba represents just over 3% of the country's total.

Surveys carried out in the field and also with policy managers indicate that there are several causes for this situation. The main one is a lack of more detailed and consistent information about the policies themselves, including aspects such as eligibility rules and access mechanisms. Weaknesses have also been identified in the technical teams that are responsible for making the policies work in the field.

#### *Food security and nutrition*

*Food Insecurity:* According to the II VIGISAN<sup>46</sup>, food insecurity (FI) in 2021/2022 affected 58.7% of Brazilian households (125.2 million people); in the Northeast, it reached 68% of households, where 12.1 million people are going hungry, i.e., at a level of severe food insecurity. The family farming sector has been hit hardest by the economic crisis of recent years, with small farmers particularly hard hit. In the Northeast, 83.6% of family farming families face some degree of food insecurity in 2021/2022. The worst levels of FI were observed in the families of family farmers who were still unable to return to pre-pandemic conditions, especially those who were unable to fully re-establish their production and marketed quantities. More recent research by the PENSSAN Network (2022) points to the current worsening of food insecurity, which affects 63.9% of households in Paraíba, of which 10.6% face severe food insecurity (hunger).

*Nutrition.* Despite the process of nutritional transition, with increased access to food, the state of Paraíba follows the national trend and the rest of the Northeast region and faces a double burden of malnutrition, marked by both malnutrition and an increase in the prevalence of overweight. Among adults in Paraíba, 62.5% are overweight (35.5% overweight and 27.0% obese)<sup>47</sup>. Growth retardation affects 4.9% of children under 5 in the state, thinness and marked thinness 4.2%, overweight 8.4% and obesity 6.8%.

The situation in Paraíba is exacerbated among the most vulnerable groups, such as quilombola communities, which continue to have socioeconomic disadvantages that are reflected in higher morbidity profiles, especially in relation to nutritional disorders. In addition, women of reproductive age have greater nutritional needs than men and for this reason usually have worse nutritional indicators than men of the same age, and therefore need differentiated attention. Research shows that in the Northeast, the prevalence of underweight among pregnant women is as high as 18%, compared to 6.7% in the rest of Brazil (MELO; SOUZA; FIGUEIROA; CABRAL FILHO *et al.*, 2011).

The main root causes of food and nutritional insecurity in the Project area are the declining quality of and difficult access to water for human consumption and food production; the limited capacity for food production and productive diversification; the low quality of the food consumed; the lack of productive infrastructure; and the low levels of food and nutritional education. It is worth highlighting the direct correlation between food and nutritional insecurity and poverty rates (69.9% of family farmers registered in the Single Registry in the Project area live in poverty or extreme poverty)<sup>48</sup> and environmental restrictions (such as lack of basic sanitation, interruptions in water flows and poor quality of water sources). Access to quality water and sanitation play a fundamental role in combating different forms of malnutrition. According to data from the Water and Sanitation Institute in 2019, the rural water service rate in Paraíba is 24.2% compared to 92.2% in

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<sup>46</sup> II National Survey on Food Insecurity in the Context of the COVID-19 Pandemic in Brazil [II VIGISAN: final report]. Brazilian Research Network on Food Sovereignty and Security - PENSSAN. São Paulo, SP : Friedrich Ebert Foundation. PENSSAN Network, 2022.

<sup>47</sup> Ministry of Health. Food and nutrition situation in Brazil: overweight and obesity in the adult population in Primary Health Care. [https://bvsms.saude.gov.br/bvs/publicacoes/atlas\\_situacao\\_alimentar\\_nutricional\\_populacao\\_adulta.pdf](https://bvsms.saude.gov.br/bvs/publicacoes/atlas_situacao_alimentar_nutricional_populacao_adulta.pdf).

<sup>48</sup> Single Registry, November 2023. Available at: <https://aplicacoes.cidadania.gov.br/vis/data3/data-explorer.php>.

the state's urban areas. In relation to sanitation, the rural sewage collection service rate is 2.7% in Paraíba compared to 50.1% in urban areas<sup>49</sup>.

To tackle the causes of malnutrition and food insecurity, PROCASE II will support agroecological gardens, the valorization of Neglected and Underutilized Species (NUS) and support for access to water. Among the most common UFPs in the state are the cactaceae, which include species such as Mandacaru, Quipá, Xique-xique, Palmatória, Facheiro and Coroa-de-frade. These plants are characterized by the presence of thorns and slimy stems, which allow them to survive dry climates and high temperatures. This will aim to increase the availability of food for the most vulnerable families, increase the availability of water for human consumption and thus improve their food security and nutrition, while also limiting the diseases responsible for the malabsorption of micronutrients.

In addition, the Project will have a cross-cutting sub-component, in which a Food Security and Nutrition Plan will be designed and implemented, focusing on exchanges and training. These actions will enable adults and young people to learn about healthy food practices, culinary practices, and gastronomic culture, and will respond to the needs of families and target groups in terms of processing and promoting their products, particularly those from family farming. All these practices will be integrated into the design and implementation of the Resilient Investment Plans, thus seeking effective implementation and results in terms of food and nutritional sovereignty.

#### – Gender gaps<sup>50</sup>

In the state of Paraíba, the Gender Disparity Index is 0.68%, indicating that Paraíba women are 32% less likely to have the same opportunities as men, with the biggest gaps being in the dimensions of political empowerment and economic opportunity (BENIGNO; VIEIRA; OLIVEIRA, 2021). In rural areas, resistance to advances in women's autonomy and rights is even greater. Gender gaps are expressed in restrictions on control and access to natural, social, and monetary resources.

One of the fundamental obstacles is the concentration of land ownership in the hands of men, leaving women in a situation of economic dependence. According to the 2017 Agricultural Census in Paraíba, 71.0% of female managers of PA establishments have land titles, compared to 73.1% of male managers - an inclusion gap of 2.1 percentage points. On the other hand, when it comes to the management of establishments, we find that, in the Project area, only 24% of family farming (FFA) establishments are run by women (IBGE, 2019). However, between 2006 and 2017, there was a 20.3% increase in the proportion of establishments run by women in the state (SANTOS; FORTINI; BRAGA, 2021). There is no data available on joint ownership.

In Paraíba, according to the same source, the total area of family farming establishments run by women is 214,500 ha (14.9%), while that of men totals 1,226,714 ha (85.1%). In terms of average area (ha), establishments run by men are 80.6% larger than those run by women. While establishments run by women have an average of 7.1 hectares, those run by men have an average of 12.9 hectares. Among the multiple legal, cultural, and structural barriers that exclude women from land rights are patriarchal ideologies about the gender division of labor in the public and private spheres and the practice of assigning land rights only to one representative of the family - the man. For this reason, the Project will seek to prioritize women in the land regularization work it will promote.

One strategy for rural women to increase their autonomy has been education, with higher levels of education compared to men. According to data from the 2017 Agricultural Census, among female family farmers, illiteracy reached 35.8% of those responsible for establishments, while among men, illiteracy reached 48.1% - a gap in favor of women of 12.3 percentage points (equivalent to 34.4%) (SANTOS; FORTINI; BRAGA, 2021). Among female family farmers, 19.5% have never been to school, and among men, this proportion is 25.7% (IBGE, 2019). Despite better educational indicators, women's average income is lower. In Paraíba,

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<sup>49</sup> Water and Sanitation Institute. Sanitation Legal Framework Panel. Available at: <https://aguasaneamento.shinyapps.io/painel-marco-legal/#section-cobertura>. 2019.

<sup>50</sup> For more information on Gender, see the annex "Technical Report. Gender Diagnosis in the PROCASE II Project Implementation Area" (Alexandra Teixeira, March 2024).



women earn, on average, 10% less than men and account for 72.5% of people earning up to one minimum wage, according to data from the Inter-Union Department of Statistics and Socioeconomic Studies (Dieese).<sup>51</sup>

Despite rural women's significant contribution to the family economy and community development, their work is often overlooked because they are not part of the formal labor market and do not generate monetary income from activities such as self-consumption. Among the establishments run by women, 80.8% produce for self-consumption, while for those run by men, the same proportion is 70.7%, a difference of 10.1 percentage points (equivalent to 14.2 percentage points). percentage points (equivalent to 14.3%). To change this reality, the Project will promote the Agroecological Logbook Methodology, which makes it possible to measure, value and give visibility to women's fundamental contributions to the family economy and, consequently, to community development.

The main agricultural activities of women in the Project area differ from those of men, requiring that any public support have a differentiated approach to meet the specific demands of women. Proportionally, women are more involved than men in temporary crops (37.1% versus 32.9%) and the production of planted/native forests (4.3% versus 2.6%), while men are proportionally more involved in permanent crops, livestock production (56.2% versus 52.4%) and horticulture/fruit growing (3.9% versus 2.8%).

Rural women in the Project area also have less access to Technical Assistance (TA). Among female family farmers, 14.9% received TA, while 17.4% of male family farmers received this service, which represents a gender gap of 2.5 percentage points (equivalent to 16.8%) (IBGE, 2019). In this context, the Project will offer continuous TA to beneficiaries, establishing a specific target for women (50%), in addition to other measures aimed at developing women's capacities in areas such as leadership, management, access to public policies, agricultural and non-agricultural activities.

When you look at the data on machinery, gender inequality is clearly evident. Throughout country, including in the Northeast, women have less access to tractors, planters, and harvesters. In Family Farming, establishments run by men (80.3%) have 93.1% (511,727) of the tractors for this producer segment, while women have 6.9% (37,845) of the tractors nationwide (HORA; NOBRE; BUTTO). These characteristics make women's daily lives tougher, thus impacting on various dimensions of their existence, and even on their willingness to migrate from the countryside to the cities.<sup>52</sup>

As far as associations are concerned, there is a higher proportion of women who are members of trade associations/trade unions and producer associations/movements. Among women family farmers, 37.2% were members of associations/trade unions and among men, 31.8% - a difference of 5.4 percentage points, equivalent to 17%. percentage points, equivalent to 17%, in favor of women. Regarding producer associations/movements, 15.8% of women family farmers were members in 2017, compared to just 13.6% of men. However, even with greater participation, women often do not have an equal voice because they are not equally represented in positions of power.

It is in this context that the Project will promote Gender Training to develop the capacities of rural women to play an active role, have a voice and decision-making power in Rural Organizations. In addition, the strengthening of Women's Networks will be supported, thus strengthening the self-organization of rural women and their groups and organizations.

Rural women in the Project area also suffer from double working hours. They have a workload that exceeds that of men, including a higher proportion of unpaid domestic responsibilities related to preparing food and collecting firewood and water<sup>53</sup>. In the Northeast, women devote more hours to these activities (23.5 hours), and it is also the region with the greatest inequality in relation to men. The greater dedication to caring for people and/or household chores ends up restricting women's wider participation in the labor market. In Paraíba,

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<sup>51</sup> Source: <https://g1.globo.com/pb/paraiba/noticia/2023/03/06/mulheres-recebem-cerca-de-10percent-a-menos-que-homens-na-paraiba-segundo-dieese.ghtml>.

<sup>52</sup> IBGE. Regional dimensions of the modernization of the Brazilian countryside. Available at: [https://www.ibge.gov.br/apps/atlasrural/pdfs/06\\_00\\_Texto.pdf](https://www.ibge.gov.br/apps/atlasrural/pdfs/06_00_Texto.pdf).

<sup>53</sup> FAO. The role of women in Agriculture. ESA Working Paper No. 11-02, March 2021, <https://www.fao.org/3/am307e/am307e00.pdf>.

women devote an average of 23.9 hours a week to domestic work; 11.5 more than men - above the average difference in the rest of the country<sup>54</sup>.

The activity to be promoted by the Project to provide early childcare and education services (Ciranda das Crianças) will help to reduce women's work overload due to childcare and ensure their participation in the training activities promoted by PROCASE II. The fair division of domestic labor will also be the subject of gender training for beneficiaries. In addition, rural women are more vulnerable than men to environmental and climate challenges because of their social roles, for example as the main collectors of water, food, and firewood in a context where increasing pressure on natural resources and environmental degradation are negatively affecting water and food supplies, because of the discrimination they suffer and their poverty rates<sup>55</sup>. In this context, the Project's investments in social technologies for access to water will also help to reduce the time women spend collecting water.

Violence in rural areas is increasing every year, as shown by the growing number of murders of rural workers<sup>56</sup>. Domestic violence is also dramatic in rural areas and the number of femicides has increased. IPEA data for Paraíba indicates a death rate by femicide of 3.9 women per 100,000 in 2018<sup>57</sup>. In 2023, 4,630 police inquiries were opened in Paraíba to investigate cases of domestic and sexual violence against women, according to the Coordination of Women's Police Stations in Paraíba (Coordeam)<sup>58</sup>. Violence indices show that black women suffer much more physical and psychological violence and are the biggest victims of female murder (femicide)<sup>59</sup>. The lack of facilities in the Network to Combat Violence against Women makes rural women more vulnerable to violence and restricts their access to protection. The prevention of violence against women will be a theme addressed in all the gender training offered by the Project.

#### - Youth<sup>60</sup>

Brazil's Youth Statute (2013)<sup>61</sup> defines young people as those between 15 and 29 years of age. In the Project area, there are 893,666 young people<sup>62</sup>. Among the main challenges faced by rural youth in the Project area are: i) lack of employment and income opportunities (with little diversification of agricultural and non-agricultural activities that attract young people), ii) lack of access to and control over resources, inputs, goods and technologies, iii) limited access to public policies and services and iv) low participation and decision-making power in rural and community organizations.

In Paraíba, among young people aged 15 to 29, approximately 35.1% were neither studying nor working in 2021, according to the Synthesis of Social Indicators 2022. Young women of African descent have a higher percentage out of school and the job market. Household chores and caring for family members are among the main barriers young people face in continuing their studies or getting a paid job, and young women are the

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<sup>54</sup> IBGE (2022). Continuous PNAD. <https://g1.globo.com/pb/paraiba/noticia/2023/08/11/mulheres-dedicam-239-horas-semanais-aos-afazeres-domesticos-115-a-mais-que-os-homens.ghtml>.

<sup>55</sup> UN Women Watch. Rural Women. Overview: Climate Change. <https://www.un.org/womenwatch/feature/ruralwomen/overview-climate-change.html#:~:text=Rural%20women%20are%20disproportionately%20impacted%20by%20climate%20change,sustainable%20development%20and%20effective%20responses%20to%20climate%20change>.

<sup>56</sup> The Report "Conflicts in the Countryside Brazil 2022" by the Pastoral Land Commission (CPT) shows that the number of conflicts in the countryside has increased from 804 cases in 2013 to 1500 in 2022; in 2022 alone 47 murders were recorded compared to 35 in 2013. Source: CPT. Conflicts in the Countryside Brazil 2022. <https://cptnacional.org.br/publicacoes-2/destaque/6354-conflitos-no-campo-brasil-2022>.

<sup>57</sup> IPEA (2020). Atlas of Violence. Available at: <https://forumseguranca.org.br/wp-content/uploads/2020/08/atlas-da-violencia-2020.pdf>.

<sup>58</sup> <https://g1.globo.com/pb/paraiba/noticia/2024/03/09/violencia-contra-a-mulher-na-pb-acontece-principalmente-em-casa-por-pessoas-conhecidas.ghtml>.

<sup>59</sup> It should also be borne in mind that there is an underreporting of female homicide rates. Source: <https://portal.fiocruz.br/noticia/homicidios-de-mulheres-no-brasil-aumentam-3146-em-quase-quatro-decadas>.

<sup>60</sup> For more information on the topic of Youth, see the annex "Technical Report. Diversity Diagnosis of the PROCASE II Project Implementation Area" (Alexandra Teixeira, March 2024).

<sup>61</sup> Available at: <https://www.gov.br/mdh/pt-br/navegue-por-temas/juventude/publicacoes/estatuto-da-juventude-2022-defeso.pdf>.

<sup>62</sup> IBGE, 2022. Demographic Census.

majority in this situation. Another important causal factor is the high rate of teenage pregnancy. Between 2020 and 2022, 12,830 pregnancies in children and adolescents aged 10 to 18 were recorded in Paraíba, according to the State Health Department<sup>63</sup>.

As a consequence of the lack of sustainable study and formal work opportunities for young rural people, there is a process of migration to urban centers, mainly of young women with more schooling, which causes the aging of the rural population (the largest group of migrants is between 16 and 35 years old) and a decrease in the proportion and number of women (CAMARANO; ABRAMOVAY, 1999). The phenomenon of young women being the ones who leave the countryside the most is related not only to a lack of opportunities, but also to a refusal to take on the same roles played by their mothers and grandmothers in the family production unit<sup>64</sup>. In the case of young women, the invisibility and devaluation of the workforce, in caring for children and household chores, and in family farming, are also among the factors that encourage the desire of younger women to leave the countryside and will therefore be addressed during the Project's Gender Training sessions. Comparing the 2006 Agricultural Census and the 2017 Census, the young rural population under the age of 25 fell by 49.7%<sup>65</sup>.

Among the factors that influence staying in rural areas are access to financial resources, education/training suited to the characteristics of rural areas, appreciation of rural lifestyles, the availability of services and conditions that can offer the possibility of success in agricultural production (LIMA, 2013). However, in rural Paraíba, young people who decide to stay in the countryside have limited access to and control over resources, inputs, goods, and technologies. The indicators for access to land and credit confirm this.

In the Project area, only 9.9% of family farms are run by young people under the age of 35<sup>66</sup>, indicating low access to land. When they marry, few of them are able to acquire a new property and what often happens is that the family property is divided into smaller plots for the children, which further reduces the productive potential and profitability of agricultural activities. It should be noted that there are gender tensions in inheritance patterns, which disadvantage young rural women.

Access to credit is very limited in the Project area (see paragraph on the subject, above). Although data on access to credit is not available disaggregated by generation, it can be inferred that access to credit by young people is even more limited. The PRONAF Youth program, which was created to facilitate young rural people's access to credit, creating the conditions to enable rural succession processes in FF, still has a very small number of contracts signed in relation to the proportion of the young rural population. Among the causes of this low level of access is misinformation, the lack of institutions for training young farmers, the difficult bureaucratic requirements that restrict the signing of credit contracts, and the fact that bank agents often assume that young people's inexperience in managing resources will lead them to default<sup>67</sup>.

However, access to technical knowledge is higher among young people under 35 than the average among family farmers in the Project area. The quantitative evidence available from the 2017 Agricultural Census indicates that, among young FF managers (under 35), 18.5% received TA compared to 16.8% of all family farmer managers. Despite the higher percentage of access, it can still be said that access to TA among young people is limited. Breaking it down by gender, access to TA was 18.1% among young women and 18.6% among young men, so there was a small access gap of 0.1% between young male and female managers.

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<sup>63</sup> Available at: <https://g1.globo.com/pb/paraiba/noticia/2022/02/01/paraiba-registra-mais-de-125-mil-casos-de-gravidez-em-criancas-e-adolescentes-entre-2020-e-2022.ghtml>.

<sup>64</sup> SILVA, Luciana Porto da. "Female youth in the rural Northeast: an analysis of the process of permanence based on the Census (1980-2010) and PNAD (1992-2015)." (2018). Available at: [https://repositorio.unb.br/bitstream/10482/32747/1/2018\\_LucianaPortodaSilva.pdf](https://repositorio.unb.br/bitstream/10482/32747/1/2018_LucianaPortodaSilva.pdf).

<sup>65</sup> IBGE (2006). Agricultural Census; IBGE (2017). Agricultural Census.

<sup>66</sup> Although the Youth Statute defines young people as those aged between 15 and 29, the data from the 2017 Agricultural Census is not broken down by age group. In this context, it was decided to use the information available for those under 35 as an approximation.

<sup>67</sup> CMAP. Evaluation Report: National Program to Strengthen Family Farming - 2020 cycle. Available at: [https://www.gov.br/economia/pt-br/acao-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio\\_avaliacao-cmas-2020-pronaf.pdf](https://www.gov.br/economia/pt-br/acao-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/2020/subsidios/relatorio_avaliacao-cmas-2020-pronaf.pdf). MARIN, Joel Orlando Bevilaqua. Pronaf Jovem: the disjunctions between the ideal and the real. *Revista de Economia e Sociologia Rural*, 2020, 58: e187438. Available at: <https://www.scielo.br/j/resr/a/PTkqtrfFmF3Pq4cWvwmBhxR/>.

During the field visits carried out during the PROCASE II design mission, an additional growing problem faced by rural youth was identified - vulnerability to violence associated with drug trafficking.

- *Diversity*<sup>68</sup>

*Indigenous Peoples and Traditional Communities.* Indigenous peoples and quilombola communities<sup>69</sup> are particularly vulnerable due to the historical dynamics of exclusion, high dependence on natural resources, marginalization of their ways of life, exclusion from the formulation of and access to public policies and poor access to services, including health, education, sanitation, infrastructure, and technical assistance services.

In Paraíba, the Indigenous Lands (TI) are located in the coastal region. The Potiguara, with a population of approximately 19,000, are concentrated in three TIs (CARDOSO; GUIMARÃES, 2012) located in 3 municipalities in the Mata Norte region<sup>70</sup>. In the Mata Sul region, there is a population of approximately 750 Tabajara indigenous people, but there are still no Indigenous Lands in this region. On the other hand, the 2022 Demographic Census recorded a population of 16,584 quilombola inhabitants in 6,127 households in the entire state of Paraíba. These population figures include all the inhabitants recognized as quilombolas - both those who live and those who do not live in officially delimited Quilombola Territories (IBGE, 2023).

According to data provided by INCRA's state superintendence, there are 47 quilombola communities in Paraíba with recognized certificates of self-definition. However, according to information released by the IBGE and the Federal Public Prosecutor's Office, only 11 have officially delimited territory and none have title deeds<sup>71</sup>. There are also traditional Romani populations, artisanal fishers, and shellfish gatherers in the state.

This population is impacted by the combined effects of various forms of discrimination, including gender, race, and socioeconomic conditions. Root causes of this exclusion are the marginalization of traditional ways of life and structural racism. Afro-descendant and PCT populations face even greater obstacles than family farmers in participating in decisions that affect their territories and in fully realizing their rights, with significant gaps in inclusion in terms of poverty, food insecurity, access to education, technical assistance, and land<sup>72</sup>.

In 2023, 67.9% of quilombolas and 73.1% of indigenous people were in poverty or extreme poverty<sup>73</sup>, an average higher than the average percentage of poverty in Paraíba (53.9%). In 2022, 33 million Brazilians were hungry (severe food insecurity), and food insecurity was more prevalent among people of African descent (reaching 6 out of every 10 households whose heads of household identify as black or brown), with Afro-descendant women being the most vulnerable (REDE-PENSSAN, 2022b). In terms of education, among the population of white family farmers in the Project area, illiteracy reached 39.9% of those responsible for FF establishments, while among Afro-descendants, it reached 48.1%<sup>74</sup>. Regarding access to Technical Assistance, among white family farmers, 7,694 accessed TA (17.7%), and among Afro-descendants, 12,961 or 16.1% of the total. The gap between white and Afro-descendant leaders in access to TA is 1.6 percentage points, equivalent to 9.9%. Furthermore, among white family farmers, 77.7% have title deeds, among indigenous

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<sup>68</sup> For more information on the topic of Diversity, see the annex "Technical Report. Diversity Diagnosis of the PROCASE II Project Implementation Area" (Alexandra Teixeira, March 2024).

<sup>69</sup> Quilombolas are descendants of slaves who resisted the slave regime and have their own cultural identity and values, religious beliefs and means of subsistence.

<sup>70</sup> The Potiguara villages make up three contiguous Indigenous Lands (TI), which total 33,757 hectares: i) TI Potiguara (population 8,109), ii) TI Jacaré de São Domingos (population 449) and iii) TI Potiguara de Monte Mór (population 4,447). These TIs are located in the municipalities of Baía da Traição, Rio Tinto and Marcação. [Ref. CARDOSO, T. M.; GUIMARÃES, G. C. (ed.). Etnomapeamento dos Potiguara da Paraíba. Brasília: FUNAI/CGMT/CGETNO/CGGAM, 2012. 107 p.

<sup>71</sup> Sources: (i) IBGE. **Demographic Census 2022. Quilombolas. First results of the universe.** Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (ii) Link:

<https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

<sup>72</sup> Conclusions from the analysis of data from the Diversity Diagnosis drawn up during the design of PROCASE II.

<sup>73</sup> Single Registry, November 2023.

<sup>74</sup> IBGE (2017). Agricultural Census.

farmers, only 44.6% and among Afro-descendants, 70.3%<sup>75</sup>. It should be noted that none of the quilombola communities in Paraíba have land titles<sup>76</sup>.

*Persons with disabilities.* The Northeast is the region with the highest percentage of persons with disabilities in Brazil: 10.3% of the population or around 5.8 million people<sup>77</sup>. The highest percentages of persons with disabilities are women and people of African descent. According to data from the Single Registry (November 2023), there are 144,655 persons with disabilities in the Project area, or around 5.6% of those registered.

Disability and poverty are intricately linked in Paraíba, with persons with disabilities facing significant stigma and discrimination. For example, this group has lower success rates at school and more limited access to economic activities, both of which are major factors contributing to family poverty. In the state, 88.7% of persons with disabilities do not work and 74.4% earn less than the minimum wage<sup>78</sup>.

Persons with disabilities face many challenges throughout their lives. Children with disabilities dropping out of school is a serious problem across the country. There is a relatively high number of female-headed households receiving the main tax-funded disability benefit in Brazil, the Continuous Social Assistance Benefit, and this may be related to the high drop-out rate of fathers/husbands in families that have a child with a disability as a member. The data highlights that persons with disabilities do not achieve parity with their non-disabled peers at any level of education. This puts them at a significant disadvantage in a competitive job market. In Paraíba, 24.92% of persons with disabilities are not literate, 37.48% have only primary education and only 4.07% have higher education<sup>79</sup>.

There are some additional gender dimensions that have an impact on the challenges that persons with disabilities face. For example, women and girls with some forms of disability are at high risk of abuse, and this is especially the case for those with cognitive disabilities. Furthermore, until the Brazilian Inclusion Law (2015) was enacted, it was still routine for women with cognitive disabilities to be sterilized without consent. Caring for persons with disabilities also has a significant gender dimension. In general, women face the double burden of needing to both earn money and provide care, but this burden is only exacerbated when family members are also disabled. It should also be noted that disabled women can also have a disproportionate burden of care placed on them, as they can still be expected to care for other members of their family.

*LGBTQIAPN+ population*<sup>80</sup>. The absence of government data on the socioeconomic and political challenges faced by the LGBTQIAPN+ community is indicative of the statistical invisibility and marginalization of this group. The lack of a social assistance policy, the rural exodus of the LGBTQIAPN+ population to urban centers, the lack of family support, limited access to income and low employability in the countryside, the difficulty of staying in the school environment due to prejudice, especially from the trans population, are some of the factors that favor maintaining the invisibility of data on the LGBTQIAPN+ population in rural areas.

Throughout Brazil, the LGBTQIAPN+ population has been victimized by different forms of LGBTIphobia, placing this group in a situation of vulnerability because they do not fit into a socially referenced heteronormative pattern. Brazil is an extremely unsafe country for this population, as indicated by the upward trend in the number of violent deaths of LGBTQIAPN+ people over the last two decades. Between 2000 and 2022, 5,635 (five thousand six hundred and thirty-five) people died as a result of gender prejudice and intolerance. In 2022, there were a total of 273 deaths of LGBTQIAPN+ people, a national average of 1.31 deaths per million people<sup>81</sup>.

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<sup>75</sup> Idem.

<sup>76</sup> Sources: (i): IBGE. **Demographic Census 2022. Quilombolas. First results of the universe.** Rio de Janeiro: IBGE, 2023. 99 + Appendices p. Available at: <https://biblioteca.ibge.gov.br/visualizacao/livros/liv102016.pdf> and (ii) Link: <https://www.mpf.mp.br/pb/sala-de-imprensa/noticias-pb/mpf-incra-e-comunidades-quilombolas-discutem-desafios-na-regularizacao-de-suas-areas-na-paraiba>

<sup>77</sup> IBGE (2022). Continuous National Household Sample Survey.

<sup>78</sup> PCD CENSUS (2023). Available at: <https://wemp.com.br/censo/#>.

<sup>79</sup> Idem.

<sup>80</sup> Meaning of LGBTQIAPN+: Lesbian; Gay; Bisexual; Transgender; Queer; Intersex; Asexual; Pansexual; non-Binary, + other identities/orientations

<sup>81</sup> Observatory of LGBTI+ deaths and violence in Brazil. Dossier 2022: Deaths and violence against LGBTI+ people in Brazil. Available at: [Dossie-de-Mortes-e-Violencias-Contra-LGBTI-no-Brasil-2022-ACONTECE-ANTRA-ABGLT.pdf](https://www.observatorio.org.br/dossie-de-mortes-e-violencias-contra-lgbti-no-brasil-2022-acontece-antra-abgl.pdf).

Most deaths occurred among young people aged between 20 and 29 and the Northeast region had the highest absolute number of violent deaths. It is possible to relate the number of LGBTQIAPN+ deaths in each Brazilian macro-region to the social, economic, and cultural conditions of these spatial units. The Northeast, for example, has historically had lower socioeconomic indicators, such as income, schooling, access to public services and life expectancy, than the rest of the country, and has a significantly vulnerable population. Among the states, those with the highest number of deaths were Ceará (34), São Paulo (28) and Pernambuco (19). According to the Observatory of LGBTI Deaths and Violence in Brazil, 8 violent deaths of LGBTQIAPN+ people were recorded in Paraíba in 2022.

Paraíba registered a total of 68 cases of violent deaths of the LGBTQIAPN+ population between 2017 and 2022, according to data released in a report by the Secretariat for Women and Human Diversity. In total, 24 municipalities in Paraíba recorded cases. João Pessoa has the highest number of cases, with 29 crimes, followed by Campina Grande and Bayeux, with five cases each, and Patos was in third place, recording four crimes. Gay men represent the largest number of murders in Paraíba, leading with 17 of the 29 cases between 2020 and 2022, followed by transvestites who represent six cases in the same period, and in third place are transgender women, with 4 crimes.

Partial data for 2023 from the Observatory of LGBT Deaths and Violence in Brazil, from January to April, totaled 80 deaths. To date, transvestites and trans women account for 62.50% of the total deaths (50); gay men account for 32.50% of the cases (26 deaths); trans men and transmasculine people, 2.50% of the cases (2 deaths); lesbian women account for 2.50% of the deaths (2 deaths); no cases against bisexual people and people identified as other segments have been identified<sup>82</sup>.

– *The shortcomings and potential of Knowledge Management, South-South and Triangular Cooperation actions.*

When it comes to designing policies, programs or projects aimed at tackling the challenges of poverty, environmental sustainability and resilience to climate change, there is a lack of relevant information available on experiences of promoting/supporting inclusive sustainable rural development. In recent years, in Paraíba, PROCASE I began systematizing experiences in an attempt to compensate for this lack, with the production and subsequent circulation of a set of products (documents, audio pieces, etc.) which recorded and disseminated relevant knowledge about the work carried out in the Cariri, Curimataú and Seridó territories in the semi-arid region of Paraíba. In parallel, other IFAD-supported projects in the Brazilian Northeast have also begun to work in the same direction.

The idea of South-South cooperation<sup>83</sup> and triangular cooperation<sup>84</sup> is part of this set of initiatives related to the circulation of knowledge between countries in the South, including the funding bodies themselves.

In this context, a Knowledge Management initiative transversally strengthens the implementation of all project components, ensures that knowledge gaps are closed and that good practices, lessons learned, and innovations are disseminated and scaled up, as well as facilitating the impact on public policies. To be effective, PROCASE II must make use of the best and most relevant knowledge available on strategic topics for the implementation and achievement of its objectives, based on evidence and practical experience from sources both internal and external to the Project.

Thus, Knowledge Management (KM) should play a key role in building individual and institutional capacities so that the actors supported learn and can adapt their interventions when necessary. It is also a key tool for

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<sup>82</sup> See link: <https://observatoriomorteseviolenciaslgbtibrasil.org/dossie/mortes-lgbt-2022>

<sup>83</sup> The United Nations defines **South-South Cooperation (SSC)** as "a process by which two or more developing countries pursue their individual and/or shared capacity development objectives through the exchange of knowledge, skills, resources and technical expertise, and through collective regional and inter-regional actions, including partnerships involving governments, regional organizations, civil society, academia and the private sector, for their individual and/or mutual benefit within and between regions". Cf. Link: <https://www.ilo.org/brasilia/temas/south-south/lang-pt/index.htm>.

<sup>84</sup> **Triangular South-South Cooperation (TSSC)** is defined in the same document by the United Nations as South-South cooperation supported by a developed country or a multilateral organization. Today, TSSC is an important form of development cooperation. See same link as above

measuring and demonstrating the relationship between learning and better development results. KM is also justified as a means of ensuring that beneficiaries, technicians, Project staff and other actors involved in implementation access, use, and share the knowledge, good practices and innovations needed for greater impact in promoting sustainable and inclusive rural development.

– *Crucial challenges*

The socioeconomic and environmental vulnerability portrayed here, coupled with the climate changes that are looming for the semiarid region, aggravate the negative cycle caused by the deficiencies pointed out in production systems and, especially in the semiarid region, in the management of water resources. This process puts the water supply of the population as a whole at risk, as well as jeopardizing the production of both crops and livestock. In this respect, it can be said that many family production systems in Paraíba are in crisis and that this process feeds social and environmental degradation processes, which induces or reinforces the impoverishment of rural families and ecosystem services.

Breaking this vicious circle is a central challenge. Tackling it will require decisive and urgent action on a scale that makes it possible, through the implementation of investments and the development of the capacities of beneficiary families, to introduce new practices and guarantee support services, with the aim of transforming current systems with the implementation of systems that are both more productive and more resilient.

– *Lessons from previous projects*

In the experience of previous sustainable rural development projects, including PROCASE I, the development of new capacities was key to the success and sustainability of the actions supported (PROCASE, 2021). It has made it possible to strengthen social and productive organizations, increase the visibility and inclusion of young people, women, PCTs and indigenous people, and implement investments that have enabled the incorporation of technological innovations and the expansion of the productive capacity of family units and supported associative and cooperative ventures. It has also made it possible to start new activities, manage family production units more efficiently and reach markets in better conditions. It has also made it possible to better manage environmental resources, as well as to expand interaction with the state via increased access to public policies or political advocacy, using new skills that remain after the projects have ended. We will cite here the example of the Dom Hélder Câmara II Project, implemented by the Federal Government, with financial participation from IFAD, from 2014 to 2022. This project served people living in extreme poverty in several states in the Northeast region. The PDHC succeeded in bringing technical assistance to these farmers, generating a positive and significant impact on their production, both in terms of the portion destined for the family's livelihood and the marketed surpluses (DELGROSSI; VIEIRA; AVILA; PERAFÁN *et al.*, 2024). PROCASE II will take all this experience into account.

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## Diagnosis - PROCASE II

### ANNEX A

#### **On goat and sheep farming in the northeastern semiarid region and the need to increase forage availability and improve feed management for these herds**

Pablo Sidersky

Goat and sheep farming in the Brazilian semiarid region relies mainly on two central pillars: the herd and the fodder resources that will support it. In general, during the field visits, the latter theme came up constantly, almost always as a major problem, in conversations with all the actors. The issue of the 'great drought' that has punished the region so much in recent years has a direct correlation with this issue.

According to regional studies on goat and sheep farming, the scarcity of food - especially in the period from the second or third month of dry weather until the vegetation fully regrows with the arrival of the rains - is the main problem for family goat and sheep farming systems throughout the semiarid northeastern region of Brazil (ANA-FBB-BNDES, 2018; SEBRAE/PI, 2002; SIDERSKY, 2017). This is fully confirmed in various regional studies<sup>85</sup>: among the various problems identified, the problem of feeding the herd is particularly prominent.

As a starting point, it is important to note that in family farming, goat farming is only viable if all or at least a substantial part of the herd's feed is produced on the farm itself. This statement stems from another premise, which says that raising animals (mainly ruminants) is the only way to transform the biomass produced on the property into a useful product (i.e., energy and protein, food, and income) (SEBRAE/PI, 2002). In this context, we can say that practically all production units have an urgent need to increase fodder production and improve the use of this resource.

Let us remember that production units use different sources of fodder, including areas of Caatinga / native pasture, grass cultivated for trampling and various types of fodder crops (which can be annual or multi-annual). We understand that through the work of various social actors involved in the subject - among which we will highlight the contributions of research as well as technicians and breeders - ideas/proposals are emerging that should make it possible to increase forage production in many ways. We will discuss some of them below.

#### – On the various sources of fodder

Traditionally, the natural vegetation of the northeastern semiarid region forms the food base for goats and sheep. Firstly, mention should be made of the 'raw' Caatinga, i.e., the flora native to these regions, which is arboreal and shrubby, predominantly xerophilous and therefore well adapted to the region's characteristic water deficit (ARAÚJO FILHO, 2013). However, capoeira - which is the vegetation of the Caatinga in the process of natural regeneration - is also widely used, and can be in various stages, from initial to advanced, in which the natural vegetation once again approaches climax<sup>86</sup>.

It is worth remembering that the Caatinga has an uneven supply of fodder throughout the year, with the most in the watery season and decreasing for a while after the end of the rains until it becomes very scarce at the end of the dry season. From the time when agricultural cultivation spread across the Semiarid (a process that

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<sup>85</sup> For example, in addition to the aforementioned study on Piauí, we will mention the study of the Sertão do São Francisco Territory in Bahia (ANA-FBB-BNDES, 2018).

<sup>86</sup> Farmers and technicians often refer to areas of 'native pasture' as a source of fodder. In reality, this 'native pasture' is nothing more than more or less open grassland, usually at an early stage of regeneration.

was largely stimulated by the expansion of cotton cultivation), the sertanejo farmer began to use the swidden (mainly crop remains) to provide supplementary food for the herd during the dry season.

More recently, fodder crops have appeared, with the aim of increasing the overall production of food for the herd in the production unit. Among the first of these is the forage palm<sup>87</sup>, a cactaceous plant that came from Mexico over a century ago and can be found in many corners of the Semiarid. Over time, and with a growing demand for fodder, other fodder crops appeared. Grasslands began to be planted for the sole purpose of producing fodder: maize came to serve this purpose in some cases, and new crops such as sorghum or millet were introduced. Wetter areas began to be planted with cutting grasses, such as elephant grass<sup>88</sup> or napier and fodder cane. The most recent idea, in this quest to maximize forage availability, is the installation of cultivated trampling grasses. In the latter case, the prevailing practice is to completely replace the Caatinga with a monoculture of species that produce (or should produce) good quality fodder in quantity. One of the most common species for this type of use is buffel grass<sup>89</sup>.

– The search for intensification<sup>90</sup> of forage production

This development is closely related to the broader process of intensification of production units in the hinterland, linked to the increase in the density of occupation, the size of the herds and the spread of fenced areas appropriated on an individual basis, with the concomitant disappearance of the old system of open space farming. This intensification is already having an impact on animal farming, including changing the composition of herds, with a significant increase in sheep farming to the detriment of goat farming (GUIMARÃES FILHO; GAMA DA SILVA; AZEVEDO, 2011).

Thus, in many municipalities in the northeastern semiarid region, the areas of 'raw' Caatinga are almost gone, with areas of (often very poor) capoeira in their place. In some municipalities, there are large areas planted with buffel grass, in a monoculture model. The algaroba<sup>91</sup>, a tree from Peru that produces a pod much appreciated by animals, has also been introduced to the region. Perhaps this was not the initial plan, but this species has spread throughout the region thanks to its invasive habit. Although some consider it a 'pest', many breeders have the highest regard for algaroba, precisely because of its fodder production. On the other hand, in many regions, farmers have managed to plant areas of forage palm. But in vast areas of the northeast, this palm has been decimated by the carmine cochineal. What is more, it is increasingly common to find an irrigated area in production units used to produce 'food for the animals', usually planted with elephant grass.

– The crisis of the last drought

In recent years, the very scarce rainfall has highlighted various problems in the forage system of goat and sheep farmers. For example, the drought has shown that palm is sorely lacking. For this reason, in the regions where the palm has been decimated, many farmers are looking for 'rackets' of varieties resistant to the carmine mealybug and are working to reconstitute their areas planted with this crop. Some have started growing this species with irrigation. Of course, this process of revitalizing oil palm areas is slow.

The importance of an irrigated or 'wet' area has also become even clearer, and it can be seen that these areas are multiplying, based on different types of water source. Tubular wells are multiplying on the properties, but not all of them have this possibility. On the other hand, many of the 'wet' areas (such as those created from reservoirs or underground dams) are also sensitive to very dry years, in which they produce little or nothing.

Finally, there is the situation of areas planted (exclusively) with trampling grass, usually buffel grass. Although this species is quite drought-resistant, the combination of its continued use and the scarcity of rainfall has

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<sup>87</sup> Fodder palm: *Opuntia sp.*

<sup>88</sup> Elephant grass: *Pennisetum purpureum* Schum

<sup>89</sup> Buffel grass: *Cenchrus ciliaris* (L)

<sup>90</sup> In this context, we understand this term to mean greater forage production per unit area, or even greater forage production in the production unit.

<sup>91</sup> The algaroba found in the region is the *Prosopis juliflora* species.

meant that many of these areas are intensely degraded. Seeing these areas in a critical situation raises some questions about the proposal itself. Quoting the testimony of a farmer from Piauí, who said that his areas of Caatinga produce more food for his animals than a similar area of buffel grass (SIDERSKY, 2017). The question arises: can this opinion have a solid scientific basis? Even without going to the extreme of questioning the choice of buffel grass itself, it is worth asking whether it was necessary to adopt the monoculture model, when it has been known for a long time that maintaining a tree cover of, for example, 20% (approximately 200 trees per hectare) does nothing to reduce the production of the herbaceous layer, even when it is a cultivated species (ARAÚJO FILHO, 2013).

- Recent innovations: more production and, hopefully, more sustainability

### Management of the Caatinga

As already mentioned, the Caatinga is, and will continue to be, an important food resource for raising goats and sheep in the northeastern hinterlands. It contains a large number of forage species, many of which have a good nutritional content. However, the availability of forage in the Caatinga is relatively low for various reasons, both in winter and during the dry season. It is also known from the research carried out and the experience gained by various breeders that it is possible to change this situation. By using various techniques to manipulate the Caatinga - thinning, lowering, enrichment - it is possible to significantly increase the availability of useful forage in the Caatinga. We would also stress that these techniques for managing the Caatinga are not just ideas or proposals from researchers. They have been successfully applied in various communities, including the Moacir Lucena settlement in Rio Grande do Norte<sup>92</sup>.

As the search for ways to increase forage production on goat and sheep farms is currently crucial, we believe that it would be extremely useful to introduce these practices for manipulating the Caatinga where this is not yet the case, to assess their adaptability in the region studied. If they prove useful, an effort should be made to support their dissemination.

#### The caatinga as a forage resource

In the words of Professor João Ambrósio, the Caatinga "is characterized by a biodiversity that is surprising for the floras of semiarid areas, and stands out for having a large contingent of botanical forage species in its herbaceous, shrub and tree strata. However, the availability of fodder in any season is low, either because of the height of the tree canopy in the rainy season or because of the low nutritional value of the fodder available in the dry season". However, the extensive research carried out on this resource, as well as the actions of various farmers, show that it is possible to change this situation. To do so, it is possible to intervene with "vegetation management techniques, with alterations to the architecture and/or changes to its floristic composition, enrichment of the herbaceous, shrub and tree strata and changes to increase and stabilize the floristic composition of the herbaceous layer, with a view to increasing the availability and improving the quality of the forage produced" (ARAÚJO FILHO, 2013) (p. 130). The use of these techniques to manipulate the vegetation of the caatinga makes it possible to modify the availability of useful fodder substantially, as can be seen in the table below.

Table A. Dry matter production at the different levels of Caatinga manipulation

Level of manipulation	Production (Kg. DM/ha/year)	Phytomass distribution		Grazable phytomass (%)	Wood cover (%)
		Woody %	Herbaceous (%)		
C. Native	4.000	90	10	10 (400 kg)	30 - 100
C. lowered	4.000	60	40	40 (1,600 kg)	50 - 60
C. grated	4.000	20	80	60 (2,400 kg)	30 - 40
C. enriched	4.000	10	90	90 (3,600 kg)	10 - 15

Source: Adapted from (ARAÚJO FILHO, 1992; ARAÚJO FILHO; CRISPIM, 2002). In: (PEREIRA FILHO; SILVA; CÉZAR, 2013)

### Pasture grasses: seeking alternatives to monoculture

<sup>92</sup> For more information on the Moacir Lucena settlement, see (SIDERSKY; JALFIM; RUFINO, 2008).

As has been said, in many regions of the semiarid region there is a strong presence of trampled grass<sup>93</sup>. Although this type of pasture can provide good forage production (under favorable soil and climate conditions), it often has a strong tendency to degrade, largely due to its installation as a monoculture. There is an alternative, which consists of installing a different design of trampling grasses, which is being worked on by researchers at EMBRAPA Goats and Sheep: the "Caatinga enrichment" method. The backbone of this proposal is diversification. It comprises an arboreal layer (including native Caatinga species, but also exotic legumes such as leucena<sup>94</sup> and gliricidia<sup>95</sup>) and a 'multi-species' herbaceous layer (with native species, buffel grass, gramão grass<sup>96</sup> and others). It is said that it is possible to obtain fodder yields similar to those of buffel monoculture under privileged conditions with this method, and the presence of several species reinforces its sustainability.

Similarly, to the case of Caatinga management in the previous section, it would be very important to begin work on setting up test areas for this type of trampled grass area. If successful, these test areas will serve as a reference for broader work to renovate old buffel areas and install new areas of trampled grass that are more diverse and sustainable.

#### **Looking for alternatives to buffel grass monoculture**

In many regions of the north-eastern semiarid region, there is a strong presence of buffel grass. This grass produces a significant amount of dry matter (DM) - from 3.7 to 6.7 tons per hectare (OLIVEIRA, 1993; OLIVEIRA, 2012) - but it has tended to degrade, largely due to its installation as a monoculture.

Researchers at EMBRAPA Goats and Sheep propose an interesting alternative for installing trampling grasses, which they call "caatinga enrichment". In this case, the "*application of the method begins in the dry season with the thinning of the woody vegetation, preserving 150 to 200 trees per hectare, which will correspond to a cover of 15% to 20%. This percentage of shading will not interfere with the growth and development of the exotic or highly productive native species to be introduced*" (ARAÚJO FILHO, 2013) (p. 141).

Enrichment can be done with grasses such as buffel grass. Leguminous trees such as leucena and gliricidia can also be introduced. Enrichment can change total DM production, increasing it from 4,000 to 8,000 kg/ha/year (in a caatinga enriched with buffel grass). Of this phytomass, 6,400 kg becomes available fodder. This allows for a carrying capacity of 10 head of goats and sheep/hectare/year, which is a dramatic change from the starting point of the carrying capacity of the caatinga without manipulation (Idem, p. 142).

#### *Fodder crops*

It has already been said that it is becoming increasingly common to grow forage species, often for the purpose of making hay or silage, or to cut and feed animals in the trough. Sometimes these 'forage fields' are irrigated. In these cases, as already mentioned, the production of cutting grasses such as elephant grass or fodder cane is frequent. Recently, the use of irrigation (or 'sub-irrigation') has become more frequent with oil palm<sup>97</sup>.

In other cases, these 'forage fields' are rainfed, often cultivated with corn and/or sorghum. However, the question is whether these are the best options for the various Semiarid regions. It is in this context that the choice of forage species for cultivation becomes an important strategy, aiming for greater forage production per unit of available water (ARAÚJO; VOLTOLINI; NOGUEIRA TURCO; RIBEIRO PEREIRA, 2011). Some researchers have introduced the concept of "water use efficiency of different forage crops". Measured in kg of DM (dry matter) per mm. per year or by water consumption per unit of DM produced, studies show that sorghum, for example, is twice as efficient as corn in terms of water consumption per unit of DM produced.

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<sup>93</sup> Buffel grass is a common species. But there are others. For example, in the Senhor do Bonfim region of Bahia, the preferred grass for trampling seems to be urochloa grass (*Urochloa mosambicensis* (Hack.) Dandy).

<sup>94</sup> *Leucaena* (*Leucaena leucocephala*)

<sup>95</sup> Gliricidia (*Gliricidia sepium*)

<sup>96</sup> Crabgrass (*Cynodon dactylon* cv Callie)

<sup>97</sup> By the way, since the palm doesn't need much water, it could be very interesting to try planting this crop together with a production cistern (for example, a 52-meter cistern<sup>3</sup>, a sidewalk cistern or a rainwatercistern).



(SILVA; REGITANO NETO, 2019). In turn, other references indicate that there are other species, such as agave (or sisal) and palm, which are even more efficient than sorghum in terms of water use (DE KOCK, 2001) apud (ARAÚJO; VOLTOLINI; NOGUEIRA TURCO; RIBEIRO PEREIRA, 2011).

The characteristics of the region - limited water, marked seasonality - mean that the search for efficient food sources is a major challenge. Finding native or adapted species that can become economically viable sources of cultivated fodder is an important objective to strengthen goat and sheep production systems. Here we will mention a number of species - several of which are native to the Caatinga - that could play a role in this process<sup>98</sup>: maniçoba, manioc, pornunça, silk wool, wild beans, jureminha, faveleira, forage palm, forage watermelon, leucena, glicirídia, sisal<sup>99</sup>. Species such as pustumeira, catingueira, camaratuba<sup>100</sup> and others could also be used as native plants with good fodder potential for cultivation in dryland conditions<sup>101</sup>. The cultivation of native species with high fodder value has only been tested for a short time, but it appears to be a promising idea, considering both the need to produce more fodder and the aforementioned logic of being as efficient as possible in the use of water. There are even farmers who are implementing the practice of harvesting material from native trees and shrub species for storage in the form of hay or silage (BAKKE; PEREIRA FO.; BAKKE; CORDÃO, 2010).

We believe that these innovative 'forage plots' and these new uses of the Caatinga can be extremely useful for all farmers. These innovations should be especially important for production units with little available land. Therefore, when thinking about ways to improve family systems for raising goats and sheep, it would be important to start work on installing alternative 'fodder plots' where this does not exist, which can be added to those that already exist (for example, corn or sorghum). At the same time, it is extremely important that farmers significantly expand the area dedicated to forage crops.

#### *Fodder conservation*

In the Semi-arid, it is during the rainy season that green mass is produced. Increasing this production, as discussed in the paragraphs above, is important. But it is also crucial to conserve some of the forage produced to provide food for the herd when it is scarcer in the dry season. For this, the practices of haymaking and silage are very important.

In fact, these practices are already well known in the region. But it is important to encourage their wider use, and the existence of more raw material (green fodder) being produced in the family unit should be an incentive for this. A wider dissemination of these practices will allow an important part of the additional forage produced in the rainy season with the above-mentioned proposals to be supplied to the herd in the dry season.

#### – Finally

Returning to the introductory paragraph and the theme of this short document, we can conclude here that, among the various problems experienced by goat and sheep farmers in the region, the issue of feeding the flock is particularly important. In this sense, Guimarães Filho summarizes this issue when he states that, "*the scarcity of food for the flocks during dry periods is the main technical limiting factor for family-based goat and sheep farming systems in the semi-arid region*" (GUIMARÃES FILHO, 2011). The pages written here are intended to provide food for thought as well as practical solutions to this issue.

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<sup>98</sup> For more information, see (MORAES; COSTA; ARAÚJO, 2011).

<sup>99</sup> Maniçoba (*Manihot pseudoglaziovii*), manioc (*Manihot esculenta*), pornunça [natural hybrid of maniçoba and *manioc*: *Manihot esculenta* Cranz x *Manihot glaziovii*], silkwool (*Calotropis procera*), wild bean (*Capparis cynophallophora*), jureminha (*Desmanthus virgatus* m), faveleira (*Cnidoscolus phyllacanthus* (Mart.) Pax et K. Hoffm.), forage palm (*Opuntia* sp. or *Nopalea* sp.), forage watermelon (*Citrillus lunatus* cv. *citroides*), sisal (*Agave sisalana*).

<sup>100</sup> Pustumeira (*Gomphrena elegans* Mart. Var. *elegans*), catingueira (*Caesalpinia pyramidalis* Tul.), camaratuba (*Cratylia mollis*).

<sup>101</sup> For readers interested in this subject, we suggest consulting: (ARAÚJO; MOREIRA; BRANDÃO, 2009; ARAÚJO; ALBUQUERQUE; GUIMARÃES FILHO., 2006) e (MOREIRA; DUBEUX JR.; C.; MISTURA, 2011).

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## Diagnosis - PROCASE II

### ANNEX B

## On the 'water systems' of family farming in the northeastern semiarid region

Pablo Sidersky

Peasant family units in the semiarid region have a significant water demand, which includes water for various uses. To meet this demand, families need access to one or more water 'sources' and, generally, to transport and store this water so that it can be used when the time comes. This set of demands, sources of supply and the instruments and mechanisms that allow the family to accumulate, access and use water is what we call the 'water system' of the family units of the semiarid. This document seeks to characterize these 'water systems', identifying their parts and describing how they work. It also seeks to stimulate reflection on how to strengthen these systems, which are a key part of the resilience of farming families in the northeastern semiarid region.

### *1. The 'demand' for water in family units in the semiarid*

Water demand is considered to be the quantity of water to be abstracted/accessed, expressed in units of volume, to satisfy the various uses that, depending on its quality and quantity.

#### *1.1 The demand for human consumption or domestic consumption*

The first dimension to be considered in the demand of family units in the hinterland is that of human consumption or domestic consumption. This dimension includes the amount of water needed to carry out each person's main daily activities. It should be noted that the family unit of the semiarid region has a second type of demand, often referred to as 'productive', which includes the demand for water for the various animal herds and for irrigation.

When calculating average consumption parameters for urban water supply systems, we often work with an average daily per capita consumption of 200 to 270 liters (AGÊNCIA-NACIONAL-DE-ÁGUAS-(ANA), 2010). These values, calculated on the basis of the water consumption patterns recorded in the municipalities, refer to the type of human or domestic consumption mentioned in the previous paragraph.

In rural areas, it is estimated that the average demand for human or domestic consumption is between 70 and 100 liters per inhabitant per day. This amount is intended to meet the various needs of this type of consumption, as detailed in Table 1 below. In the case of communities where water and resources are scarce, 60 liters/inhabitant/day would be enough to meet the main demands of human consumption. In rural areas of the semiarid region, access to water, which is very rarely piped via a general network, often requires families to travel long distances to the nearest source. This issue has been identified as an important factor in determining lower demand parameters for domestic supply in rural areas (ARSKY; SANTANA, 2013). In general terms, the parameter of 70 to 100 L per capita per day is also supported by other studies. For example, in the document "**Availability and demands of water resources in Brazil**", published by the ANA, it is stated that "rural demand refers to the water consumption of rural communities, not including services related to animal farming and irrigation, both calculated separately, (...) ranged from 70 to 120 l/inhab/day, according to the state" (CONEJO; MATOS, 2007) (p. 21). On the other hand, the United Nations (UN) states that the average daily *per capita* consumption of 110 liters is enough to carry out a person's main daily activities. Meanwhile, according to the World Health Organization (WHO), between 50 and 100 liters of water per person per day are needed to ensure that the most basic needs are met, and health problems are minimized (ARSKY; SANTANA, 2013).

Table 01 - Estimated daily water demand for human or domestic consumption *per capita* of the rural population (Semiarid region)

Discrimination	Daily water requirement (in liters)
Drinking water	2 a 3
Food preparation	3 a 5
1st hygiene (washing hands, face, small children)	3 a 6
General hygiene (bathing - young people and adults)	22 a 26
Cleaning the house and kitchen utensils (dishes)	20 a 30
Laundry	20 a 30
<b>TOTAL</b>	<b>70 a 100</b>

Source: Adapted from (SUDENE, 1980; VIEIRA, 1996) apud (ARSKY; SANTANA, 2013)

The table above shows that water demand for human consumption can be subdivided into several other subtypes. This subdivision is important because the water quality requirements for all the subtypes are not the same. Thus, for the first 3 types, the requirement is for drinking water. In terms of food security and nutrition, there are studies that show that the amount of water a person needs just to drink, cook, and perform minimal first hygiene (such as washing their face, hands and brushing their teeth, plus bathing small children) is approximately 14 liters per day (SILVA *et al.*, 1984). (BRITO; SILVA; D'ALVA, 2007). In general, it has not been considered technically or economically viable to connect rural households to the household supply network. As a result, around 70% of the population in Brazil has access to water only through wells, cisterns, dams, and reservoirs, which is often precarious and potentially quite unhealthy. In the semiarid region, this proportion rises to 78% (MDS; AECID; IABS; FAURGS *et al.*, 2013).

## 1.2 Water for production

Family production systems in the semiarid region generally include rainfed swiddens, animal farming and backyard production. The production of rain-fed gardens, by definition, depends exclusively on rainwater. There are practices that can make the use of rain more efficient, but this type of farm does not rely on the constitution of water stocks or an abundant source to function. We will not consider in this document the case of farming families who have an irrigated plot of a certain scale which, also by definition, depends on the existence on the property, or very close to it, of an abundant source of water (dam of a certain size, well with fresh water and good flow, etc.), which is relatively rare.

The case of animal farming, on the other hand, is different. This activity is present, to a greater or lesser extent, in the vast majority of family units in the hinterland. Its operation depends on the availability of fodder and, from the perspective of the water system, the supply of a daily volume of water for desiccation for each of the animals in the different herds in the family unit. This type of activity can therefore be sized based on the average water consumption of each type of animal, as shown in Table 02. The choice of which type of livestock is important, given the low availability of water and the importance of the activity for the region's economy. A goat, for example, consumes almost nine times less water than a cow, while a bird consumes around 30 times less than a goat or a pig. Each family therefore needs to provide a stock of water that will allow their livestock to thrive. The table below shows an estimate of the average consumption (daily, monthly, and annual) per head of the different types of animals. The total daily, monthly, and annual stock of water needed will depend on the size of the family's herd(s).

Table 02 - Water consumption for animal farming in the semiarid region (L. per head)

Species	Consumption per day (L.)	Monthly consumption (L.)	Annual consumption (L.)
Cattle	53	1.590	19.080
Horse / donkey	41	1.230	14.760
Goat / sheep	5	150	1.800
Pork	6	180	2.160
Poultry (chicken)	0.2 (200 ml)	6	72

Sources: (GNADLINGER, 2011 (2017); SANDOVAL JR.; OLIVEIRA; XIMENES; MENDES *et al.*, 2011)

Backyard production, unlike larger-scale irrigated production, is present in many family units in the semiarid region. This space or 'subsystem' involves growing vegetables, tubers and fruit, but also medicinal and ornamental plants. It can also include fodder crops. Generally, backyard production involves some form of irrigation, often through watering cans. In some cases, families install small drip irrigation systems. To give the reader an idea of what this means in terms of water demand, Tables xxx and yyy refer to experiments carried out at EMBRAPA Semiarid in Petrolina (PE). They estimate the water consumption of fruit trees and vegetables, respectively, which are common in family backyard production in the Semiarid. In the case of the fruit trees presented in this table, it is specifically a situation with minimal water availability (a cistern, in which "salvation irrigation" was carried out, administering a volume of water just to prevent the plant from reaching "water stress", guaranteeing its survival. In the same experiment, a larger amount of water was given to other fruit trees, which made it possible to overcome the 'salvation' situation mentioned here, with a greater production of fruit. Table xx is intended to give the reader an idea of the volume of water needed to maintain an orchard at a minimum level of production.

Table 03 - Volume of water applied to fruit trees in one year (for two orchard sizes)

Water application period (in weeks)	Volume of water applied (in liters)		Water application period (in weeks)	Volume of water applied (in liters)	
	Per week	Period		Per week	Period
30 fruit trees			50 fruit trees		
14 (rainy season)	2 L. x 3 times x 30 plants	2.520 L.	--		
18 (intermed. period)	3 L. x 3 times x 30 plants	4.860 L.	18 (intermed. period)	2 L. x 3 times x 50 plants	5.400 L.
20 ('summer' dry)	4 L. x 3 times x 30 plants	7.200 L.	20 ('summer' dry)	3.5 L x 3 times x 50 plants	10.500 L.
TOTAL		14.580 L.			15.900 L.

Source: (BRITO; CAVALCANTI; PEREIRA; GNADLINGER *et al.*, 2010)

In the case of growing vegetables, the EMBRAPA Semiarid (EMBRAPA semiarid) experiment worked with 4 beds of 4 m<sup>2</sup> each, in which coriander, peppers, carrots, eggplants, lettuce, chayote, peppers and medicinal species were planted. Each bed was irrigated with 32 liters of water per day. The table below shows the volume of water needed for this garden to function for 9 months of the year (excluding the rainy months). This experiment allows us to estimate the water requirement of a vegetable bed at 8 liters per day per m<sup>2</sup>. In this case, there was no question of 'life-saving irrigation'.

Table 04 - Water consumption in a vegetable garden.

	Consumption per day (L.)	Monthly consumption (L.)	Consumption over 9 months (L.)
4 vegetable beds - total of 16 m <sup>2</sup>	128	3.840	34.560

Source: (BRITO; CAVALCANTI; PEREIRA; GNADLINGER *et al.*, 2010)

### 1.3 The rural family in the hinterland and its water demand - an overview

Below is an example (Table 05) which shows the general demand or consumption of a farming family, for which the family will have to forecast a stock/source by adding up the different demands. This calculation is made for a period of 9 months, since it is assumed that during the rainy season (3 months), water availability is not a problem. This consumption is estimated for a family of 4, and includes the demand of a small animal farm, plus a backyard with fruit trees and vegetable beds. For the 'human or domestic consumption' demand, the parameter of 70 liters per person/day was considered (according to the parameters presented above), of which **8** liters are related to food security and nutrition (drinking and cooking), **6** liters for 'first hygiene water' (washing face, hands and brushing teeth, plus bathing small children) and **56** liters for other domestic uses, while consumption for animal farming and the backyard was estimated based on the parameters presented above in Tables 02, 03 and 04.

Table 05: Estimated water stock requirements for a family's consumption, in liters.

Consumption	Units	No. of consumption units	Consumption /L. x day	Consumption / month (in L.)	Cons. 9 months (in L.)	Type of consumption
Food safety*	Residents of the household	4 people	56	1.680	15.120	House consumption: 75,600 L.
Home use		4 people	224	6.720	60.480	
<i>Total</i>			<i>280</i>	<i>8.400</i>	<i>75.600</i>	
Animal farming	Goats	8 cab.	40	1.200	10.800	Animal consumption: 20,520 L.
	Chickens	20 cab.	4	120	1.080	
	Pigs	2 cab.	12	360	3.240	
	Sheep	4 cab.	20	600	5.400	
<i>Total</i>			<i>76</i>	<i>2.280</i>	<i>20.520</i>	
Backyard	Vegetables	1 cant. - 10 m <sup>2</sup>	80	2.400	21.600	Backyard consumption: 32,400 L.
	Fruit trees	30 feet	40	1.200	10.800	
<i>Total</i>			<i>120</i>	<i>3.600</i>	<i>32.400</i>	
<b>TOTAL</b>			<b>476</b>	<b>14.280</b>	<b>128.520</b>	

(\*) This amount includes drinking and cooking water, plus water for first hygiene.

Although this calculation exercise is only hypothetical, as far as in real life the values tend to vary a lot, even depending on the greater or lesser availability of water at the time, it has the merit of giving an idea of the quantities of water that a family unit can consume in a certain period of time. The quantities that appear in this table will take on greater concrete meaning when we discuss the issue of water supply.

## **2. On the availability or 'supply' of water in the northeastern semiarid region**

According to the literature on the subject, water availability in any environmental system refers to surface water and groundwater (ARSKY; ASSIS, 2013). However, it is necessary to qualify this definition by pointing out that the main primary supply of water in ecosystems is precipitation, which in the semiarid northeastern region is scarce and irregular. Considering this situation, it is then possible to consider that, for the purposes of environmental assessment, the general water sources to be considered are (i) direct precipitation (rainfall); (ii) rivers, streams, ponds, lakes, springs (indirect precipitation); (iii) phreatic aquifers (indirect precipitation) and (iv) confined aquifers (MATTOS, 1996).

In the context of the semiarid region in question, the main way to reconcile family demand (see previous section) with the main general water supply - which is the very irregular and uncertain natural supply of rainfall - is to store water, seeking to 'stabilize' this supply. (PETERSEN; SILVEIRA; ALMEIDA, 2002).

The natural storage of water resources in regional ecosystems is insufficient to equalize supply with demand. In addition to the characteristics of the rainfall regime in the semiarid region, this issue is also defined by the attributes of the soils (texture, porosity, depth), as well as the geological substrate. Although the water storage capacity of semiarid soils is still an aspect that has been little studied (MENEZES; SAMPAIO, 2000) it is easy to understand that the regional ecosystem, in general terms, is not very water-conservative. The absence of perennial rivers is perhaps the best indicator of this. In the context of the region's own rainfall regime, a pedological pattern that combines shallow soils or poorly permeable subsurface horizons with a gently undulating to undulating topography favors a dense but intermittent drainage network, which practically makes it impossible to provide a regular supply of surface water to meet the multiple demands of families (PETERSEN; SILVEIRA; ALMEIDA, 2002) (p. 60). On the other hand, areas of crystalline formation account for around 70% of the semiarid region, with fissure aquifers of restricted potential (average flow rates of around 4 m<sup>3</sup> /hour) and often with brackish or saline waters (VIEIRA, 2003).

### ***2.1 The various water sources that can make up the water systems of families in the hinterland***

In the context defined here, the regularization of families' water supply, both in the domestic sphere and for animal farming and even small irrigation, is carried out through the implementation of different intermediate structures / instruments - which Mattos calls 'mediators' - that 'connect' the sources of supply and the demands for water in family systems. These structures allow for the collection, accumulation, storage, and distribution of water (since, very often, the source is not in the place where the water will be used). The main 'mediators'

of supply are those for collection, storage, and access: reservoirs, dams, cacimbas, wells, cisterns, stone tanks, etc. To make use of this water supply, distribution 'mediators' may also be needed - canals, gutters, buckets, barrels, and means of transportation, hoses, pumping systems, etc. (MATTOS, 1996). The main sources of water used in the northeastern semiarid region are listed below.

\* *Barreiro*

The diversity of terms used in the Northeast for surface water reservoirs (barreiro, tanque, açudeco, açude, barragem, represa, outros) and the wide range of storage capacity of these works - from a few hundred m<sup>3</sup> to billions of m<sup>3</sup> stored in large dams, requires a definition of some terms (MOLLE; CADIER, 1992). The smallest of these reservoirs is the **barreiro, which** is a small earthen dam with a rudimentary lateral cistern, the purpose of which is to capture and store water that flows from a 'catchment area' located upstream. It varies greatly in size, usually storing several thousand m<sup>3</sup>. Just for reference, we will mention a study carried out in the semiarid region of Bahia by researchers from EMBRAPA Semiarid. They estimated that the 29 dams found in 3 communities investigated had an average capacity of approximately 3,000 m<sup>3</sup> (CAVALCANTI; RESENDE, 2001). The water stored in them is generally muddy. Given its shallowness and the conditions that favor intense evaporation, the barreiro usually dries out every year. The main use of the barreiro is to water the family's livestock. Although in the past the dam could be dug by hand (often by joint efforts), this practice is now very rare. Nowadays, it is usually done with a tracked tractor. It can take up to 50 machine hours to set up a barreiro. Brito and colleagues estimated this cost at US\$2,200.00 (BRITO; PORTO; ANJOS, 1997) although it is quite possible that this cost is greatly underestimated<sup>102</sup>.



Figure 01 - Loading water from a dam<sup>103</sup>

Dugout Trench (barreiros trincheira) can be considered a special case of barreiro. They are narrow, deep reservoirs dug underground, and this format is a recent innovation that has earned the qualification of Social Technology<sup>104</sup>. The reference trench yard must be able to store at least 500 m<sup>3</sup> of water and must be between 3 and 5 meters deep. The narrow, deep shape is designed to reduce evaporation and keep water stored for longer. It collects water that runs off the surface of the soil, often with the help of gullies or trenches. It requires compacted soils to reduce infiltration. To reduce losses through evaporation and infiltration, when the distance allows, the water from the pond can be pumped to a production cistern. In the construction process, a backhoe must be used to reach the beginning of the rock layer.

<sup>102</sup> A quick search on the Internet indicates that currently the cost of an hour on a bulldozer is approximately US\$85.00. If this is correct, 50 hours/machine would cost US\$4,250.00.

<sup>103</sup> Source: Link: <https://fatosefotosdacaatinga.blogspot.com/2012/08/os-barreiros-do-sertao-do-nordeste.html>.

<sup>104</sup> Cf. SESAN Operational Instruction No. 10 of September 6, 2017, regulated by Law No. 12,873 of October 24, 2013, Decree No. 8,038 of July 4, 2013 and Ordinance No. 130 of November 14, 2013.





Figure 02 - Barreiro trench<sup>105</sup>

\* Weirs

A weir can be defined as a reservoir that arises from the interception of a current of water, causing it to accumulate. It comprises both the dam - an artificial structure made of earth, concrete, or stone masonry - and the lake formed by it (the accumulation basin or hydraulic basin of the weir). In addition, every weir also includes a spillway. The vazante is part of the weir, which is a strip of land located around the reservoir, where the sertanejo grow their crops as the water level drops on the riverbank or dam, after the rainy season. Açude corresponds to the physical space that also includes the land immediately downstream, favored by the emergences ('revenças') (GUIDICINI; JARDIM, 2021) and (Decree No. 52931 of 07/03/2026). The small weir serves mainly to ensure human supply during the dry season, to bridge the gap between two rainy periods, although it is of little use in the event of prolonged droughts. An average reservoir allows you to get through a year of drought, which means 20 months without receiving water. In terms of storage capacity, small and medium-sized dams correspond to volumes ranging from 10,000 m<sup>3</sup> to 200,000 m<sup>3</sup> (MOLLE; CADIER, 1992). As with ordinary dams, the weir loses a lot of water through evaporation as well as infiltration. A detailed study carried out by F. Molle on 6 large dams in various states in the North-East of Brazil states that annual evaporation amounts to 2,100 mm, with evaporation in the June/December period amounting to 1,365 mm. The same author says that, on average, infiltration represents an increase of 34% of evaporation (MOLLE, 1989) This would bring the losses to just over 2,800 mm per year. Finally, Molle and Cadier estimated that the construction of a small weir of approximately 100,000 m<sup>3</sup> requires some 540 hours/machine, for the wall/baldo part and the spillway ('sangradouro'). (MOLLE; CADIER, 1992).



Figure 03 - Weir, seen from the wall or overhang - in the municipality of Cajazeiras, PB<sup>106</sup>

\* *Stone tank or cauldron*

<sup>105</sup> Source: IRPAA image bank. Link: <https://irpaa.org/galeria/5>

<sup>106</sup> Photo: Pablo Sid.

The stone tank or cauldron is a natural cavity or receptacle, carved out of rock, which is an excellent natural reservoir for satisfying human consumption, household 'waste' (e.g., washing clothes) and livestock demand. In regions where there are significant rocky outcrops, there are places with round-shaped rocks, which make for reservoirs where water can naturally accumulate. The surrounding rocks form an excellent catchment area for rainwater. The deepest parts of these reservoirs are always filled with earth, sand, gravel, etc. By clearing these natural cavities, efficient water deposits are obtained. Often, farmers raise a wall on one side, thus increasing the reservoir's capacity (GNADLINGER, 2015). In some cases, it is possible to create a reservoir capable of storing thousands of liters of water. Thus, with proper preparation/cleaning and maintenance, the stone tank or cauldron is a 'mediator' capable of producing fairly good quality water. The deeper the 'cauldrons' in which this water is stored, the lower the proportional loss due to evaporation. In general, a tank or cauldron is a family initiative; however, there are cases in which the construction and maintenance of a tank or cauldron can be a collective / community initiative. The monetary cost of a tank of this type is relatively modest, although the work of cleaning the cauldrons can be heavy. However, given



Figure 04 - Stone tank in a family unit in Sertão do Pajeú, PE<sup>107</sup>

\* *Cisterns*

- *The drinking water cistern (or first water cistern)*

The slab cistern is a reservoir for collecting rainwater, built with pre-molded cement slabs, whose purpose is to store water for the basic consumption of rural families living in the semiarid region during the dry season or when quality water is not available for residential consumption. The slab cistern has a cylindrical or rounded shape, is covered to prevent pollution and evaporation of the stored water and is semi-underground for approximately two thirds of its height to ensure the safety of its structure. The water collected in the cistern comes from the roof of the house, led by zinc or PVC gutters, which direct the water to the cistern's storage tank, whose capacity can be adjusted according to the number of people who will use it and the size of the roof of the house. However, in practice, the most common size of plate cistern for basic domestic consumption is 16,000 liters.

Although the cistern for collecting and storing rainwater is an old practice in the Semiarid, the model of the plate cistern began to be used at the end of the last century. This 'social technology' began to be implemented experimentally at the end of the 1990s. In the early 2000s, it was taken up by the Semiarid Articulation (ASA), which proposed the 1 Million Cisterns Program. The federal government began to fully fund this program in 2003 (CASTRO, 2021). Data from the Ministry of Development and Social Assistance, Family and Fight against Hunger show that, by December 2022, the Cisterns Program had implemented 971,741 household 'drinking water' cisterns. This figure probably does not include household cisterns set up by other initiatives,

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<sup>107</sup> Photo: Pablo Sid.

such as state rural development programs<sup>108</sup>. The experience of the last two decades in the northeastern semiarid region has shown that the slab cistern is a highly satisfactory alternative for supplying water for human consumption, whose cheap, practical, and safe technology has been disseminated throughout the region, through in-service training, enabling the community itself to make use of rainwater collected from roofs. Regarding the benefits brought about by home cisterns, it can be said that they have improved the water consumed, reduced the occurrence of waterborne diseases, improved health conditions, reduced the time and effort spent by the family fetching water every day, especially women and children (EMBRAPA, 2009; TCU-TRIBUNAL-DE-CONTAS-DA-UNIÃO, 2006) apud (ARSKY, 2020).



Figure 05 - House with first-water cistern<sup>109</sup>

#### - Production cisterns (2nd water)

Production cisterns are water storage tanks with a significantly larger capacity than a first-water cistern, with a rainwater harvesting system. The most widespread model of this type of technology is the boardwalk cistern, which consists of a 200m cemented space<sup>2</sup> (the 'boardwalk ') for collecting rainwater, coupled to a reservoir or cistern with a capacity of 52,000 liters of water. The catchment area is delimited by a curb and is on a higher level than the reservoir. It has a slight slope to convey the water to a settling box and from there to the reservoir. This cistern is a type of cylindrical water reservoir usually made of cement slabs, covered and semi-underground, which allows rainwater to be collected and stored from the 'sidewalk'. The cemented sidewalk allows relatively clean water to be collected. As it is covered and enclosed, the water stored in it is protected from evaporation and contamination caused by animal waste and other impurities carried by the wind. The 'boardwalk ' cistern was designed as a reservoir whose purpose is to capture and store water for food production, medicinal plants and raising small animals, thus enhancing productive backyards<sup>110</sup>. The estimated cost of implementing a cistern

<sup>108</sup> For example, the Gente de Valor, Pró-semiárido and Bahia Produtiva programs in Bahia, Procasa and Cooperar in Paraíba, São José and Paulo Freire in Ceará, etc.

<sup>109</sup> Source: IRPAA image bank. Link: <https://irpaa.org/galeria/5>

<sup>110</sup> The P1+2 Program, implemented by a group of civil society organizations under the coordination of ASA - Articulação do Semiárido (Semiarid Articulation), has worked insistently on the implementation of 'production cisterns', which are 52 m<sup>3</sup> cisterns, the main one being the "calçada" cistern. P1+2 has proved very successful in terms of implementing effective techniques for collecting and storing water for production, and also in training farmers to better manage this precious resource. By September 2021, P1+2 had installed more than 103,000 production cisterns in the various states of the semiarid region. There are studies on the results obtained from the implementation of this social technology. For example, a study carried out jointly by INSA and ASA showed that the installation of cisterns for domestic use and, above all, production cisterns (the 'boardwalk' cisterns) had a positive effect on families' economies, as demonstrated by an economic analysis in Cariri, Paraíba. This analysis compared families' economies before and after accessing water infrastructure. It found that, with the presence of DC (domestic cisterns) and PC (production cisterns), families obtained 3.3 and 9 times greater profitability respectively than without the technologies, in terms of gross and agricultural income (ASA-BRASIL, 2016; PÉREZ-MARTIN; ROGÉ; ALTIERI; ULLOA FORERO *et al.*, 2017). A second study, carried out in the municipality of Jardim, in the Cariri region of Ceará, reached similar conclusions. It found that there was a significant difference in favor of the group of P1+2 Program beneficiaries compared to non-beneficiaries, both in terms of a Quality of Life index and in family income. When considering the average annual farming income for beneficiaries and non-beneficiaries, a difference of almost 60% was found in favor of the former (ALENCAR; JUSTO; ALVES, 2017).

is approximately US\$ 2,000.00. This includes the cost of construction materials, the contribution made by the beneficiary family to pay the bricklayer and the materials to enhance the productive backyards<sup>111</sup>.



Figure 06 - Rainwater harvesting boardwalk with its 52,000-liter cistern.<sup>112</sup>

\* *Underground dam*

Even though Guimarães Duque identified it as a very promising technology from as early as 1950 (GUIMARÃES DUQUE, 1980) until recently, underground dams were little known to the population of the hinterland. In the last two decades, this type of dam has begun to spread throughout the Northeast. The underground dam - built on an alluvial terrace, perpendicular to the stream bed - is designed to stop the subsurface flow of the alluvial aquifer. The use of underground dams in the semiarid region is justified by the climate and hydrological regimes of the semiarid region. Almost all the rivers in the semiarid region are temporary and remain dry for most of the year. However, after a period of short-term flooding (a few days), subsurface runoff continues for several weeks or even months, depending on the size of the catchment area, until it is exhausted in the dry season. Under these conditions, the installation of underground dams - installing an impermeable wall across the direction of the water flow - makes it possible to stop the flow and, consequently, raise the piezometric level of the water table. The farmer can then make use of this groundwater in two ways: on the one hand, through cisterns or shallow wells and, on the other hand, through the plants grown there. Thus, as water is withdrawn from the soil of the underground reservoir ('cacimbão') (through the cacimbão, the plants or evaporation), the flow continues, and the alluvial aquifer is constantly replenished by the water flowing from the basin upstream of the dam. The system thus behaves like a sponge, from which water is gradually drawn downstream. Under ideal soil conditions, with a catchment area of sufficient size and, of course, with a satisfactory amount of rainfall, this system should make it possible to get through the dry season with water in the soil for plants and water in the wells for other types of consumption (BRITO; SILVA; MACIEL; MONTEIRO, 1989; MELO; ANJOS; SILVA; PEREIRA *et al.*, 2013; SILVA; ANJOS; BRITO; SILVA *et al.*, 2006; SILVA; LIMA; MOREIRA; FERREIRA *et al.*, 2019).

An important effect of the underground dam is the possibility of making economic use of it. In many cases, beneficiary families have been able to produce fodder, as well as harvest food such as beans, corn, cassava and various fruit crops in these areas. But despite all these advantages, it is important to remember that the benefit of the underground dam for the farming family is directly dependent on the amount of rainfall in a given cycle. Thus, in the last major drought (2012 - 2018), many of these dams were unable to produce for several years on end.

The cost of installing an underground dam is extremely variable, depending on the size (length and depth of the dam), as well as the way the work is done and even the form of financing. In a survey carried out in Mirandiba (PE) in 2000, costs ranged from US\$ 500.00 to US\$ 1,000.00. The cheapest dams were, of course,

<sup>111</sup> Source: <http://tecnologiasocial.fbb.org.br/tecnologiasocial/banco-de-tecnologias-sociais/pesquisar-tecnologias/cisterna-calcadao-para-potencializacao-de-quintais-produtivos.htm>

<sup>112</sup> Photo: Pablo Sid.

the smallest, shallowest and did not have a cistern. The most expensive were the dams that required a large amount of excavation (more than 40 meters long and more than 3 meters deep) (GRIMAUD, 2002). A second survey, based on a BS construction policy of the government of Pernambuco, which ran from 2010 to 2015, arrived at higher values per dam built, ranging from US\$ 1,500.00 to US\$ 3,800.00 (COSTA; COSTA, 2015).



Figure 07 - Laying the waterproof tarpaulin of an underground dam under construction (MELO; ANJOS; SILVA; PEREIRA *et al.*, 2013)

\* *Grey water reuse system*

In the semiarid northeast of Brazil, the availability of water is always a cause for intense concern. However, it is quite common in the rural hinterland to see that gray water<sup>113</sup> is being wasted. It can be seen in backyards in the semiarid interior that this water is being thrown out into the open, even in homes that have some kind of treatment for some of the domestic effluent, such as septic tanks. As a result, untreated gray water contaminates the soil and water, as well as causing diseases in the animals that ingest it (DOS SANTOS FILHA; ARAÚJO, 2018). There is therefore a need to adopt measures for the proper use and reuse of water and to control the pollution of water resources - and greywater in particular - as a way of guaranteeing its current and future availability.

In this context, graywater reuse systems fill a fundamental gap, as it is a low-cost technology and takes advantage of local capacities for its implementation, management, and maintenance. It is worth remembering here that this technology works with a supply of water that has already been used by the family. Basically, it is a way of increasing the efficiency of the water system. There are several graywater treatment systems available. Here, we will mention the Family BioWater system (SANTIAGO; JALFIM; BLACKBURN; DOMBROSKI *et al.*, 2015). In this case, the wastewater reuse technology consists of a filtering process using physical and biological impediment mechanisms for the waste present in the graywater, with the organic matter being biodegraded by a population of microorganisms and earthworms (*Eisenia foetida*). The main pollutants found in these waters are removed through the digestion and absorption of the organic matter retained in the water by the earthworms (POBLETE, 2010). Reuse water is used in a closed irrigation system for the production of vegetables, fruit, medicinal plants and other types of food. At the time of its publication, the Manual for the Implementation and Management of the Family Bio-water System estimated the cost of a complete system at approximately US\$ 2,600.00 (SANTIAGO; JALFIM; BLACKBURN; DOMBROSKI *et al.*, 2015). There are also other models of grey water reuse systems, in which the filters used to treat the water have been simplified, favoring the use of physical mechanisms for filtering (layers of pebbles, gravel, sand, sombrite screen). A study carried out by a team from INSA (Instituto Nacional do Semiárido - National Semiarid Institute) and PATAC in the semiarid region of Paraíba, using systems with a simplified filter, measured the production of treated water for reuse in irrigation: the average generation per family was 43,000 liters per year (BARBOSA; MAYER; MEDEIROS; MELO *et al.*, 2019).

<sup>113</sup> Grey water is defined as all the sewage generated in a dwelling, except that coming from the toilet bowl. It therefore includes effluent from the shower, washbasin, kitchen sink, tank and/or washing machine (BORGES, 2003).



Figure 08 - Biological filters of the Family Bio-water System, with the pipes bringing the gray water from the house.<sup>114</sup>



Figure 09 - Photo B - 3 parts of a RAC system: grease trap, filter and filtered water tank, in the background<sup>115</sup>.

\* *Shallow wells*

- *Cacimba*

During the rainy season, the stream or watercourse experiences surface water runoff. As it flows through the drainage network, part of this runoff seeps into the sandy bed. A *cacimba*, which is a shallow excavation made manually with simple tools (shovel, pickaxe, etc.) in the main bed of rivers and temporary streams, allows access to the water stored in the alluvium of the bed. The *cacimba* can be just one excavation made each year when the stream dries up. As the dry season continues, the hole gets deeper. During the rainy season, the *cacimba* is usually filled with sand brought in by the rainwater (EMBRAPA-SEMIARID, 2004). In some cases, a rustic covering can be made by the farmers' families. It guarantees water in the dry season, which is mainly used for animals, although it can also be used for household consumption.

- *Cacimbão or Amazon well*

The Amazon well or *cacimbão* is widely used in the Semiarid. It is a rounded well, dug in lowland terrain, and can reach a depth of up to 20 meters and a width of about 3 meters (CARDOSO, 2016). These shallow soils are called alluvial fans and are close to the beds of rivers and streams. The *cacimbão* is built manually with the help of hoes, mattocks, shovels, and picks. You do not need machines to dig it. The wall of the Amazon well is lined with bricks or cement rings, always leaving a few gaps for the water to flow into the well. This lining prevents the walls of the well from collapsing. The bottom of the well does not need to be cemented, which makes it easier to 'mine' the water. A good well can supply rural property or small communities, especially if the water is only used for drinking. To ensure that the well water is always clean and to avoid accidents with children, a wooden, zinc or even concrete cover should be fitted. In wells with a good flow rate, it is common to use a motor pump to extract the water, which can then be pumped to a water tank located a good distance away.

\* *Tube well*

A deep tube well is a geological engineering project to access underground water, carried out with a drilling rig, through vertical drilling with a diameter that can vary from 4" to 36" and a depth that can reach up to 2000 meters. (CARDOSO, 2016). However, it is rare for a well drilled in a crystalline basement to reach a depth of 300 meters, although the depth can be much greater in sedimentary basement regions.

<sup>114</sup> Photo by Pablo Sid.

<sup>115</sup> Idem.

In the Brazilian semiarid region, it is very common for groundwater to be brackish or salty. This happens more frequently in regions where the substrate is crystalline, which represents approximately 80% of the area of the Semiarid region (CIRILO, 2008). The result of this is that a very significant percentage of the wells dug in the semiarid region has brackish or salty water, which is unsuitable for human consumption. This was confirmed by a study carried out by the CPRM / Geological Service of Brazil in 450 municipalities in the semiarid region, which collected samples from 15,338 wells. This study revealed that only 25% of the wells registered in this area had fresh water ( $< 500$  mg/L STD)<sup>116117</sup>. It also revealed that 33% had brackish water (501 to 1500 mg/L STD), while the remaining 42% had salty water ( $> 1500$  mg/L STD) (MME-CPRM-SERVIÇO-GEOLÓGICO-DO-BRASIL, 2003). In some locations, the proportion of salty wells is even higher. In the municipality of Boa Vista, in the state of Paraíba, in a sample of 78 wells surveyed, only 17% had water of small to moderate salinity. The remaining 83% had severe salinity (FARIAS; FARIAS; DANTAS NETO, 2016). On the other hand, the flow rates of the tubular wells in the crystalline are often low: according to Feitosa and Diniz, the median flow rate distribution of the wells in the crystalline ranges between 1 and 2 m<sup>3</sup>/h (FEITOSA; DINIZ, 2011). There are many cases of flow rates below 1,000 liters/hour. But even with these figures, the number of tube wells being drilled is growing, and in many circumstances a well with a small flow rate and brackish water is an important source for a community's family water systems, providing water for demands that tolerate a certain salinity (such as water for livestock and various domestic uses). But there are cases in which the well becomes the only source available.

This critical situation created by the last 'great drought' (2011 - 2017-18) has left many communities and families in an extremely delicate situation in terms of access to water, starting with water for human consumption ('fresh' water). This context formed the basis for the action of the Fresh Water Program (PAD), which seeks to promote "*access to good quality water for human consumption, incorporating technical, environmental, and social care in the management of desalination systems, primarily in diffuse rural communities in the Brazilian semiarid region*" (BRAZIL-MMA-SECRETARIAT-OF-WATER-RESOURCES-AND-URBAN-ENVIRONMENT, 2015). These systems work with water extracted from tube wells. By May 2022, the PAD had already installed 905 desalination plants in as many communities in Brazil's semiarid region<sup>118</sup>. As a result, the wells are now a source of water for household 'expenses' and for watering livestock.

The installation of a desalination plant in a community creates a special, sui generis situation in which this equipment produces, in addition to a certain amount of drinking water (good for human consumption), a relatively large amount of 'concentrate' (or 'reject'), which is water with a high concentration of salts. Although the salinity of the 'concentrate' logically depends on the salt content of the original well water, the salinity of the tailings will always be higher than that of the well water. A study carried out in the municipality of Pentecost in the state of Ceará showed that the increase in salinity of the 'tailings', when compared to that of the original well water, can vary from 20 to 41% (NEVES; ALVES; LACERDA; GHEYI, 2017). This situation makes it important to use this 'concentrate' to maximize the use of a scarce resource (water) and, at the same time, minimize the problems that its accumulation (of the 'concentrate' or 'tailings') and improper disposal could cause<sup>119</sup>. In these circumstances, the PAD recommends that the tailings be used in various ways, seeking to make use of them as a resource and thus preventing them from becoming an agent of environmental degradation. It proposes that the 'concentrate' be used for (i) animal watering; (ii) irrigation with halophyte plants (bio saline agriculture *strictu sensu*); (iii) fish farming and (iv) domestic use (or household waste, such as flushing toilets) (BRASIL-MMA-SECRETARIA-DE-RECURSOS-HÍDRICOS-E-AMBIENTE-URBANO, 2015). In practice, families served by a brackish water well with a desalination plant are supplied with a limited amount of fresh water for human consumption, but also with water for livestock, for 'household use' and even to water some plants that tolerate salinity well.

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<sup>116</sup> STD - Total Dissolved Solids.

<sup>117</sup> Fresh water thus defined coincides with the category of 'unrestricted water' for irrigation (AYERS; WESTCOT, 1994). It is worth remembering that the Fresh Water Program stipulated that water with up to 1000 mg/L of STD was considered fit for human consumption (BRASIL-MMA-SECRETARIA-DE-RECURSOS-HÍDRICOS-E-AMBIENTE-URBANO, 2015).

<sup>118</sup> The overall goal of this program is to install just over 1,620 desalination plants, of which 1,200 will be in the first phase and 426 in the second. (See <https://www.gov.br/mdr/pt-br/noticias/governo-federal-investe-mais-r-130-3-milhoes-para-ampliar-acesso-a-agua-no-semiarido-brasileiro#:~:text=Among%20the%20C3%A7%C3%B5es%2C%20est%C3%A3o%20a.Pa%C3%ADs%2C%20al%C3%A9m%20of%20Minas%20Gerais.>)

<sup>119</sup> For example, the high levels of salinity mean that this tailings can be a potential agent of soil salinization.

\* *Large reservoirs, dams, and the water tanker*

There are situations in which the sources (mediators) that exist in the family unit or those in its surroundings (the community itself and neighboring communities) to which the family has access are unable to meet demand. In these cases, families make use of the water truck resource ('carro-pipa'), which is a service that transports available water from some distant source (usually a large dam, or a perennial or perennialized river). This service can be financed by the government (the 'Carro-Pipa Operation', funded by the Federal Government), but it also happens that the family has to 'buy a pipa' with their own resources.

### 3. The water systems of family farming in the hinterland

Sertanejo water systems are organized around the family farm, although this does not mean that all the sources are within the physical space of the property<sup>120</sup>. Thus, each family constitutes its own water supply 'system', with a combination of 'mediating structures'. Table 01 below attempts to summarize the possible options in the relationship between supply, mediators, and family water demand.

Chart 01 - Relationship between supply, mediators, and water demand in the Semiarid Region

Offer	Mediators		Demand
	Collection, storage	Distribution	
Rain	Soil <sup>121</sup>		Grazed Pastures
	Barreiro		Animal watering
		Manual transport <sup>122</sup>	Domestic consumption Human consumption
		Lifesaving irrigation	Vegetable garden, orchard, swidden area
	Stone tank / 'caixio'	Manual transport	Human consumption Domestic consumption Backyard (vegetable garden, poultry, etc.)
	Weir		Animal watering Domestic consumption (bathing, laundry) <i>on site</i> Fallow and/or 'revença' cultivation
		Manual transport	Animal watering Human consumption Domestic consumption Backyard (vegetables, poultry, etc.)
		Supply system	Human consumption Domestic consumption Backyard (vegetables, poultry, etc.)
		Irrigation system	Vegetable garden, orchard
	Water tanker system	Human consumption Domestic consumption	
Surface supplies (rivers, lakes, etc.)	Rivers, dams; large reservoirs		Fishing
		Treatment and distribution systems	Supplying cities (town centers, villages, etc.)
		Water tanker system	Human consumption

<sup>120</sup> Non-family farms also need to organize/manage their water systems. It's not uncommon for a 'source' (for example, a dam) on a nearby farm to play a role in the water system of one or more families in the community. In other cases, there are public reservoirs nearby that are used by families from the surrounding communities.

<sup>121</sup> The soil does capture and store rainwater, which is used by the vegetation that grows on it, including the crops grown in the garden. But unlike the other mediators, the soil is not implanted by humans. In the case of swiddens, soil management can enhance the soil's natural ability to capture and store moisture.

<sup>122</sup> Manual' transportation here refers to transportation done by the family with cans, buckets, barrels. This transportation can be 'helped' by animals, carts, motorcycles, etc.



			Domestic consumption
Groundwater aquifers	Lowland Amazon wells	Pumping / storage system, irrigation	Animal watering Human consumption Domestic consumption Backyard (vegetables, poultry, etc.)
		Manual transport	Human consumption Domestic consumption Backyard (small animals, etc.)
	Cacimbas	Manual transport	Human consumption Domestic consumption Backyard (small animals, etc.)
	Underground dam		Grazed Orchard
	Underground dam	Pumping / irrigation system	Animal watering Human consumption Domestic consumption Backyard (vegetables, poultry, etc.)
Confined aquifers	Tube wells	Pumping, access structures (fountains), transportation	Human consumption Domestic consumption Backyard (small animals, etc.) Animal watering
		Irrigation system	Vegetable gardens, gardens

Source: Adapted from (MATTOS, 1996)

Rare are the cases in which a single source supplies all the family's water needs (always considering the nuances in terms of quality depending on the different demands). Even rarer is the case where this source is located on the property. Therefore, as we saw earlier, each family needs to guarantee its water supply through access to a combination of 'mediating structures'.

But in the semiarid region, these structures are neither natural nor do they appear spontaneously<sup>123</sup>. The first observation about these 'mediating structures' is that they are generally the result of a 'favorable situation', to which a material investment must be added. So, to give an example, to set up a cistern you need to have access to a lowland with a water table and then make the investment of digging, covering, capping, setting up a water extraction system, etc. To implement a first-water cistern, you need to have a suitable roof, then build the cistern and install the gutter system to conduct the water collected to the cistern.

### 3.1 The water system of Cícero's family

To exemplify this issue of the constitution of the water system and its management, we will use the example of Cícero's family, from the Sertão do São Francisco region in Bahia. (MORAES; BELÉM; OLIVEIRA, 2015). Cícero's family, which belongs to a Fundo de Pasto community, has five members. Their main productive activity is goat farming, with a herd of 400 head. With this herd, the family produces meat, milk, cheese, skins and manure for self-consumption and sale. The family also cultivates a rainfed field with food crops and fodder, as well as growing vegetables and keeping chickens. This family and production configuration allow us to characterize the demands of the family unit. We can highlight the demand for water for human consumption and household expenses. There is also the demand from the yard, with vegetables and poultry. Finally, there is the demand from the goat herd, which is very significant. From the point of view of water supply, the family has a 52,000-liter production cistern (acquired in 2011, via P1+2) and a 16,000-liter first-water cistern (from 2008, via P1MC). It also has two dams and a tube well with a flow rate of 2,000 l/hour, but with saline water and therefore unsuitable for human consumption and irrigation. These last 'mediating structures' were set up using their own resources. The family also set up a system of 'distribution mediators' with tanks or water tanks, a pump, and hoses / pipes to help manage the system.

<sup>123</sup> Contrary to what happens, for example, in regions where there are permanent watercourses and many springs, where some water sources may be spontaneous.

Table 06 - Identification, origin, and characteristics of the water system.

Technology / Mediating structure	Origin	Features	Water use
Cistern for consumption (1st water)	P1MC	16.000 l.	Human consumption
Production cistern (2nd water)	P1+2	52.000 l.	Water for production - backyard
Tube well	Own resources	2,000 l./hour	Goat herds and household expenses
Barreiros	Own resources	100.000 l.	Goats, yard, and house expenses
Water tanker	Public authorities	20,000 l./year	Human consumption / expenditure

Source: (MORAES; BELÉM; OLIVEIRA, 2015)

In the case of Cícero's family, most of the sources or 'mediating structures' are on the property and can be considered 'internal' to the family system. However, there is one important exception: the water tanker brings the family water for human consumption from a distant source. This amalgamation of own sources or 'mediating structures' with other 'external' sources is a common feature of practically all family water systems. In many cases, the 'external' sources may be in the community (for example, a dam or weir on a neighbor's property, or a community desalination plant installed at the association's headquarters by a government development project). In other cases, these external source(s) may be further away.

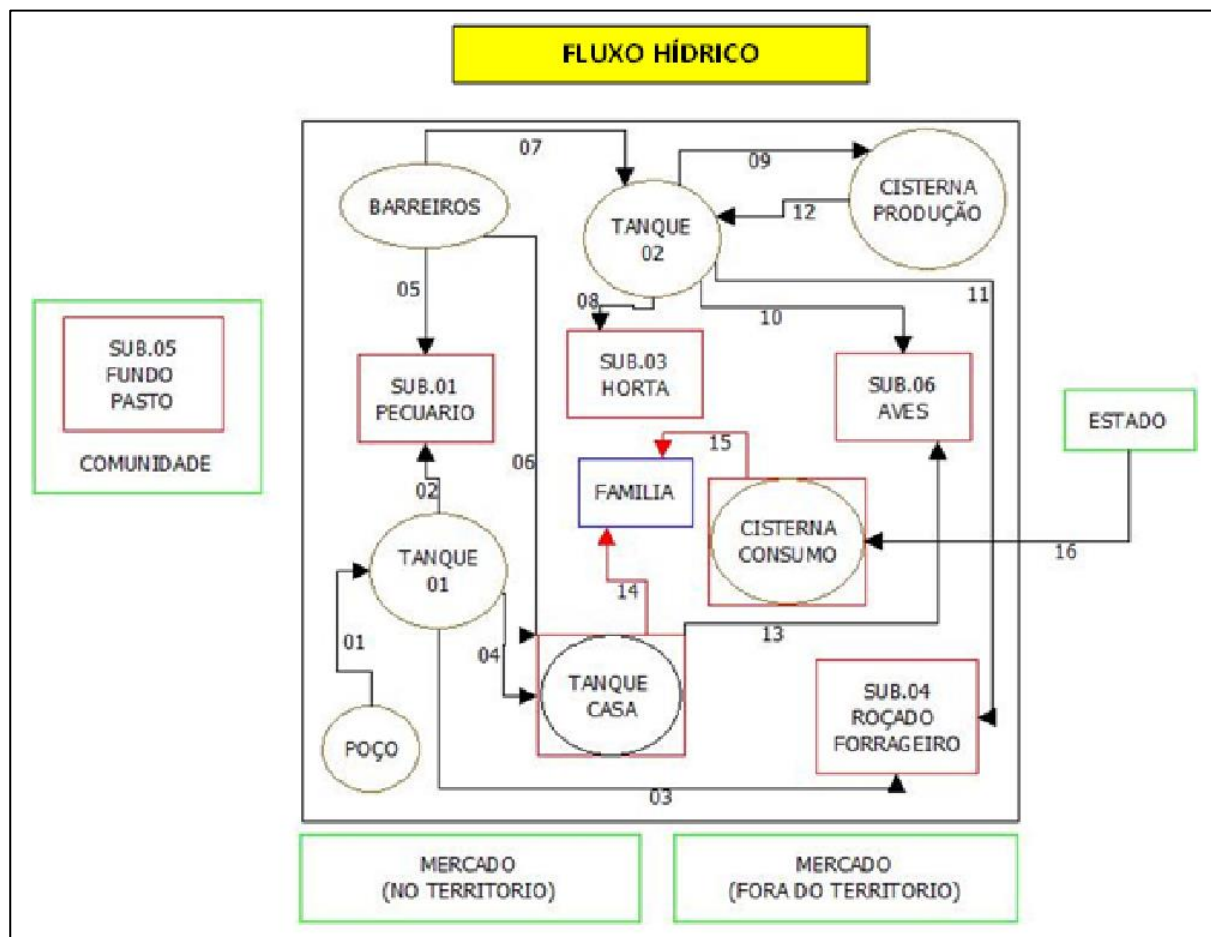


Figure 10 - Water flows in the 'system' of Cícero's family. Source: (MORAES; BELÉM; OLIVEIRA, 2015)

In the Water Flow diagram presented here, it is interesting to see that the family carefully organizes the relationship between the different sources and the different demands, as far as the quality of the water from each source is different and adapted to the intended use. It can be seen, for example, that the water from the cistern is used exclusively by the family, while the water from the tube well goes to the livestock subsystem (the goats) and for household expenses. It can also be seen that the water from the water tankers, which bring water from a distant drinking water source, supplies the household's consumption, which suggests that the 16,000-liter cistern is not meeting this demand.

### ***3.2 On sources and the possibility of strengthening water systems***

The example cited here of Cícero's family is one of several hundred thousand rural family units in the semiarid region. Every peasant family unit in the semiarid region has its own water system, which combines various 'sources', whether close or more distant. In some cases, it is precarious, providing minimal amounts of water at the cost of enormous effort on the part of the family. At times of crisis (a drought, for example), these systems can collapse, and the family may have to leave.

Family farmers in the semiarid work tirelessly to improve this system, seeking to obtain water in greater quantity and better quality. But, as we saw above, strengthening the water system requires investment. For a long time, families had little or no support for this endeavor, and progress was slow. Fortunately, from the late 1990s onwards, the general perception changed. The view that it was possible to create better conditions for "living with the semiarid region" and that this better coexistence meant strengthening families' water systems.

The 21st century has seen the emergence of public policies aimed at strengthening cisterns. Among them is the Cisterns Program (P1MC, P1+2). But other initiatives such as the drilling of wells, desalination plants, support for the implementation of water reservoirs, etc. have been added to the first initiatives. But the work done is only the beginning. There is still a lot of work to be done in this area of family water systems in the northeastern semiarid region.

### ***3.3 On the role of the grey water reuse system in sertanejo family water systems***

As we saw earlier (see section 1.3), peasant family units in the semiarid region have an important water demand, which includes water for various uses. To meet this demand, families need access to one or more water 'sources' and, generally, to transport and store this water so that it can be used when the time comes. This set of demands, sources of supply and the instruments and mechanisms that allow the family to accumulate, access and use water is what we call the 'water system' of the sertanejo family units.

Based on various bibliographical references, an estimate was made of a family's hypothetical water demand, taking into account water for domestic consumption and a demand for water for the yard and livestock. To make this calculation, some assumptions were made about the size of the family, and about the yard and livestock, which means that the result is a hypothetical demand, conditioned, of course, by the parameters chosen. However, we believe that the example is valid for showing how family water systems in the sertanejos work.

Table 05 in section 1 of this document shows the results of this calculation. Summing them up, we can say that the household's demand is around 75,000 liters (for the 9-month period in which families depend on the 'mediating sources' system for their water supply). To this amount, we can add about 20,000 liters to maintain the small herd and another 32,000 liters to maintain the yard.

Despite the hypothetical nature of this exercise, as far as in real life values tend to vary a lot, even depending on the greater or lesser availability of water at the time, it has the merit of giving an idea of the quantities of water that a family unit can consume in a certain period of time. The quantities mentioned here will take on greater concrete meaning when we discuss the issue of water supply.

As already mentioned, families get their water through the implementation of structures / instruments - the 'mediators' - that connect supply and demand. These structures allow for the collection, accumulation, storage, and distribution of water (since, very often, the source is not in the place where the water will be used). There are therefore various types of supply 'mediators' that are instruments for collection, accumulation, and access. Here we will first mention first-water cisterns and second-water production cisterns, as these are the 'mediators' that have been worked on the most by civil society organizations (including C. Sabiá and CAATINGA). We have also seen that, in addition to the two cisterns, there can be other types of 'mediators', such as: barreiros, açudes, cacimbas, wells, stone tanks, etc.

As an exercise in reasoning, let us imagine the case of a family whose immediately available mediating sources are a first-water cistern and a cistern. Assuming that these T. Social Tanks are working properly, the family would have a 'stock' of 68,000 liters of water (16,000 l. + 52,000 l.) to meet the demand for the 9 months of 'summer'. Looking at the table of the family's demands, it can be seen that the demand for 'food security' water (which includes water for drinking, cooking and other special hygiene uses) could be covered by the first-water cistern. But assuming that there is no other nearby source available, in this case it is more than likely that the cistern will be used to provide the household's 'spending' water, which is a significant demand (60,000 l.). Logically, if the water from the 'sidewalk' cistern is used for the house's 'expenses', it will not be available for the yard or the livestock. Looking now at the use of the 'waste' water, it is necessary to mention that a very significant part of these 60,000 liters will be discharged into the yard after use, with a good part of it being lost through evaporation and infiltration.

Looking at the case presented here, it is easy to see the usefulness of a RAC/SAF system. The gray water treatment unit would recover the 'leftover' wastewater from the house, making it available for irrigating a yard / agroforestry system. In this way, a good part of the water from the 'sidewalk' would return to its initial use/destination, which is production (mainly of food) in a diversified backyard. The data collected on the volume of water 'produced' by a RAC system in real life (around 48,000 liters/year on average) shows that it is, in fact, very close to the volume of a 'sidewalk' cistern. Continuing to reflect on the case cited here, we can say that a RAC system can increase water availability for the family considered in this example by approximately 70%, from 68,000 to 116,000 liters. This increase is the equivalent of practically one (another) full production cistern. Based on this reflection, it is possible to state that, in addition to being efficient in providing the family with usable water for irrigation, the RAC system can have the capacity to make the water system itself more efficient, by reducing waste and increasing the actual supply of water available for use in an agroforestry yard, for example.

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08/06/2024.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 24 Agroecology Ifad Brazil**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## **Annex x: Promoting Agroecological Transitions in Brazilian IFAD Projects**

### **What is Agroecology?**

Agroecology (AE) is a dynamic, transdisciplinary approach that has gained prominence recently. It combines science, practice, and social dynamics while addressing the economy, ecology, and society within food systems. Agroecology is concurrently a science, a set of practices and a social movement that encompasses the ecological, socio-cultural, technological, economic, and political dimensions of food systems, from production to consumption (FAO, 2024)<sup>1</sup>. The AE transition is understood as a gradual and multilinear process of change, which occurs over time in the forms of management of agroecosystems.

### **Agroecology at IFAD**

For having a systemic approach, agroecology brings solutions to many areas in which IFAD operates, including Food Sovereignty, Poverty alleviation, Gender Equality, Climate Resilience, and Market Access. To identify and promote agroecology-related support in its portfolio, IFAD has developed the IFAD Agroecology Framework, considering the 10 Elements of Agroecology. In this framework, agroecology-relevant interventions are grouped into four levels: i) farm level, ii) landscape level, iii) markets supporting agroecology, and iv) policies and instruments enabling agroecology and sustainable food systems (IFAD, 2021).

### **Agroecology in Brazil**

Here, we highlight returns of experience in agroecological interventions for each level, considering the context of northeastern Brazil, but not limited to IFAD projects. Family farmers have applied agroecology principles in this region for a long time, and the concept has gained importance through grassroots and civil society movements and organizations. This becomes apparent as IFAD projects work with organizations that already have important expertise in promoting agroecology, strengthening existing initiatives.

#### **i) Farm level**

At the farm level, agroecology combines several agronomic practices such as synergistic soil conservation, crop diversification, green fertilizers, nutrient cycling, and integrated pest management (INRAE, 2022), to maximize farmers' resilience and access to nutritious food. At the same time, agroecology brings several environmental benefits for farmers practicing it and the communities surrounding them. Hence, agroecology assumes family farming (FF) is also a unit of production, consumption, and conservation.

**Soil conservation** practices like mulching, hedgerows and intercropping help control erosion processes and increase water availability, reducing the need for irrigation (INRAE, 2022). Agroforestry, one of the best-known agroecological practices, is widely used to restore degraded water sources and to help protect existing ones, to the point that many refer to this practice as "water planting" (Brazilian Education

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<sup>1</sup> Within the global United Nations system, agroecology is framed by the interlinked and interdependent 10 Elements of Agroecology, approved by the FAO Council in 2019, including: i) diversity; ii) synergies; iii) efficiency; iv) resilience; v) recycling; vi) co-creation and sharing of knowledge; vii) human and social values; viii) culture and food traditions; ix) responsible governance; and x) circular and solidarity economy (FAO,2018).

Ministry, 2019). It also provides local climate regulation, improving the microclimate for plants and animals (Gomes et al., 2020).

**Crop diversification** is inherent to family farming, as agriculture is a source of income and subsistence. Diversification is a natural hedging mechanism that makes production less vulnerable to climate conditions, price variations, diseases, and pests (Piedra-Bonilla et al., 2020, INRAE, 2022). When comparing agroecological and conventional systems, monocultures sometimes have a higher yield of their main crop, but diversified systems more than compensate with the yields of additional crops, resulting in higher yields overall (Santos, 2023). Crop diversification also brings nutritional benefits to agricultural families, facilitating their access to diversified diets, reducing their dependence on ultra-processed foods, and increasing the availability of micronutrients, improving Food and Nutrition Security (Pradhan et al, 2021, Luna-Gonzalez & Sørensen, 2018, Kabir et al., 2022). Using native species in agroecological systems also increases climate resilience and agrobiodiversity, as these species are more adapted to the local climate.

**Integrated Pest Management** significantly reduces the need for insecticides, bringing benefits to water quality, local pollinators, and human health. Green fertilizers and nutrient cycling help reduce the need for chemical fertilizers, while soil conservation practices help reduce erosion processes, further increasing water quality (INRAE, 2022). The reduced adoption of biocides also brings health benefits to farmers, who are by far the most affected by the negative consequences associated with these products (Ribeiro et al. 2016, Bortolotto et al., 2020). Using green and organic fertilizers further reduces farmer's dependence on imported chemical fertilizers, whose supply is vulnerable to exchange rates and geopolitical conflicts (INRAE, 2022). These agroecological practices also reduce the associated costs with chemical fertilizers and biocides, increasing profits.

Farmers who transition to agroecological systems feel the advantages in productivity and risk management, environmental quality, and social relations (Figueiredo, 2021).

## **ii) Landscape level**

Beyond the farm level, agroecological practices also contribute to public goods by producing external benefits (ecosystem services), such as water provision. With increased water availability, source preservation, and vegetation cover, agroecological practices contribute to the water cycle and increase water access to populations far away from the farm. For example, preserving water sources in the Brazilian Cerrado can maximize river flows that will go through the Northeast region. Moreover, the loss of vegetation in the Amazon region can negatively affect rain patterns in Southeastern Brazil (FAPESP, 2009 and Paltan et al., 2017). For this reason, several programs have been developed in recent years in Brazil and abroad to provide Payments for Environmental Services (PES) as retribution for farmers adopting agroecological practices, bridging the gap between water producers and consumers (Forest News, 2023).

Beyond the generation of ecosystem services, agroecology promotes landscape land-use planning, governance, and co-learning techniques, such as: participatory land-use planning, building/strengthening community institutions for natural resource governance, community-owned research and learning agenda (co-creation and sharing), and traditional knowledge. It also encourages the adoption of landscape and shared resources management, including community/local seed systems, community gardens/cultivation, community pasture, rangeland/fodder management, community forest/woodland management, community land & water management,

community weather monitoring for climate change adaptation actions and community renewable energy (IFAD, 2021).

Agroecology also has impacts on a global scale, for example, through carbon mitigation. Using green and organic fertilizers reduces N<sub>2</sub>O emissions from chemical nitrogen fertilizers, which contribute to 6 percent of global GHG emissions (C2ES, 2024). Soil conservation practices increase soil carbon, and agroforestry systems sequester carbon in the form of woody biomass, making agroecology a powerful set of tools for carbon mitigation (INRAE, 2022).

### **iii) Markets supporting Agroecology**

At the market level, agroecological interventions happen on two main fronts: value-addition and market access. Simple value-addition measures at the farm, farmer group, or cooperative can lead to higher income for producers. Along the same line, establishing Participatory Guarantee Systems (PGS), community-based certification mechanisms in which farmers guarantee the quality of their agroecological and/or organic produce by applying protocols agreed on with consumers, can also generate higher income.

As for market access, agroecology seeks to connect producers and consumers, prioritizing local markets and supporting local economic development. However, such specialized markets are not (yet) widely established. Despite the limited spread of specialized markets, Agroecological products have dynamic access to markets since they are commercialized in both conventional and agroecological markets. The conventional market is the largest in Brazil, and family farmers (smallholders) produce 70% of all food consumed in the country (Câmara dos Deputados, 2023). Even when sold as conventional products, agroecological farming generally has profit levels similar to or higher than conventional farming, since they are often more productive and have lower costs (Santos, 2023 & INSA, 2022).

In addition to the conventional markets, other important distribution channels exist for agroecological products, such as fairs and markets, solidarity marketing networks, specialized stores, and buying clubs. Diversified and shortened marketing chains and cooperatives have also strengthened the development of this value chain.

Outside conventional and agroecological markets, another channel to be considered for the sale of agroecological production is institutional purchases by government organizations. Programs such as the Food Acquisition Program (PAA) and the National School Feeding Program (PNAE) aim to acquire production from family farming, giving value to agroecological production. Data from IPEA shows that programs like PAA and PNAE have contributed to an increase in the average income and the diversification of the production of family farmers, benefiting the poorest farmers in greater magnitude (IPEA, 2022)

### **iv) Policies and Instruments enabling Agroecology and Sustainable Food Systems**

At last, the systemic approach of agroecology was made stronger by social movements that integrated important aspects of the food system, such as access to land, gender equality, and the rights of Traditional Peoples and Communities (including indigenous and quilombolas). These social movements are responsible for making agroecology go beyond a toolset of productive practices to include crucial parts of rural populations' quality of life and autonomy.

Several grassroots organizations have emerged in Brazil in the past decades, to promote agroecology at a national level, including the Brazilian Agroecology Association (ABA) and the National Agroecology Articulation (ANA). They organize workshops, conferences, and working groups, providing resources to support farmers in the agroecological transition. The Brazilian Government built on these efforts to create its own agroecological policies, such as the National Commission for Agroecology and Organic Production (CNAPO) and National Agroecology and Organic Production Plan (PLANAPO). One of the main contributors to the advance of the agroecological transition in Brazil are the institutional purchases programs mentioned above (PNAE and PAA).

### **Agroecology in Brazil's IFAD Projects**

Several IFAD projects in Brazil, such as those in Ceará and Bahia States, have demonstrated how the participatory nature of the project fosters robust collaboration between beneficiaries and technical experts. This collaboration spans planning, implementation, evaluation, and adjustment of actions, leading to the development of numerous innovations tailored to specific needs and contexts.

The IFAD stock-take report on agroecology further highlights the high incorporation of agroecology in IFAD's portfolio in Brazil. Out of the 8 projects classified as AE-based in the LAC region, 6 are from the North-East of Brazil portfolio, where IFAD has consistently supported the Government and invested in communities shifting to agroecological practices for managing farms and landscapes. These projects contributed to creating innovative ways of connecting producers to markets, e.g., through public procurement or through linkages with local tourist services rediscovering and serving local food. Agroecological innovations also included the engagement of small-scale producers and their communities through multi-stakeholder territorial platforms to discuss solving systemic barriers to income generation and agroecological transition (IFAD, 2021).

One of the main projects in this regard is Project Dom Helder Câmara III, which has a large intervention area. The project will take a demand-driven and participatory territorial approach, engaging marginalized local communities in promoting sustainable and diversified agricultural production and responsible natural resource utilization. It will advocate for decentralized strategies that align with ecological conditions and incorporate cultural values, reflecting the historical relationship between social groups and their ecosystems. This approach will be realized through participatory territorial planning, aiming to identify interest groups and develop rural territorial development plans and associated investments. This ensures a holistic and systemic approach to project activities, addressing the communities' priorities, issues, and needs. This illustrates the comparative advantage of integrating agroecological approaches within IFAD's operations.

### **Agroecology in PROCASE II**

PROCASE II will have a holistic agroecological approach. Regarding agricultural practices, it will promote a set of practices that increase the structural and functional diversity of the agroecosystem, such as increasing crop diversity with multicrop/consortia systems, improving plant breeds and crop varieties, and implementing agroforestry systems. Agroforestry systems will be the main elements of PROCASE II's production systems, focusing on different crops, adapted to the local biomes of the semiarid and the Atlantic Rainforest. In the semiarid, the systems based on fodder production will support goat farming for milk and meat; dairy cattle farming; and free-range poultry farming. Other agroforestry systems will focus on producing fruits and vegetables, including neglected and underutilized species (NUS)

and medicinal plants. The Project will also promote practices like green fertilizers and Integrated Pest Management (IPM), reducing dependence on external inputs, mitigating climate change risks, and guaranteeing a greater variety of nutritious food.

This approach will be based on the co-creation of knowledge and practices, resulting in more effective adoption of innovations and practices adapted to the local context, the environment, and the needs and realities of the people and communities of Paraíba. The Project will develop Technical Assistance (TA) capacities to provide family farmers with agroecological practices. As a concrete example, the PROCASE II diagnostic tool (Annex A) contains different levels and types of Caatinga management for fodder production, that can be adapted to different contexts as an alternative to fodder monocultures. The Project will also implement activities to increase human and social values, especially activities addressing gender inequalities by creating opportunities for women.

Promoting activities of diversifying agricultural production, PROCASE II strengthens ecological resilience and improves farmers' independence in providing inputs and creates new market opportunities for outputs. The Project will improve market access, promote value-adding activities, and facilitate certifications such as the labels *Quilombola* and *Family Farming* or Participatory Guarantee Systems (PGS).

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## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

#### **Design Report**

#### **Annex: 25 Knowledge Management South South And Triangular Cooperation Sstc And Innovation**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



# ANNEX – KNOWLEDGE MANAGEMENT (KM), SOUTH-SOUTH AND TRIANGULAR COOPERATION (SSTC) AND INNOVATIONS IN PROCASE II

## 1. Introduction

**Knowledge Management (KM)** is an important part of IFAD-supported projects. In its Knowledge Management Strategy<sup>1</sup> IFAD defines KM as “a set of processes, tools and behaviours that connect and motivate people to generate, use and share good practices, learning and expertise to improve projects’ efficiency and development effectiveness”.<sup>2</sup>

Additionally, **South-South and Triangular Cooperation (SSTC)** provides a unique opportunity to leverage the strengths and experiences of diverse stakeholders, including other developing countries and international organizations. SSTC is an important approach for IFAD, which has set out its commitments in the SSTC Strategy 2022-2027<sup>3</sup>.

According to the World Bank, Brazil is classified as an upper middle-income country (UMIC), with a gross national income per capita (GNI) of USD 8,140 in 2022. It is also one of the biggest food exporters in the world. However, it is one of the countries with the greatest inequalities in income distribution, with a Gini index of 0.518 in 2022. These disparities are most pronounced in the Northeast region, which has large pockets of rural poverty mainly concentrated in an environmentally sensitive region. This context puts Brazil in a privileged position to set the stage for innovations in programs and policies that reduce poverty and inequality and increase food security and sovereignty. KM and SSTC play a crucial role in this effort, as many of these programs are built on the results of previous experiences in Brazil or elsewhere. Recognizing this importance, IFAD has made efforts in Brazil to identify, share and promote good practices and solutions aimed at sustainable rural development, with special attention to agricultural practices, rural organizations, and marketing. The Brasilia SSTC and Knowledge Centre, opened in 2018, has played a strategic role in expanding this agenda in Latin America and the Caribbean and in consolidating partnerships with Brazilian and regional institutions.

Recognizing the importance of these approaches, PROCASE II entails a subcomponent dedicated to implementing a comprehensive Knowledge Management Strategy and related activities and fostering robust South-South and Triangular Cooperation initiatives: *Subcomponent 2.5 - Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC)*. **Innovations** are an important part of the Project (sub-component 1.3), mainly focusing on the topic of mechanization (see Chapter 5). The systematization, documentation, and dissemination of past and new experiences – in short, the knowledge management of innovations – will be crucial for the uptake and scaling of new technologies.

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<sup>1</sup> <https://www.ifad.org/en/-/document/knowledge-management-strategy>

<sup>2</sup> See also IFAD’s explanation video SPANISH IFAD Knowledge Explained

<sup>3</sup> <https://www.ifad.org/en/-/documents/sstc-strategy-2022-2027>

IFAD's leadership role in KM and SSCT has positively impacted the partnership with the InterAmerican Development Bank (IDB)<sup>4</sup>, opening new cooperation channels in these topics, which will be strengthened and expanded during PROCASE 2. As the partnership continues to evolve and increase, IDB investments in KM and SSTC are expected to complement and scale IFAD's agenda in the region. The relevant experiences from IDB will also serve as basis and be included as references in the detailed PROCASE II KM and SSTC plan.

This annex intends to be an exploratory summary on the topics of KM and SSTC, providing an overview of IFAD initiatives and projects in northeast Brazil on which PROCASE II can build on. The annex also presents a first draft of what the overall objective of the KM and SSTC strategy in PROCASE II could look like, and outlines important considerations based on which a detailed KM and SSTC plan will be elaborated during the first year of project implementation. The annex also highlights specific considerations about policy engagement and finally provides details on the innovations that will be supported by PROCASE II, which will be systematized and shared through KM and SSCT activities.

## 2. Previous Project Phase and other IFAD projects / initiatives

There are many important experiences in the region and beyond from which PROCASE II can profit and build on, especially in terms of knowledge products that have been produced. A selected set of relevant projects and initiatives are shortly described in the following paragraphs (non-exhaustive list).

The Cariri, Seridó, and Curimataú Sustainable Development, **PROCASE**, project was a loan project from IFAD implemented between 2012 and 2020 in the state of Paraíba. It was implemented in 56 communities in the Semiárido region of the state, in the Caatinga biome and contributed, amongst others, to improving agricultural productivity, increasing income, and enhancing access to water for production and consumption. The monitoring and evaluation (M&E) Department of the Project Management Unit (PMU) was responsible for the KM of the Project. The main objective was to systematize the knowledge generated in the project, with a thematic focus on agricultural and non-agricultural production chains, renewable energies, gender equality and youth. In collaboration with the programmes Semear Internacional (see below) and PROCASUR<sup>5</sup>, a variety of knowledge products were elaborate, including booklets and audio-visual products. These products were disseminated to various stakeholders. The main publications relating to this systematization of PROCASE experiences are: "Richness of the Semiárido", "Agroecological Logbooks and the Women of the Semiárido Region", "Seeds of hope - good practices for living in the semiárido region: Tourism and rural youth", "Women who flourish in the northeastern semiárido region", "A young pulse in the semiárido region" and "Systematization of Good Practices from PROCASE activities"<sup>6</sup>. PROCASE also has several

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<sup>4</sup> underlining the important role of KM and an active dissemination of project results to raise the visibility of IFAD's projects and impact, to foster partnership and ultimately scaling IFAD's investments as highlighted in [IFAD's operational framework for scaling results](#), Oct. 2023

<sup>5</sup> <https://procasur.org/en/nosotros-eng/>

<sup>6</sup> [Riquezas do Semiárido](#), [Cadernetas Agroecológicas e as Mulheres do Semiárido](#), [Sementes da esperança - boas práticas de convivência com o semiárido: Turismo e juventude rural](#), [Mulheres que florescem no Semiárido Nordestino](#), [Pulsar jovem no semiárido](#), Sistematização de Boas Práticas das ações do PROCASE

dissemination channels, such as a website<sup>7</sup>, Facebook page, Instagram and YouTube channel which remain active until today.

The two programmes Semear and Semear Internacional are IFAD funded programmes specifically working on the topic of knowledge management in the semiarid areas of northeastern Brazil. **Semear** was co-financed by AECID<sup>8</sup> and implemented between 2011 and 2017 by the Inter-American Institute for Cooperation on Agriculture (IICA). This programme was the first knowledge management grant programme of IFAD in Brazil. The overall objective of the program was to build the capacity of the rural population to have a set of knowledge, experiences, innovations, and good practices that contribute to improving their living conditions, coexist with the living conditions of semiarid regions and take full advantage of the development potential of the Northeast region of Brazil. Based on the success of Semear, a follow-up programme was launched. **Semear Internacional**<sup>9</sup> was also implemented by IICA. Its aim was to facilitate access to knowledge, innovations and good practices that can be adopted and replicated by the rural population to improve their living conditions and promote sustainable and equitable development in the region. As a new component, compared to the first Semear programme, SSTC played an important role in Semear international, fostering knowledge exchange with countries of the Mercosur and Africa. The project was active from 2017 until 2022. For the purpose of this annex, it is important to highlight the publication of “Strategies, Good Practices and Lessons Learned from Semear international - Knowledge Management for Rural Development”<sup>10</sup>.

**AKSAAM**<sup>11</sup>, Adapting Knowledge for Sustainable Agriculture and Market Access, was an IFAD grant executed by the Institute of Public Policies and Sustainable Development - IPPDS, linked to the Federal University of Viçosa – UFV. The project was active from 2016 to 2024, working to alleviate rural poverty with a focus on sustainable agricultural development to promote food and nutrition security in line with the Sustainable Development Goals (SDGs). Its main objective was to improve the access of family farmers to technologies and knowledge, increase their productivity and improve the conditions of access to markets, with Latin America and the Caribbean as operating locations. Important products of this project to mention here are the *Biblioteca Semiáridos América Latina (SAL)*<sup>12</sup>, an online platform with knowledge products about the semiarid, and the online training course Agroforestry Systems Extension Course in semiarid regions<sup>13</sup>.

**DAKI - Semiárido Vivo** was another IFAD grant aimed at contributing to tackle climate change in three semiarid regions of Latin America: the Central American Dry Corridor (CSC), the Great American Chaco (GCA) and the Brazilian Semiarid (SAB). The project started in 2020 and will be running until the second half of 2024. It is carried out by a network of civil society organizations working in these regions: ASA (Brazil), FUNDAPAZ (Argentina) and FUNDE (El Salvador). The project’s main activity was to identify and systematize experiences, training

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<sup>7</sup> <https://www.procace.pb.gov.br/>

<sup>8</sup> Spanish Agency for International Development Cooperation

<sup>9</sup> All material produced from SEMEAR has been moved to the Biblioteca Semiáridos América Latina, see footnote 11

<sup>10</sup> <https://bibliotecasemiarios.ufv.br/jspui/handle/123456789/138>

<sup>11</sup> <https://aksaam.ufv.br/en-US/>

<sup>12</sup> <https://bibliotecasemiarios.ufv.br/>

<sup>13</sup> <https://aksaam.ufv.br/pt-BR/curso-saf>

processes and knowledge exchanges that contribute to farmers, technicians, and their respective institutions in Climate Resilient Agriculture (CRA) practices and strategies. Through its activities, it gave visibility to experiences and trained multipliers in Climate Resilient Agriculture based on Agroecology and Coexistence with the Semiarid.

The **INNOVA-AF**<sup>14</sup> - Knowledge Management for the Adaptation of Family Agriculture to Climate Change - Project was funded by IFAD and implemented by IICA between 2018 and 2022. The objective of the grant was to strengthen the capacities of family farmers with low resilience to the impacts of climate change in semiarid territories and mountain systems to actively participate in rural transformation processes in Latin America and the Caribbean and to disseminate good practices for adapting family farming to climate change. To this end, subprojects (work experiences) were designed and implemented in rural communities from which innovative practices were disseminated and new knowledge generated to strengthen the resilience of local producers. These subprojects were carried out in 8 countries - Bolivia, Brazil, Colombia, Ecuador, Guatemala, Honduras, Mexico, and the Dominican Republic.

In addition to PROCASE, IFAD has also been implementing other projects in the state of Paraíba, with KM and SSTC initiatives that are worth mentioning here. These are the **Project Dom Helder Câmara II (PDHC II)**<sup>15</sup>, in partnership with EMBRAPA and INSA, and the Project **PCR/P/Sertão Vivo** (Planting Climate Resilience in Rural Communities of the Northeast). Furthermore, two new IFAD grant projects are in the pipeline, the tri-national (Brazil, Argentina, Bolivia) project **Raízes Agroecológicas (GP-SAEP)**<sup>16</sup> and a new **initiative to reduce methane emissions**<sup>17</sup>. PROCASE II will benefit from cooperation and coordination with these projects in terms of knowledge generation and exchange.

In terms of SSTC, IFAD's **Centre for Knowledge and South-South and Triangular Cooperation, Latin America and the Caribbean Division**, created in 2018 and located in Brasília, has been helping to disseminate a vast array of interventions and social technologies with proven effectiveness and potential to be scaled up throughout new investment projects and public policies. The Centre is part of the wider SSTC and KM network, acting as a link between IFAD and a wide range of external partners (research institutions, academia, civil society, private sector, other UN agencies, etc.). The Centre has also brought new impetus to non-lending activities, especially at the regional level, enabling IFAD to expand its capacity to engage in policy dialogue, specifically through participation in forums and events. The contributions to the work of the Consortium of the Northeast illustrate this. These successful experiences arising from IFAD and partner operations have been disseminated through learning routes, field visits, technical exchanges, workshops, and technical publications.

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<sup>14</sup> <https://innova-af.iica.int/>

<sup>15</sup> <https://www.gov.br/agricultura/pt-br/assuntos/mda/projeto-dom-helder-camara>, PHDC phase 2 is running until September 2024 and a new phase, PDHC phase 3 is currently in design.

<sup>16</sup> GP-SAEP: Participatory Improvement of Genetic Resources and Seed Systems for Agroecological Production (Agroecological Roots) - GRIPS

<sup>17</sup> <https://www.ifad.org/en/web/latest/-/new-ifad-initiative-will-help-reduce-global-warming-by-lowering-methane-emissions-from-small-scale-farming>

### 3. KM and SSTC Plan for PROCASE II

KM and SSTC will be a fundamental and strategic approach during the implementation of PROCASE II. The Project will hire a cross-functional specialist (**KM and SSTC Specialist**, here after the specialist) who will be responsible for KM and SSTC<sup>18</sup>. During the first year of the Project, this specialist will elaborate a KM and SSTC Plan.

The KM and CSST Specialist plays a crucial role in development projects, ensuring that information and knowledge are systematically captured, shared, and used to improve project results. To foster a culture of knowledge sharing within the project team, the specialist must emphasize that knowledge management is a collective responsibility. This involves promoting the importance of documenting experiences, good practices, lessons learned and so on, encouraging open communication and providing training to incorporate these practices into day-to-day work. In doing so, the specialist helps to build a collaborative environment where continuous learning and improvement are integral parts of the team's success.

In addition, during the initial phase and throughout the implementation of the project, the Specialist will lead the identification of strategic partners to carry out studies, research, and events. These partners will play a key role in the project's sustainability strategy, ensuring that the knowledge generated is widely distributed and made available even after the project has ended. The Expert will also manage the hiring of specialized consultants to prepare technical documents and specific activities.

The KM and SSTC specialist will elaborate a KM and SSTC plan for PROCASE II during the first year of the project. Key elements to be included in the plan are outlined below, together with important considerations specific to the PROCASE II context.<sup>19</sup> The plan will be regularly updated throughout project implementation.

At the outset of the elaboration of the KM Plan, the **current situation and background** in terms of KM and SSTC should be analysed. As mentioned in chapter 2, PROCASE II can draw on a wide range of resources, products and experiences from other initiatives and projects, including the lessons learned from PROCASE I. The KM and SSTC activities of PROCASE II should therefore avoid the duplication of already existing material. To do so, a comprehensive review of already existing material, initiatives and experiences must be carried out at project inception. This review should also assess whether the existing material meets the requirements of the Projects target audience (including illiterate people) and whether it can be used in activities of PROCASE II. For the identified products, strategies should be developed to broaden the reach of the existing materials, ensuring wider accessibility and relevance (scaling up and out). This can also include the use of new innovative formats, such as apps and social media. The existing materials that can be used for activities of PROCASE II, including for trainings of the PMU or technical staff, should be systematized, and made easily available, in a database or similar.

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<sup>18</sup> A sample ToR for a KM and SSTC Specialist is included as Annex I to this document. This sample ToR was provided by the IFAD KM Resource Centre and was adapted to the specific requirements.

<sup>19</sup> this section is based on the template for a basic KM plan provided by IFAD's KM resource center: <https://ifadkmcentre.weebly.com/knowledge-management-plan.html>

The KM and SSTC activities of PROCASE II should focus on new topics that either have not yet been covered in other initiatives, or that are new thematic areas in PROCASE II. This includes the topic of the Atlantic Forest (Portuguese: *Mata Atlântica* or *Zona da Mata*), physically disabled people and artisanal fisherwomen/shellfish gatherers, amongst others. The IDB has also developed several projects in this biome, which could be used here. Consequently, KM products and SSTC activities elaborated during PROCASE II will focus on themes that are central to the project, (identified below in Chapter 4. Thematic Focus) and therefore support the **overall project objectives**.

In the next step, the **purpose, objectives and expected results** of the KM and SSTC plan must be defined. At this stage, the overall goal is defined as to improve the project's ability to generate, use and share knowledge at different levels: among project participants, at state level, in the Northeast region, and in other developing countries (via SSTC). This goal will be refined during the elaboration of the KM and SSTC plan.

The specific **objectives** of the KM and SSTC plan could be:

- To engage with and inform rural people about project activities
- To support learning, adaptation, and improved project performance during implementation;
- To capture, use and share lessons learned;
- To influence policy processes and scale up successes;
- To raise awareness of project activities and results, and publicize successful experiences;
- To boost the project profile among decision makers;
- To improve the design of new projects based on the lessons learned

The **target audience** will have to be defined. At this stage, it includes:

- Family Farmers
- Technical Assistance Staff, Project Staff
- Local policy makers and wider public

The KM and SSTC plan will define detailed activities. The **activities** will be implemented in the following broad action areas:

- Systematisation of Experience and specialized Studies
- Communication and Dissemination in Knowledge management;
- South-South and Triangular Cooperation;

Expected **outcomes** could include:

- Operational effectiveness and efficiency are improved;
- Best practices and lessons learned are consistently used in project implementation, and disseminated to other projects and partners - at the state level, in the Northeast region, and countries in the Southern Cone and Africa;
- Needs and priorities of target groups more consistently addressed through knowledge and learning initiatives;
- Successful experiences are scaled up based on solid evidence-based and technical knowledge on what works and why;
- Project knowledge products are used in policy engagement;



- Information management supports efficiency in operations;

Expected **outputs** could include:

- Documented lessons (both successful and non-successful);
- Knowledge products to support policy dialogue, advocacy, and visibility;
- Regular learning events (for example, project learning days; country programme team meetings; country programme implementation reviews; knowledge events to support policy engagement, etc.);
- Information materials and training for target groups based on needs assessments;
- Thematic networks/communities;
- Learning routes, trainings and policy exchanges organized with other countries
- Knowledge partnerships;
- KM capacity building initiatives;

The KM and SSTC plan will also define the **knowledge sharing and knowledge products** that will be developed. It is important that products are developed tailored to the defined target audience, and that the purpose and the dissemination and communication channels are clearly defined. It will be important to include lessons learned from other projects, especially from the PROCASE I (which products worked well and why? Which dissemination strategies worked best and why?). As a guide, the table below lists examples of KM products and dissemination channels or events for different KM objectives and target groups, provided by the IFAD KM resource center<sup>20</sup>.

Examples of KM objective	Stakeholders/ target audiences	Knowledge products	Dissemination channels/events	Useful partnerships
Influence policy	Government bodies Key decision makers Donors/ development partners	Studies Policy briefs Evidence-based lessons learned on successful approaches Pictures and videos	Seminars Roundtable discussions Policy working groups Social media Expert blogs	Universities Relevant NGOs National-level associations of interest groups

<sup>20</sup> <https://ifadkmcentre.weebly.com/knowledge-products.html> (with more details)

Strengthen project implementation	Project team  Staff of implementing agency and of other similar projects  Implementing partners and service providers	Lessons learned  Documented good practice & innovations  How-to-do-notes  Guidelines  Local knowledge briefs	Project learning days/workshop  Share fairs  Project website  Training sessions	Project staff  Technical experts (consultants or staff of line ministries / extension centers)  Local people
Contribute to body of knowledge on project themes	Government  Ministries and agencies  Decision makers  Academics	Studies  Journal articles  Lessons learned  How-to-do-notes	Thematic websites  Communities of practice  Learning events, seminars, conferences  Academic journals  Expert blogs	Universities  National and international research centers
Share project knowledge with local community	Local communities  Target groups	Newsletters/circulars  Posters/leaflets/maps  Video, animations, cartoons  Facebook pages/project website  Project briefs	Start-up workshops  Interactive awareness-raising events  Local media/social media  Field visits  Mailing lists	Local journalists  Project staff  Community organizations  Local NGOs  Local schools

For the KM and SSTC activities to be successful, it is crucial to have clearly defined roles and responsibilities (**KM in project management**). As already mentioned above, it will be important to establish and foster a culture of knowledge documentation and sharing within the whole PMU, to allow for a good KM implementation. For this, it must be defined how data and information from the project M&E system will be used for KM and SSTC and what other information will be collected, such as qualitative information and information from the innovation activities.

For the implementation of the KM and SSTC Plan, a detailed **work plan and budget** must be elaborated. This plan will be reviewed annually and reflected in the Project's AWPB for proper

budget execution. The following table presents a preliminary budget of the KM and SSTC activities.

<b>2.5 - Knowledge Management (KM) and South-South and Triangular Cooperation (SSTC)</b>	<b>Unite</b>	<b>#</b>	<b>Value / Unit</b>	<b>Total Value in USD</b>
P - Systematizations and studies in Knowledge Management prepared and published	Studies	25	40 000,00	1 000 000
P - Annual phases of Communication and Dissemination in Knowledge Management implemented	Years	6	20 000	120 000
P - South-South and Triangular Cooperation	Exchanges	10	100000	1000000

Finally, it must be defined how the KM and SSTC Plan will be evaluated (**evaluating success**). A clear monitoring method must be established at the outset of the project, including the definition of indicators to track results.

#### **4. Thematic Focus**

PROCASE's KM and SSTC activities will focus on, but not be limited to, the following themes:

##### **Agroecology and Agroforestry Systems (AFS)**

Agroecology and Agroforestry systems will be the main element of PROCASE II's productive systems, focused on different crops. The Project will build Technical Assistance (TARE) capacity for delivering Agroecological practices to family farmers, such as diversification of plant varieties and crops with multicrop / intercrop systems, increasing soil organic matter content, utilization of green fertilizers, and Integrated Pest Management (IPM) with practices geared toward increasing agroecosystem structural and functional diversity.

Agroforestry is the intentional integration of trees or shrubs with crops and/or livestock at the plot, farm, and/or landscape scale for developing agroecosystems that mimic natural ecosystems in terms of nutrient cycling and biodiversity (structurally and functionally). Agroforestry Systems (AFS) are a climate change adaptation strategy to increase the resilience of farmers and agricultural systems against climate risk, providing a range of biophysical and socioeconomic benefits through the taxonomic and spatial diversification of agricultural outputs and microclimates, therefore, reducing farmer vulnerability to climate variability and their dependence on external outputs (e.g. fertilizers and biocides).

A few agroecological systems and agroforestry systems are already present and well diffused in the Project region, such as Agroecological Cotton and Fodder AFS. PROCASE II will promote different variations of these systems that could prove successful in other parts of

Brazil and the globe and should therefore be systematized and shared through KM and SSCT, especially in biomes with similar climate and vegetation. In that regard, the Project will promote agricultural systems that use native species with commercial potential and foster industrialization and commercialization of products from the local biodiversity. Some of these species are already compiled and could serve as a basis to identify other regions with similar species, where the knowledge generated by PROCASE II would be the most useful.

One of the main topics related to agricultural development in Brazil that also affects PROCASE II design is the prevalence of animal farming systems for milk and meat and their impact on deforestation and desertification trends, directly or indirectly. As PROCASE II will have a strong animal component, several measures will be implemented to make sure these productive activities will not contribute to the degradation of natural habitats. Such measures will also be worth sharing for implementation in other regions facing the same problems.

### **Social Technologies**

PROCASE II will invest in social technologies that improve access to water, such as cisterns for human consumption and agricultural production, subterranean dams, and water tanks. It will also fund grey water recycling technologies and sewage treatment activities using green septic tanks and filtering gardens. Water access and storage technologies have a great potential to be used in other regions that are affected by water scarcity and their widespread use during PROCASE II will serve to consolidate and expand this potential through KM and SSCT.

### **The Zona da Mata biome (Atlantic Forest)**

PROCASE II will also cover the Zona da Mata (Atlantic Forest) region in the eastern part of the state, consolidating IFAD's expansion beyond the semiarid region, and aligning with IFAD's Parceiros da Mata and CompensACTION projects, which are also in the Atlantic Forest biome. PROCASE will foster exchanges and knowledge construction with these projects and other initiatives in similar biomes.

Along with the expansion to the new biomes, PROCASE II will also reach populations rarely benefited by IFAD and IDB projects in Brazil: artisanal fisherwomen and shellfish gatherers. The outcomes of this experience will guide upcoming IFAD interventions in areas such as natural resource management and could also be a valuable source of information for other regions where fishing and shellfish harvesting are the main economic activities.

## **5. Policy engagement**

Policy engagement and knowledge management activities often go hand in hand. As mentioned above, one objective of a KM and SSTC plan can be to influence policy processes and scale up successes. Policy engagement and dialog is a crucial aspect in IFAD's project as it is key for project sustainability and replication and scale up. For this reason, the topic is discussed here in some more detail.

During the first phase, PROCASE has worked in many different policy engagement activities, despite reduced federal funding for family farming. PROCASE strengthened various institutions involved in rural development, it collaborated with government agencies, facilitated

policy dialogue between Brazil and Mexico in agroforestry, participated in various spaces for public policy discussions and created initiatives like a Women Farm Council. Project staff have also been recruited for leadership roles in rural development programs, ensuring continued policy engagement and knowledge exchange.<sup>21</sup>

These successful activities will be an important part of PROCASE phase II. The project will engage in important government policies, such as the Cistern Programme, Technical Assistance, land, and environmental regularization Programs. Phase II will continue to strengthen state and local technical assistance organizations and intra-governmental coordination to expand beneficiaries' policy access and stimulate the participation of farmers' leaders and project staff in various spaces for public policy discussions (such as state councils and working groups). Furthermore, the coordination among different secretariats will play a key role in driving the project's activities. Similarly, through the systematization of experiences, best practices, and innovations, KM and SSTC activities will seek to generate significant improvements in current public policies, such as water access, sanitation, and climate-resilient agriculture, scaling them to other government programs and actions.

There are many policy platforms that are relevant to the Project's goals. It will be important for the project to elaborate a strategy on which platforms it makes sense to get involved and in what way. Some important platforms are: ASA (Articulação Semiárido Brasileiro), ABA (Associação Brasileira de Agroecologia), ANA (Articulação Nacional de Agroecologia), CNAPO (Comissão Nacional de Agroecologia e Produção Orgânica), the Forum of Secretaries and the Northeast Consortium (Consórcio do Nordeste), the Northeast ATER Network, the ILPF Network (Crop-Livestock-Forest Integration) headed by EMBRAPA, and the Family Farming Regional Information System (SIRAF).

## **6. Innovation and Mechanization**

PROCASE II will promote innovation initiatives by incubating small businesses, providing funding and technical assistance to identified innovators and helping them scale up their initiatives to reach other farmers. It will promote innovations developed specifically for family farming systems, such as tools for agroecological practices, machinery for small-scale agro-industries, biotechnologies aligned with the concept of resilient production systems, among others. Some examples include small tractors, pruning tools, forage cutting machines and oilseed processing engines. Many of these innovative initiatives already exist in the project area. They will need to be identified, assessed in terms of their suitability for strengthening resilient family systems, improved (where appropriate), and/or disseminated. In several cases, it will be a question of promoting tests of new equipment in the real conditions of family units in Paraíba. Promising innovative initiatives that need resources to consolidate themselves and get disseminated will be financed by an investment fund that will provide between US\$ 10,000 and 60,000 (R\$ 50,000 to 300,000) to each initiative, depending on their financing needs. The selected projects will be accompanied by a team of experts in the expansion process (the cost of support activities is included in the amount of funding received by each initiative).

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<sup>21</sup> a complete description of the policy engagement of PROCASE can be found in the Project Completion Report

The project will fund the development of initiatives (which could be small 'backyard' companies, research groups, experimenting farmers, among others) aimed at creating products and technologies tailored to the local context, such as machinery adapted to small producers and equipment for processing and adding value (priority themes). The project will also fund innovations in secondary themes, such as products derived from native/traditional species, bio-inputs (soil nutrition, bio-insecticides), efficient water management technologies, solid waste treatment, etc. The investment dedicated to this subcomponent will allow up to 25 of these initiatives to be financed (with amounts of up to R\$300,000 each).

### **Benefits expected for each micro-enterprise**

Selected companies or teams will receive the following benefits:

1. Funding of R\$50,000 up to R\$300,000 (including support activities mentioned below)
2. Technical consultancies,
3. Business and market-oriented mentoring,
4. Development of business plans,
5. Support with Design and Visual Communication,
6. Networking and Partnership opportunities

The PMU will designate innovation officers or a foundation that will search for existing prototypes in the project area and select innovators according to predefined criteria. The Project will fund the expansion of these initiatives, providing guidance, refining the prototypes, and facilitating market access. The selection can be made through a competitive process (calls for tenders) or through a direct search in the project area, with the help of Local Development Agents (ADL) and ATER technicians. The direct search for existing innovations will involve the local PROCASE II offices and focus on Federal Institutes (IFs), Agricultural Family Schools (EFAs), Universities, Rural Schools, and local artisans. The work developed by SERTA<sup>22</sup> serves as an example of how the innovations identified by the Project could be supported.

The incubation and monitoring of innovations can be done directly by the designated innovation officers, by the appointed foundation (if it has experience in this area) or in partnership with a social entrepreneurship incubator, such as IACOC (incubator of the Paraíba Technology Park).

### **Priority Themes**

- 1) **Mechanization for small producers:** Mechanization adapted for agroecological and agroforestry family farming, such as motor cultivators, forage palm chopper and feeder, long-arm pruning shears, woodchipper and other small implements. Companies that share or rent<sup>23</sup> machines and implements will also be supported.

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<sup>22</sup> <https://serta.org.br/>

<sup>23</sup> <https://www.sciencedirect.com/science/article/pii/S0308521X18314914> ,  
<https://repository.cimmyt.org/xmlui/bitstream/handle/10883/22429/65927.pdf?sequence=1&isAllowed=y>

- 2) **Technologies for Cooperatives and Associations:** machines and implements for cooperatives and associations, such as pulpers, dehydrators, dryers, mills, packaging machines and processing plants in general, as well as recycling machines such as waste separators and processors.
- 3) **Mechanization for Persons with Disabilities:** fund at least 2 projects developing machines, tools, or equipment for persons with disabilities.

### **Secondary Innovative Themes**

- 4) **Agroecological Markets and Local Biodiversity:** Promote nutrition from local biodiversity, through development of products derived from native/traditional species, extraction of oils and essences, creation of agroecological fairs, greengrocers, restaurants, etc.
- 5) **Adaptation to Climate Change:** water capture technologies and water use efficiency, climate comfort, etc.
- 6) **Access to renewable energy:** Financing and Installation of solar panels for small producers, heat pumps, energy efficiency works, reduction in the use of firewood, biodigesters, etc.
- 7) **Soil nutrition and integrated management of pests/weeds:** manufacture of organic fertilizers and products used in the biological control of pests and weeds, such as production of green manure seedlings and seeds, inoculation of natural enemies, production of compost, *biocaldas* and other bioinputs.
- 8) **Studies and research projects:** small research projects that can be considered innovative, for example new variants of agroforestry systems.
- 9) **Digital tools for small producers:** Access to digital technical assistance (including plant and insect identification, recommendations for organic/ green fertilization or weed/pest control), Information services (prices, logistics, soil conditions, weather information and early warning systems), Financial services (financial management tools and access to credit and insurance), Supply chain digitalization (recording information, planning tools, sharing implements, shared transport of products and inputs, etc. ) and Market access and e-commerce (selling family farming products, buying inputs, etc.).
- 10) **Digital tools for cooperatives and associations:** Resource sharing (machinery, implements, processing equipment/facilities, etc.), Market access and e-commerce, Planning and management tools (recording information, organizing inventories, etc.) and Certification and legal compliance tools, (checklists for obtaining licenses or preparing for health inspections, etc.).

### **Selection Criteria**

#### *Possible criteria for funding and support*

- 1) **Social Criteria:** The company must have Social and Environmental Impacts as its main objectives, aiming for low prices for farmers and fair payment for workers.

- 2) **Right to repair:** Machines, implements and equipment must be designed in such a way that they are easily repairable using accessible technologies and with easy replacement of parts, thus avoiding the user being forced to buy a new copy.
- 3) **Economic Sustainability:** The company must prove that there is a demand for its service/product in the long term
- 4) **Environmental Sustainability:** The company must show that its product/service does not generate significant environmental impacts (GHG emissions, waste, etc.)
- 5) **Local Impact:** Team members come from the project regions.
- 6) **Traditional/ancestral knowledge:** Valuing and integrating indigenous and traditional/ancestral knowledge and technologies.
  
- 7) **Focus on young audiences and young women:** 50% quotas for women and 50% for young people are suggested, with 50% of young people's places reserved for women.
  
- 8) **Focus on Persons with Disabilities:** fund at least 2 projects led by persons with disability.

The results and lessons learned from the innovation projects will be systematized and shared through KM and SSCT initiatives, such as booklets, workshops, field visits, exchange programs, and others.



## **Annex I - Sample ToR for KM and SSTC and Specialist**

### Examples of TOR for KM and SSTC Specialist

The following TOR could be used for a cross-functions Specialist position that will be responsible to cover KM and SSTC activities.

The overall purpose of the position is to improve project management processes and results by fully integrating KM and SSTC into all aspects of project management, including M&E, financial management, supervision, and reporting.

Specific responsibilities will include:

#### KM

1. Lead development and implementation of the project's KM and SSTC Plan.
2. Define the project's KM goals and strategic objectives, and the main areas of KM-related work with clear linkages to improving programme performance, promoting innovations, scaling up success, sharing lessons learned, and influencing policy.
3. Ensure there is sufficient integration between programme learning systems (Progress Reports, Stakeholders meetings, Knowledge Products) and the project's AWPB to close the circle of participatory, demand-driven planning and implementation.
4. Develop the annual KM work plan and budget, outlining KM activities, budget, and timeline.
5. Develop a range of Knowledge Products that document lessons learned, best practices and success stories and define the most adequate dissemination and communication method for each product
6. Identify knowledge partners from which to draw relevant knowledge or to develop and share knowledge generated by the project.
7. Build the capacity of the project staff to enhance knowledge sharing within the project and support project management to create incentives for knowledge sharing.
8. Identify indicators and monitoring methods, which should be reflected in the Program M&E system to track results and impact of KM activities.

#### Communications & Advocacy in Knowledge Management

1. Lead the preparation (content and design) of communication and advocacy materials about project knowledge products and related documents and publications (factsheets, posters, press releases, online articles, blog posts, infographics, PowerPoint presentations, brochures, human interest stories, success stories, videos, etc. as required), and ensure they are published on the webpage of the project and other relevant channels.
2. Support publishing of Knowledge Products through IFAD communications networks (webpage and social media, regional portals, etc.)
3. In collaboration with the institutional communication responsible of the project, project implementing organizations and partners, identify, develop, and maintain a calendar of events; develop and manage messages and information material to ensure the success of these events.

4. In collaboration with the institutional communication responsible of the project, develop and maintain a project mailing list, prepare, and conduct interviews with selected stakeholders, as needed, and maintain relations with IFAD's communications focal point.

## SSTC

1. Detail specific SSTC activities and their goal in the project's KM and SSTC plan.
2. Facilitate concrete SSTC activities such as study missions and learning workshops in collaboration with IFAD and external partners.
3. Contribute to establishing a systemic approach to the SSTC activities to make the SSTC activities efficient and effective.
4. Support the compilation of best practices and assess demands for exchanges and SSTC initiatives with other projects and selected partners.
5. Liaise with IFAD SSTC and Knowledge Centre, located in Brasilia, to assess opportunities for SSTC and learning events.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 26 Procurement Gap Analysis Ifad Bid Dbh**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



**PROGRAM MANAGEMENT DEPARTMENT (PMD)  
LATIN AMERICA AND THE CARIBBEAN DIVISION (LAC)  
Brazil**

**REGULATORY FIDUCIARY ASSESSMENT:**

GAP ANALYSIS BETWEEN THE PROCUREMENT FRAMEWORKS OF THE INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD) AND THE INTER-AMERICAN DEVELOPMENT BANK (IDB)

**SUSTAINABLE RURAL DEVELOPMENT PROJECT FOR MORE RESILIENCE AND ADAPTATION TO  
CLIMATE CHANGE IN THE SEMIARID PARAIBANO  
PROCASE 2**

**Lucianna Diehl Matte – LAC Procurement Consultant**

## Summary

<b>I. INTRODUCTION</b>	<b>3</b>
<b>II. COMPATIBILITY BETWEEN THE REGULATORY FRAMEWORKS</b>	<b>4</b>
<b>III. ANALYSIS OF PROCUREMENT ARRANGEMENTS</b>	<b>5</b>
A. Fiduciary Aspects (Procurement and Financial Management)	5
B. Procurement Principles	6
C. Assessment of Fiduciary Management in Projects	6
D. Analysis of requirements demanded by organizations	7
<b>IV. CONCLUSION</b>	<b>7</b>
<b>V. ADDITIONAL RECOMMENDATIONS AND ACTIONS</b>	<b>8</b>
A. As an extremely important point:	8
B. Align legal and normative instruments on:	8
C. Additional actions:	8

## **REGULATORY FIDUCIARY ASSESSMENT: PROCUREMENT**

### **I. INTRODUCTION**

The Sustainable Rural Development Project for more Resilience and Adaptation to Climate Change in the Semiarid Paraibano – PROCASE 2, is being financed by IDB and IFAD, with IDB being the largest contributor and lead agency. IDB is already a partner with the state in other credit operations. IFAD will bring its expertise already applied and consolidated in the development of poor and extremely poor rural areas in the State of Paraíba after the execution of PROCASE 1.

IFAD and the IDB signed a Partnership Agreement in 1978 as a framework for their cooperation. This partnership between IDB and IFAD is established by ICO Brasil to leverage financing for agricultural development projects in the country. The Inter-American Development Bank (IDB) is a multilateral development bank (MDB) linked to the Organization of American States (OAS).

PROCASE 2 is a Type C project with a total financing US\$ 148 million, with US\$ 108 million from the IDB, US\$ 10 million from IFAD, and a counterpart contribution from the State of Paraíba of US\$ 30 million.

As this is a Type C project with the lead agency being IDB, the Project will use IDB's design documents, policies and procurement standards, to the extent that they are compatible with IFAD Guidelines.

The objective of this document is to compare IFAD's and IDB's procurement frameworks, predict conflict mitigation strategies and ensure complementarity and coherence between the two systems.

**Legal and regulatory basis.** In this assessment, the following legal instruments of the procurement regulatory framework were used:

**IFAD Project Procurement Framework**

- IFAD Project Procurement Guidelines
- IFAD General Conditions for Agricultural Development Financing
- IFAD Procurement Manual (for IFAD staff and consultants)
- IFAD Procurement Handbook (for Borrowers/Recipients)
- Project-specific procurement provisions incorporated in the Financing Agreement and the Letter to the Borrower (LTB)/Project Procurement Arrangements (PPA)
- IFAD Standard Procurement/Bidding Documents (incorporate procurement-related provisions of IFAD's undermentioned policies)
- The revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations
- IFAD Policy on Preventing and Responding to Sexual Harassment, Sexual Exploitation and Abuse
- IFAD Anti-Money Laundering and Countering the Financing of Terrorism Policy
- IFAD's Social, Environmental and Climate Assessment Procedures (SECAP).

#### **IDB Project Procurement Framework**

- Policies for acquiring goods and procurement works financed by the IDB (GN 2349 15)
- Policies for the selection and hiring of consultants financed by the IDB (GN 2350 15)
- Criteria for Determining Eligibility (GN 2375)
- Policy for Use of National Public Procurement Systems
- Project-specific procurement provisions incorporated in the Financing Agreement and Coordination Agreements implementing alternative procurement arrangements
- IDB Standard Procurement/Bidding Documents
- Financial Management Guidelines for IDB financed Projects (OP-273-12)
- Project Operating Regulations (ROP).

## **II. COMPATIBILITY BETWEEN THE REGULATORY FRAMEWORKS**

In general, there are no incompatibilities between IDB fiduciary management standards and IFAD procurement guidelines. The main differences between the two regulatory frameworks reside in concepts and terminologies, in addition to definitions of deadlines, financial limits, penalties, and the language of technical instruments.

The normative and regulatory arrangements of the two institutions also present some formal differences. IFAD has its main policies in its own specific instruments whose contents are reflected in technical documents. The IDB, on the other hand, deals with strategic themes relating to procurement as part of its general procurement policies (GN 2349-15 and GN 2350-15). In this sense, some themes and/or policies approved by the IDB in 2019 and already incorporated into the updated versions of the institution's procurement policies: Innovative purchasing; Sustainable purchasing; Gender, diversity, and climate



change; in addition to the importance of market knowledge in the procurement strategy developed by borrowers.

At the end of this document, some measures and actions are indicated that can mitigate possible differences and generate complementarity between the information.

### **III. ANALYSIS OF PROCUREMENT ARRANGEMENTS**

#### **A. Fiduciary Aspects (Procurement and Financial Management)**

The fiduciary principles and objectives of the IDB and IFAD are aligned to ensure that the financial resources managed by the respective institutions are used exclusively for the purposes for which the loan was granted, with due attention to economy and efficiency.

##### ***IDB Financial Management Principles and Guidelines***

*The Constitutive Agreement of the Inter-American Development Bank (IDB) establishes, among other things, that the Bank “shall take the necessary measures to ensure that the proceeds of any loan granted, guaranteed or participated in by the Bank are used only for the purposes for which they were granted, taking due account of considerations of economy and efficiency.*

*For the Bank, the term “project financial management” covers several systems, including budget, treasury, accounting and financial reports and internal and external controls. The guiding principles of financial management are legality, integrity, economy, efficiency, effectiveness and transparency.*

*The Bank understands that an adequate financial management system, among other things:*

- I. ensures that funds are used for their intended purposes, in accordance with the principles of economy and efficiency*
- II. ensures the accountability of the people and institutions responsible for its administration*
- III. produces reliable and timely information for decision making*
- IV. is subject to independent review and supervision by independent internal and external controls*

*Source: OP 273-12*

## B. Procurement Principles

The following are considered basic express principles that guide procurement policies:

By IFAD	By IDB
<ul style="list-style-type: none"> <li>• Ethics</li> <li>• Accountability</li> <li>• Competition</li> <li>• Fairness</li> <li>• Transparency</li> <li>• Efficiency, effectiveness and economy</li> <li>• Best value for money</li> </ul>	<ul style="list-style-type: none"> <li>• Value for money</li> <li>• Economy</li> <li>• Efficiency</li> <li>• Equality</li> <li>• Transparency</li> <li>• Integrity</li> </ul>

By analyzing the procurement policies of IFAD and the IDB, it is possible to infer that, expressly or tacitly, both institutions advocate equivalent principles that are fully aligned with each other.

The IDB adopts all IFAD principles and adds two more, which are Competition and Responsibility.

## C. Assessment of Fiduciary Management in Projects

**Concept Note and Design Phases.** Both Organizations carry out an assessment of Fiduciary Risk during the development phase in order to validate the updated inherent risk of the borrower and the Implementing Agency in various aspects: macroeconomic, institutional, political, taking as a reference a strategic institutional planning for the country.

- IDB: the bank proposes measures to mitigate procurement risks identified based on a general assessment of institutional capabilities.

- IFAD: carries out a risk assessment based on the OECD MAPS II Methodology, which covers both the national regulatory framework and institutional capacities at the project level.

**Implementation Phase.** Based on the risks identified during the design of the project (inherent risk) both Organizations propose an annual review of the established fiduciary management requirements. A new assessment is carried out based on Fiduciary Risk to understand the risk situation at the time of supervision, considering the full adoption of the proposed mitigation measures (residual risk).

**Review of Procurement activities.** During the implementation of projects, both Organizations review the Procurement Plan (PP) proposed by the Borrower to ensure that they are in accordance with the provisions of the Loan Agreement and respective Policies. The first Procurement Plan must cover an initial period of at least 18 months. The Borrower shall update the Procurement Plan annually as required. For the IDB, annual PPs must always cover the following 18 months of the project execution period. For both the IDB and IFAD, any proposal to revise the Procurement Plan must be approved by the respective institution. Some differences observed regarding reviews regarding procurement:

- IFAD: establishes criteria and value limits based on which documents and procurement activities must be submitted for prior review to IFAD, with its execution conditional on a statement of No Objection by the Organization. In addition, IFAD annually carries out on-site supervision missions to verify compliance with its requirements and policies in the implementation of the procurement cycle in project activities. For procurement, in particular, IFAD verifies in post review a sample of at least 10% of current contracts.
- IDB: for countries with a level of risk such as Brazil, the Bank generally works with supervision based on *ex post* reviews of procurement activities, except for specific cases such as direct contracting. In the IDB Manual, however, the obligation for supervision with a minimum sample was not identified.

#### **D. Analysis of requirements demanded by organizations**

In general, there is alignment on the main aspects to be observed in the implementation of procurement activities by the borrower. The preparation of previously approved Procurement Plans (initial 18-month PP and subsequent annual PPs) is required, which must be considered living instruments to be reviewed whenever necessary. The PP must be consistent with the Annual Workplan and Budget (AWPB). The main procurement methods follow the international standards. Alternative procurement methods are equivalent. The eligibility criteria are similar and carrying out due diligence for the conclusion and/or execution of contracts is required by both Organizations. An annual audit carried out by independent auditors is required within a defined deadline for delivery of the report, with severe sanctions applied in case of non-delivery. Supervision and prior review may be required in cases of identified risk. The use of national procurement systems are acceptable to the extent that they are consistent with the procurement guidelines of each organization. Specifically for Brazil, however, subnational projects are authorized to use only the national electronic method known as *Pregão*. Both IFAD and the IDB have their own computerized systems for monitoring procurement activities, which, however, have different management levels.

#### **IV. CONCLUSION**

Based on the above, it is possible to conclude that, in general terms, the procurement frameworks of IFAD and IDB are compatible. There is no substantial procurement regulatory gap between the two institutions. IDB's procurement standards and policies are consistent with IFAD's Procurement Guidelines. However, it is possible to adopt some complementary measures in order to mitigate the activity inherent risks, as well as strengthen the procurement strategy for the Project.

## **V. ADDITIONAL RECOMMENDATIONS AND ACTIONS**

### **A. Supervision:**

- **Strategic review by sampling.** Alignment with the IDB is recommended to ensure that IFAD annually carries out strategic supervision that includes a sample of at least 10% of contracts in implementation, with an emphasis on the main project contracts (big tickets). This supervision may be in person or virtual, to be defined later.

### **B. Align legal and normative instruments on:**

- **Obligation to preserve documents.** FIDA requires custody for ten (10) years after the last disbursement and IDB requires custody for three (3) years. Therefore, the custody of documents that are financed in whole or in part by IFAD will need to be kept for 10 years.
- **Self-certification on integrity and absence of conflict of interests.** IFAD requires the inclusion of the Integrity Self-Certification Form among the bidding documents required from bidders to enter into contracts under the Project. This document will be analyzed in the due diligence stage carried out by both institutions. It was agreed that the form will be inserted as an annex to the IDB notices, when the bid has FIDA resources in whole or in part.

### **C. Additional actions:**

- It is recommended that IFAD's channels for receiving and handling complaints (Ethics and AUO) are indicated in the Project's operational manuals and equivalent documents.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 27 Financial Management Arrangements**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department





## Annex 27 PDR PROCASE II

## **I. Summary of Financial Management arrangements**

PROCASE II is a type C project with BID as the Cooperating Institution. IFAD participated in cooperation with BID design team, in the financial management assessment of the State Secretariat for Family Farming and Semiarid Development (SEAFDS) of the government of Paraiba, as implementing agency based in Jao Pessao. the State Agency for Research, Rural Extension and Land Regularization (EMPAER) will act as sub-implementer for activities under component 2 for activities related to land tenure. Within SEAFDS a dedicated PMU will be established in Joa Pessao with territorial offices. Fiduciary evaluation was carried out for both SEAFADS and EMAER which were shared and reviewed by Finance Officer IFAD.

The project is a second phase of the PROCASE I project. PROCASE I is still operational with financing from Government of Paraiba more than three years after its completion in December 2020 and maintains an active PMU and five field offices.

SEAFDS has an adequate structure for the Project with staff with experience in similar projects in particular the IFAD Financed PROCASE I and world bank financed COOPERAR project which is currently ongoing. The implementation approach for the project is decentralized with a large portion of financing used towards farmers organizations and cooperatives through the financing of Investment plans and business plans. Established manuals and standards are available for the financial management which include anti-corruption measures.

The overall conclusion is that the Project's financial management arrangements are satisfactory, but there is a need to increase the capacity of the finance team with two dedicated finance staff in the PMU to be established for the project, Training to finance staff on BID financial policies and procedures, ensure sufficient resources are allocated to the accompanying and monitoring the implementation and reporting on Investment plans and business plans and establish and document in the ROP clear criteria for recording and valuing government counterpart financing and producer organizations contributions.

The inherent Financial Management Risk was classified as Substantial with a residual risk of oderate with hiring as key staff, the no Objection to the PIM and the implementation of an automated reporting system as a condition for first disbursement included in the FA. Fiduciary risks were identified, and mitigation measures were proposed, as can be seen in item IV

## **II. Project financial profile**

The Project's estimated total cost is USD 100 million for a six-year implementation period. The financing plan comprises an IFAD loan (BRAM) of USD 10 million (9.5%), an IDB loan of USD 70 million (66.7%), and a contribution of USD 25 million (23.8%) from the Government of the State of Paraiba, covered by a Sovereign Guarantee from the Federal Government. IFAD financing will be applied proportionally to all components and subcomponents applying the parri passu mechanism in equal percentages.



## Annex 27 to the Project Design Report (PDR) PROCASE II

To avoid delays in project implementation it is important dates of entry force of IDB and IFAD financings are aligned.

Additionally, Project beneficiaries would contribute around USD 10 million, which has not been included in the total costs per IDB's standard practice but will be accounted for by the PMU as per the provision in the PIM and monitored by IFAD.

**Eligible disbursement categories:** The following table presents the eligible disbursement categories to be financed by the IFAD loan and the allocation of loan amounts to each category and the percentages of expenditure of the elements to be financed in each category. As this is a type "C" project, which will be administered by IDB, allocation will be by components same as financing agreement IDB to facilitate reporting and in accordance with the IFAD-IDB Coordination Agreement.

<b>Component</b>	<b>IDB</b>	<b>IFAD</b>	<b>State</b>	<b>Total</b>	<b>%</b>
1 - Resilient production systems to reduce rural poverty	42.28	6.04	15.10	63.42	60.4
2 - Organizational strengthening, capacity building and knowledge management	20.87	2.98	7.45	31.30	29.8
Project management, monitoring and evaluation	6.85	0.98	2.45	10.28	9.80
<b>Total</b>	<b>70.0</b>	<b>10.0</b>	<b>25.0</b>	<b>105.0</b>	<b>100.0</b>

Project management costs, including M&E, amount to USD 10.2 million, representing 9.8%. Every component will be financed proportionally by IFAD, IDB and the State of Paraiba. The recurrent cost for the project amount to USD 8.4 million which corresponds to 9.5% of total projects costs

IDB and IFAD may recognize as counterpart funding , up to US\$2.5 million (10% of the estimated total amount), eligible expenditures incurred prior to the date of loan approval, through SEAFDS and EMPAER, for the hiring of PMU staff, studies and appraisals, and services and equipment necessary for project management and implementation of component actions, provided that substantially similar requirements to those established in the loan agreement have been met. Such expenditures must have been incurred on or after July 5, 2023 (date of registration of the operation), but in no case shall expenditures be included that were incurred more than 18 months prior to the date of loan approval.

**Conditions for disbursement to be included in the FA:** i) opening of the designated account in US dollars; ii) appointment/selection of the PMU finance team; iii ) approved Project Operating Regulations (ROP); and iv ) signed contract with the IDB for the entire project execution.

### **III. Implementation Arrangements**

**IFAD-IDB collaboration:** The project is type C project with IDB as a cooperating institution. The IDB will be responsible for the fiduciary oversight of the project. The IFAD Financing Agreement (FA) will stipulate that IDB shall be the Cooperating Institution for the Project. A draft Coordination Agreement between IFAD and IDB has been prepared to ensure full alignment. Under the draft Coordination Agreement, IDB will coordinate with IFAD in advance the plans and TOR for supervision and other missions so that IFAD may contribute to the TOR and directly participate in the missions.

As for the other 2 Type C project in cooperation with BID in Brazil (PSI and PARCEIROS DA MATA) the following has been agreed:

- IFAD will accept IDB formats as equivalent to IFRs (detailed comparison of IDB format versus IFR template has been carried out)
- The project will upload the IDB reporting formats as IFRs in the Financial Execution Module in IFAD Client Portal (ICP)
- As per IDB procedures, reporting formats are not presented on a quarterly or semi-annual schedule. Instead, projects submit reporting formats when 60% of the advance has been utilized so timing depends on level of execution in the project. Advances are based on a 6-months forecast so that would mean reporting every 4-5 months. The project will submit IFRs in the Financial Execution module choosing the closest quarter.
- Details on reporting requirements as described above will be included in the ROP.
- A format has been developed in cooperation with FCD through which IDB will confirm advances are ready for disbursement / justification to be reflected in the IFAD finance system with the IDB financial reporting formats attached.

**Project Lead Agency:** The borrower of the Project will be the State of Paraíba, and the federal government will provide a sovereign guarantee. The executing agency will be SEAFD. The State Agency for Research, Rural Extension and Land Regularization (EMPAER) will be a sub-implementation agency and coordination will be ensured through a specific subsidiary agreement. A PMU will be set up at an identified separate public building and will be exclusively dedicated to the PMU. It will have a multidisciplinary team responsible for project implementation. The Project will also have 8 dedicated Regional Management Field Units (RMUs), on average one per 2 or 3 territories, to be defined during design. 3.1 The PMU will have, in addition to the central team in João Pessoa, territorial offices, which will have a technical team financed by the project and will be responsible for disseminating information, monitoring project actions and supporting the accountability of the plans with the organizations, among others. The number and location of the offices will be defined according to the geographical and territorial layout of the plans. The territorial offices will use the space available in the field units field units of EMPAER to build synergies and reduce administrative costs.

**Experience of the Project's Lead Agency:** Detailed Fiduciary assessment was of SEAFDS was carried out by the BID. The results of the fiduciary evaluation carried out by BID combines with experience from PROCASE Phase I are documents and summarized in the FMAQ. The BID design reports concludes indicate that that SEAFDS has experience in implementing programs financed by international agencies, most notably the recently completed PROCASE I, financed by an \$18 million loan from IFAD, however, it will need to use a PMU to ensure adequate capacity for financial management of the project.

**Description of implementation arrangements:** A dedicated PMU will be established for the project as a continuation of the PMU of the PROCASE I project. A dedicated finance team of two staff within the PMU will be responsible for financial management and ensure compliance with the financing agreement and the ROP. The unit will be responsible for: (i) maintaining formal communication with IDB on financial matters; (ii) Maintaining accurate and complete accounting records (iii) submitting justifications of expenditure disbursement requests; (iii) Preparation of annual financial statements and coordinating timely submission of external audit; (iv) coordinating monitoring and evaluation activities; (v) submitting documents required by IDB, such as: the consolidated program operational planning, the Financial Plan (FP), the Multi-Year Execution Plan (MIP), and financial and progress reports (vi) monitor execution and submit required reporting to IDB and IFAD. The PMU staff will include a dedicated financial specialist and an additional finance staff.

**Farmers Organizations** For the contracting and implementation of the Resilient Investment Plans and Business Plans (approximately 200 RIPs and 60 NPs), community organizations or cooperatives will be contracted respectively, for which SEAFDS will sign a legal instrument with each one establishing obligations and responsibilities in the execution of the plan, as well as the conditions for disbursements to the organizations, percentages and means of verification. The model of this legal instrument will be included as an annex to the ROP.

The SEAFDS will contract, through a competitive process, technical assistance services for the preparation of participatory diagnoses and the preparation and support for the implementation of the PIRs, while the cooperatives benefiting from the NP may contract specialized technical assistance for their design and implementation with project support.

**Other agencies involved:** The State Agency for Research, Rural Extension and Land Regularization (EMPAER) will land tenure regularization activities under Component II

#### IV. Financial Management Risk Assessment<sup>3</sup>

**Inherent risk.** The inherent risk is the risk that the project FM system does not operate as intended due to factors related to the environment in which the project is being implemented and that IFAD has a limited ability to control. At design stage, the inherent risk is assessed in respect of the inherent risk assessment pillars (three pillars) and project control risk assessment pillars (six pillars).

##### A. Project Control Risks

i. Project level	Timing Differences between signing of Financing Agreements BID and IFAD  Large amount of project funds used for financing of non-reimbursable investment and business plans  Decentralized implementation with third party entities involved in design and implementation and reporting on investment and business plans	S	Close Coordination between BID and IFAD during negotiations and on signing and approval of respective financing agreements.  PIM which includes clear provision around approval, disbursements and reporting on Investment and Business plans	M	
<b>A. Control risk assessment pillars</b>					
1. Organization and Staffing	i) risk of implementation delays if dedicated finance staff PMU is not hired in a timely manner; ii) Incompliance with finance policies and procedures and financing agreements if requirements are not well understood by PMU Finance Staff	S	Recruitment and appointment of key finance staff as a condition for fist disbursement in FA's BID and IFAD	M	(i) include budget for PMU finance staff in project budget; ii) During start up phase training on IDB and IFAD finance policies and procedures.
2. Budgeting	If the state's fiscal situation worsens, the budget allocated to the project could be reduced with as a result delays in implementation.	S	.	S	Close coordination with SEFAZ to ensure the availability of a sufficient budget from the start date of the Project.
3. Funds flow and Disbursement Arrangements	(i) Use of funds transferred to farmers organizations of funds under investment or business plans not for intended purposes. ii) Lack	S		S	Close coordination with SEFAZ to ensure the availability of a sufficient budget from the start date of the Project.

Annex 27 to the Project Design Report (PDR) PROCASE II

	of segregation of duties, in particular during the start-up phase, if the hiring of finance staff is delayed				
4. Internal Controls	i) Use of funds transferred to farmers organizations under investment or business plans not used for intended purposes. ii) Lack of segregation of duties, in particular during the start-up phase, if the hiring of finance staff is delayed	S	) Establish in the Program's Operational Regulations (ROP) clear mechanisms for the approval , disbursements and reporting on the use of funds transferred in the form of investment and business plan and include in agreements signed with producer organizations details of responsibilities and procedures. The approval of the Program's Operational Regulations (ROP), by IDB and IFAD as a condition for first disbursement; ii) Hiring of key finance staff as a condition for disbursement in FA; segregation of duties incorporated in the ROP.	M	
5. Accounting and Financial Reporting	(i) Reliance on Excel for preparation of Interim Financial Reports in Excel, resulting in human errors and delays in submission; ii) Delays or inadequate quality of reporting on use of funds from investment and business plans by farmers organizations and/or cooperatives; iii) Incomplete or delayed reporting of counterpart funding in particular since, as per IDB's standard practice, beneficiary contributions are not included in total project.	S	(i) Before the start of the Project and as a condition for disbursement in FA, implementation of a complementary automated reporting system similar to the SIGMA system used within the Worldbank financed Cooperar project, that generates basic financial statements and financial reports as required by IDB and accepted by IFAD as equivalent to IFRS and allows for budget monitoring	M	The ROP and agreements signed with farmers organization and cooperatives will establish a clear procedures for reporting on the use of funds transferred under investment and business plans (iii) Establish and document in the ROP a process for capturing beneficiaries' contributions in conjunction with M&E data, training of technicians, and clear criteria for recording and valuation of the same and ensure the technical assistance provided to producer organization includes support on administrative matters and reporting on use of funds.

			by component and categories based on data from the governmental SIAF system		
6. External Audit	Accounting standards used for preparation of audited financial statements not disclosed in audit opinion and/or notes	M		M	In coordination with BID ensure accounting standard to be used and disclosure of the same is included in TdR for external audits.
<b>Overall FM Risk @ design<sup>1</sup></b>		S		M	

## V. Financial Management and Disbursement Arrangements

### 1) **Financial management organization and staffing**

The SEAFDS finance team consists of qualified staff with extensive experience and knowledge of IFAD's policies and procedures from PROCASE Phase I. The PMU finance team will consist of at least 2 (two) professionals and will work in conjunction with the existing administrative structure of the SEAFDS. The team will require addition training on BID specific policies and procedures and the use of ICP for submission of financial reporting to IFAD. Budgeting

The PMU will be responsible for coordinating the planning process for the execution of program activities. The budget allocation resources are made available through SEPLAG - State Secretariat of Planning, Budget and Management of the Government of the State of Paraíba, based on a budget submission which includes the Annual Operating Plan (AOP) prepared by the project, detailing planned program activities and corresponding values for the year year.

After sending the budget submission, between September and November of each fiscal year, SEPLAG, through a letter sent to PROCASE/SEAFDS, informs the availability of budget allocation to be inserted in the SIOP system - Integrated Planning and Budget System, which feeds information for the formalization of the PLOA - Annual Budget Bill.

Once the information is entered into SIOP, SEPLAG sends the PLOA to the Legislative Assembly for its vote. Once finalized, the values will be entered in the SIAF system - Sistema Integrado de Administración Financiera del Estado, the system that manages the budget. This system is the financial and accounting system of the Government of the State of Paraíba.

SEAFDS will be responsible for securing the necessary resources in the Annual Budget Law (LOA) and the State's Multi-Year Plan (PPA) and the corresponding contribution of counterpart resources, throughout the duration of the project.. For each year, the SEAFDS will submit to the IDB, up to 60 days prior to its start, an Annual Operating Plan (AOP) containing the activities to be carried out, description of expenditures by component, category, sources of resources and implementation deadlines.

### 2) **Disbursement Arrangements and Flow of Funds**

<sup>1</sup> The Final Risk at design should reflect a combined consideration of inherent and control risks for the project.

## Annex 27 to the Project Design Report (PDR) PROCASE II

Disbursement arrangements and flow of funds: In accordance with the IFAD-IDB Coordination Agreement under a Type "C" project, financial management will be the responsibility of the IDB. Disbursements will be made in U.S. dollars, mainly in advance of funds, with the possibility of using the modality of reimbursement of payments to the executing agency, in agreement with IFAD and IDB. The value of advances of financing resources will be determined on the basis of a financial projection of 2 quarters and will be made in pari passu proportion of IFAD and IDB funds. For advances subsequent to

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<sup>4</sup>The Final Risk at design should reflect a combined consideration of inherent and control risks for the project.



the first, it will be necessary to account for at least 60% of the accumulated balance of the currently unjustified advance.

The PMU will request disbursements of Loan resources through standard Disbursement Request forms, through the IDB's Electronic System - Online Disbursement (OD) and IFAD's Client Portal (ICP), in accordance with the delegation of authorized signatures communicated to the financiers. The financing resources disbursed by the IDB and IFAD will be deposited in a bank account in dollars (USD) for each financier, which will be managed by SEFAZ-BA and used exclusively to receive and manage the loan resources. In addition, a bank account in Brazilian reais (BRL) will also be opened for each financier, also for exclusive use of the loan resources, where the resources received in dollars will be internalized in Brazilian reais, in accordance with the Project's financial flow needs, with the objective of minimizing the loss due to exchange rate differential.

Payments to suppliers and producer organizations will follow the normal expenditure execution routines (commitment, liquidation, and payments), segregated with respect to IFAD and counterpart financing sources. These procedures will be carried out by SEAFDS's Financial Management in conjunction with the Financial Unit of the PMU

For purposes of justification of expenditures, the exchange rate used to convert expenditures incurred in reais (BRL) to dollars (USD) will be the exchange rate effective on the date of conversion from the currency of disbursement to the local currency (internalization rate).

Justifications will be provided through the presentation of Statements of Expenditures agreed with the IDB, which will contain, in addition to the description of the expenditure, date, value in local currency and value in USD, columns with the amounts in USD due to the IDB, IFAD and the counterpart. The expenditure ratio of IDB and IFAD funds must be maintained throughout project execution, unless formally determined otherwise. The same accountability forms shall be submitted to IFAD and IDB in the following form.

IDB will review all documentation relating to expenditures and movements in IDB's and IFAD's accounts, and following this review, IDB will notify IFAD, by letter, or other means agreed with IFAD, to confirm that it has reviewed and is satisfied that the request complies with the provisions of the Loan Agreements with the Borrower. Thereupon, both financiers will make disbursements to their respective designated accounts.

Transfers of resources to the RFOs will be made to specific accounts to manage the Project's resources. Each transfer will be authorized by the PMU and will not exceed 20% of the value of the respective plans. Replenishment of resources for the PRLs will be made as expenditures are incurred justified by approved the PMU. All resource transfers, replenishments and payment of invoices related to the execution of the Project will be made by the SEAFDS, subject to approval by the PMU.

### **3) Internal Controls and Internal audit arrangements**

All projects implemented by government entities including those at state level are subject to Law No. 4.320 which establishes the norms and principles for budgeting, accounting, and financial management within the public sector.

Internal Control will be ensured by establishing segregation of duties, reconciliation of accounts,

## Annex 27 to the Project Design Report (PDR) PROCASE II

approval levels for expenditures supported by opinions or other documents. Process flows are clear and well understood by SEAFDS staff. All budgetary and accounting transactions for the project will be carried out in the state public accounting system. All payments will follow routine commitment, settlement and payment. All project costs are recorded in accordance with SEAFDS's Chart of Accounts and are linked to a Project-specific revenue stream account, which allows for comparison and reconciliation with the project's own records recorded in the Government System. Internal Control is continuously complemented by the activities of the Comptroller General's Office (CGE). The PMU will provide details of roles, responsibilities and procedures in the ROP, which should also highlight the processes to be carried out by the RPOs, detailed procedures and guidelines for disbursements, transfers, approvals, commitments, payments and reports.

The internal audit is carried out directly by CEM through annual inspections by lot and indirectly by the legal department of SEAFDS and PGE, which reviews the contracts to be signed by the entity. IDB does not rely on the internal audit function of the institutions in charge of project implementation.

#### **4) Accounting Systems and Financial Reporting mechanisms**

Accounting Systems and Financial Reporting Mechanism: According to Decree Law 9.295/46, as amended by Law 12.249/10, the Federal Accounting Council (CFC) is authorized to establish accounting standards for the public sector. Federal, state and municipal governments are ultimately responsible for implementing public sector accounting standards, which currently follow a hybrid approach (accrual and cash basis). In 2015, the CFC reconstituted the Convergence Management Committee - which had already made the decision to converge Brazilian public sector standards with IPSASs issued by the IPSASB - through Law 112/2015 with the objective of further driving the convergence process. The convergence process started in 2017 and should be completed by 2024 (Source IFAC 2023).

The budget and accounting of the Project and SEAFDS are incorporated in the state of Paraiba SIAF system. All transactions will be processed SIAF system. The use of the SIAFI system is obligatory for payment processing and incorporates adequate measures to control user access based on user roles and responsibilities. The SIAFI system generates reports and financial statements that provide insights into the financial status and performance of government agencies but does not allow for monitoring of budgeting based on components and categories as is a requirement for IFAD and other external financing. The SIAFI system is designed to be interoperable with other government systems.

The accounting records of the Project's operations will be recorded separately and apart from other records that do not involve loan resources, through the Integrated Accounting and Financial Planning System - FIPLAN, The Project's Chart of Accounts will follow the one used in SEAFDS

The accounts will be rendered through the submission of Financial Reporting Formats as per IDB which have been reviewed and will be accepted by IFAD as equivalent to IFRS and will be submitted both to BID for review and to IFAD through the Financial Execution Module in ICP.

During the period of Project implementation, the Borrower shall submit to audited financial statements to IDB and IFAD, indicating the respective accounting standard adopted (within 120 days after the end of each fiscal year. The fiscal period of the Project comprises the period from January 1 to December 31 of each year.

Within SEAFZ, the SIGMA system was developed for the COOPERAR project financed by the Wordbank. This system is integrated with the SIAF system and allows for the automated generation of financial reports as required by the Workdbank PROCASE aims to cooperate with the COOPERAR project to build on the experience to build on the experience of the SIGMA system and develop a dedicated system for the PROCASE system to generate reporting required by BID/IFAD.

### 5) External Audit

In accordance with the IDB procedures set forth in the Instruction on Audited Financial Reports and External Audit Management, audited financial statements shall be submitted annually, no later than 120 days after the close of each fiscal period. The external audit will be conducted by an external firm acceptable to the Bank. Final EFAs for the program will be submitted no later than 120 days after the date of the last disbursement.

IDB aims to for the use of the Paraiba State Court of Account for the external audit of the project. The audit will be conducted in accordance with the ToR, which must also highlight the accounting standards adopted and include on-site visits to the PRLs .

TCE/BA normally performs audits in the scope of external projects with the State of Paraiba in accordance with INTOSAI. TCE/BA is accredited by the World Bank to conduct audits of its funded projects and therefore also qualifies for audits of IFAD projects.

During the period of execution of the Project, the Borrower must submit to the IDB and IFAD the audited financial statements, indicating the accounting standard adopted. (Implementation

## Readiness

**Table 3: FM Actions Summary: The actions needed to mitigate FM risks are summarised below:**

	<b>Action</b>	<b>Responsible Party / Person</b>	<b>Target Date / Covenants<sup>5</sup></b>
<b>1</b>	Final review and approval bby IFAD/BID of the Program's Operating Regulations (ROP)	SEAFDS	Condition for first disbursement as per POD- BID

Annex 27 to the Project Design Report (PDR) PROCASE II

<b>1A</b>	Establish and document in the ROP clear criteria for recording and valuation of government counterpart financing.	SEAFDS	Prior to entry into force
<b>2</b>	Hiring of finance specialist as part of the PMU established for the project	SEAFDS	Condition for first disbursement as per POD- BID
<b>3</b>	Training for SEAFDS and PMU staff on IDP financial policies and by IFAD on use of the ICP	BID IFAD FMD	During start-up
<b>5</b>	Before the start of the Project and as a condition for disbursement in FA, implementation of a complementary automated reporting system similar to the SIGMA system used within the Worldbank financed Cooperar project, that generates basic financial statements and financial reports as required by IDB and accepted by IFAD as equivalent to IFRS	SEAFDS	Condition for first disbursement or special covenant in Fa FIDA
<b>6</b>	Ensure that SEPLAN is firmly committed to ensuring the allocation of sufficient counterpart financial resources for project implementation. SEAFADS will ensure timely submission of request for fiscal space and counterpart funds to ensure sufficient and timely resources for Project implementation.	BID IFAD	Ongoing
<b>7</b>	Confirm appointment of State Court of Audit for external audits of the project and regular coordination with State Court of audit on planning of audit and Terms of Reference	BID	Annually

**FM Supervision plan**

Project supervision will be carried out by the IDB and will consist of assessing the implementation of financial management and performance mechanisms, identifying corrective actions, where appropriate, and monitoring fiduciary risks. IFAD supervision will be conducted on a desktop basis through review of IFRS (BID Formats accepted) BID Supervision Reports and audited Financial Statements. Based on results of desk reviews, IFAD may arrange for FMS/FO participation in on-site missions carried out by BID.

## **Brazil**

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### **Paraiba Rural Sustainable Development Project Design Report**

#### **Annex: 28 Financial Gap Analysis**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



# EVALUACIÓN FIDUCIARIA NORMATIVA: GESTIÓN FINANCIERA ENTRE EL FIDA Y LOS ESTÁNDARES DEL BID

## Documento de trabajo

### I. INTRODUCCIÓN

ICO Brasil ha estado estableciendo alianzas institucionales con el fin de apalancar el financiamiento agrícola en beneficio de su público objetivo en Brasil. Entre estas alianzas se encuentra la alineación con la oficina local del Banco Interamericano de Desarrollo, un banco multilateral de desarrollo (BMD) vinculado a la Organización de los Estados Americanos (OEA).

El objetivo de este documento es identificar comparativamente los puntos asociados a la Gestión Financiera del FIDA y el BID y vislumbrar estrategias de mitigación de conflictos y asegurar su complementariedad. Este documento de trabajo pondrá especial énfasis en la compatibilidad de las normas de gestión financiera del FIDA y el BID.

**Base legal y normativa.** En esta evaluación se utilizaron los siguientes documentos que documentan los requisitos de gestión financiera:

FIDA
<ul style="list-style-type: none"><li>• Condiciones Generales para la Financiación del Desarrollo Agrícola</li><li>• Manual de gestión y control financieros de proyectos para prestatarios 2022</li><li>• Formato Carta sobre la gestión financiera del proyecto y las disposiciones relativas al control financiero</li><li>• Marco Conceptual relativo a la información Financiera y la Auditoría de los Proyectos financiados por el FIDA</li><li>• Manual operacional relativo a la información financiera y la auditoría de los proyectos financiados por el FIDA</li></ul>
BID
<ul style="list-style-type: none"><li>• Financial Management Guidelines for IDB-financed Projects (OP-273-12)</li><li>• BID Audited Financial Reports and External Audit Management Handbook – May 2018</li><li>• Instructivo de Desembolsos – Diciembre 2021</li></ul>

### II. COMPATIBILIDAD ENTRE GUÍAS

En general, no existen mayores contradicciones ni mayores incompatibilidades entre las normas de gestión financiera del BID y las directrices del FIDA, salvo algunos aspectos que mencionaremos en el punto D de este documento. Las principales diferencias entre las dos regulaciones radican más en términos de tiempo, gastos de cierre y sanciones, algunos



arreglos de auditoría, idioma del contrato. Al final del documento se encuentran las recomendaciones y acciones que se consideran necesarias.

### **III. ANÁLISIS DE ARREGLOS DE GF ENTRE AMBOS ORGANISMOS**

#### **A. Objeto del FM entre ambos órganos**

En relación con los objetivos y principios del FM del BID y el FIDA, están alineados y el enfoque principal es garantizar que los recursos de financiamiento se utilicen solo para los fines para los que se otorgó el préstamo, teniendo debidamente en cuenta la economía y la eficiencia.

##### **Caja #1**

##### **Principios y Directrices de Gestión Financiera del BID**

*El Convenio Constitutivo del Banco Interamericano de Desarrollo (BID) establece, entre otras cosas, que el Banco "tomará las medidas necesarias para asegurar que los recursos de cualquier préstamo otorgado, garantizado o participado por el Banco se utilicen únicamente para fines para el cual se concedió el préstamo, teniendo debidamente en cuenta consideraciones de economía y eficiencia.*

*Para el Banco, el término "gestión financiera de proyectos" abarca varios sistemas, incluidos el presupuesto, la tesorería, la información contable y financiera y los controles internos y externos. Los principios rectores de la gestión financiera son la legalidad, la integridad, la economía, la eficiencia, la eficacia y la transparencia.*

*El Banco entiende que un adecuado sistema de gestión financiera, entre otras cosas:*

- I. vela por que los fondos se utilicen para los fines a los que están destinados, de conformidad con los principios de economía y eficiencia*
- II. asegura la rendición de cuentas de las personas e instituciones responsables de su administración*
- III. produce información confiable y oportuna para la toma de decisiones*
- IV. está sujeto a revisión y supervisión independientes por parte de controles internos y externos independientes*

*Fuente: OP 273-12*

#### **B. Principios fundamentales de la FG entre ambos órganos**

Los principios rectores que rigen la gestión financiera del BID son: legalidad, integridad, economía, eficiencia, eficacia y transparencia.

Y del FIDA ; rendición de cuentas; competencia; capital propio; transparencia; eficiencia, eficacia y economía y aprovechamiento óptimo de los recursos.

Tenga en cuenta que, en realidad, los principios de ambas regulaciones son altamente equivalentes entre sí.

#### **C. Evaluación de GF en Proyectos realizada por ambas organizaciones**

**En el dibujo** Ambos Organismos realizan una gran cantidad de Evaluación Basada en Riesgo Fiduciario durante la fase de diseño con el fin de evaluar el riesgo inherente actualizado del prestatario y del Organismo Ejecutor en diversos aspectos: macroeconómico, institucional, político, tomando como referencia un plan estratégico institucional para el país.

**En Supervisión** . Con base en los riesgos identificados en el diseño y aplicación de medidas mitigadoras, ambas Organizaciones realizan una revisión anual de los requerimientos de gestión financiera establecidos. Se realiza una Evaluación Basada en Riesgo Fiduciario con el fin de conocer la situación de riesgo actual al momento de la supervisión. El FIDA realiza anualmente misiones presenciales de supervisión para verificar sus requerimientos y, en particular, verifica el 30% de la documentación de respaldo de los gastos justificados en el período anterior. De acuerdo con el Manual del BID, la supervisión se realiza generalmente sobre escritorio (\* por confirmar), siendo presencial únicamente en los casos en que el nivel de riesgo no sea satisfactorio.

A continuación se detallan los requisitos exigidos por cada institución:

LICITACIÓN	FIDA
<p>Elegibilidad de los gastos</p> <p>desembolsos</p> <p><i>Responsabilidad</i> _</p> <p>Supervisión financiera del proyecto</p> <p>Sistemas de información financiera de proyectos</p> <p>Controles internos</p> <p>auditores externos independientes</p> <p>Proyecto de Auditoría Financiera Externa (oportuna y anual)</p> <p>practicadas prohibidas</p> <p>Transparencia</p>	<p>Organización y Personal:</p> <p>Desembolsos y Flujo de Fondos:</p> <p>Contabilidad</p> <p>Sistemas Contables</p> <p>Reportes financieros</p> <p>Controles internos</p> <p>Auditoría</p> <p>Transparencia y Anticorrupción.</p>

#### **D. Análisis de los requerimientos de ambos organismos**

Hay un alineamiento general en varios aspectos que comentamos a continuación: Hay un requisito de una UGP, para puestos clave dedicados, un Manual de Procedimientos Financieros para el Proyecto, El requisito de un POA para guiar la implementación del proyecto está presente en ambos estándares. Los arreglos de desembolso son bastante similares: depósito en una cuenta designada; mismos métodos de desembolso; y también, como destaque, el nuevo mecanismo de desembolso del FIDA a realizarse en base a la IFR está en línea con la práctica adoptada por el BID. Los criterios de elegibilidad son similares y se permite la financiación retroactiva. Requerimiento de un Sistema de Contabilidad aceptable que permita el registro de las operaciones contables de planificación y reporte. El contenido de los informes es compatible entre ambas instituciones y la necesidad de justificar oportunamente los gastos

incurridos. Los controles internos requeridos son similares, en particular el cumplimiento de los requisitos legales. Se exige la realización de una auditoría anual por parte de auditores independientes y en un plazo definido para la entrega del informe, con aplicación de severas sanciones en caso de no entrega. Supervisión y actuaciones *ex ante* en los casos de riesgo identificado.

**Caja No. 2**

**Requisitos de gestión financiera del proyecto del BID**

**Requisito 1. Elegibilidad de los gastos**

Los gastos financiados con recursos de la operación (bancos o fondos de contrapartida) son elegibles siempre que: i) sean necesarios para el proyecto y estén de acuerdo con sus objetivos; ii) cumplir con las políticas y acuerdos legales aplicables del Banco; y iii) estén debidamente registrados y soportados adecuadamente en los sistemas del prestatario y/o del EA.

**Requisito 2. Desembolsos**

El Banco aceptará las solicitudes de desembolso realizadas por el prestatario, OE y/o co-ejecutores de acuerdo con el plan financiero del proyecto, con base en un plan operativo que sea consistente con las actividades, tiempos y costos necesarios para alcanzar las metas y resultados que asegurará que se alcancen los objetivos del proyecto. La necesidad de recursos económicos vendrá determinada por un plazo máximo a convenir entre las partes.

**Solicitud 3. Rendición de cuentas**

El banco requerirá periódicamente una justificación del uso de los recursos del proyecto, lo que, en el caso específico del anticipo de recursos, involucra un alto porcentaje de los recursos acumulados pendientes de justificación. El Banco no otorgará más anticipos de fondos hasta que se presente tal justificación.

**Requisito 4. Supervisión Financiera del Proyecto**

Las operaciones financiadas por el BID están sujetas a la supervisión del Banco, a través de diferentes mecanismos de seguimiento y evaluación, en cualquier etapa de su ejecución, ya sea por personal propio o por terceros aceptados por el Banco.

**Requisito 5. Sistemas de información financiera del proyecto**

El prestatario y/o la EA deberán mantener un sistema de información financiera aceptable para el Banco que permita el registro contable y financiero, la gestión del presupuesto y la información financiera y de otro tipo relacionada con el uso de los recursos financiados por el Banco y otras fuentes de financiamiento del proyecto.

**Requisito 6. Controles Internos**

El prestatario y/o el EA identificarán, evaluarán y gestionarán los riesgos asociados con el proyecto. Así, el prestatario y/o el EA se comprometen a que los fondos del proyecto se gestionen en un entorno de control.

internos y aceptables para el Banco, incluyendo: i) el uso efectivo de los recursos del proyecto; ii) confiabilidad de los informes financieros; y iii) el cumplimiento de los requisitos legales

**Requisito 7. Auditores Externos Independientes**

El Banco identificará auditores externos calificados para realizar auditorías de proyectos financiados por el BID, y el prestatario y/o el OE seleccionará y contratará auditores, según corresponda, de conformidad con los términos de referencia previamente acordados entre el prestatario y/o el EA y el Banco, que establecen el tipo de revisión, su plazo y alcance. El Banco también podrá seleccionar y/o contratar a los auditores externos cuando: i) los beneficios de esta decisión superen los costos para el prestatario y/o la EA en la realización de este proceso y la gestión del servicio correspondiente; hay acceso limitado a los servicios de auditoría externa en el país; o iii) circunstancias especiales que justifiquen la selección y contratación de auditores por parte del Banco.

**Requisito 8: Auditoría financiera externa del proyecto.**

*El informe de auditoría financiera externa deberá ser presentado al Banco dentro del plazo acordado entre las partes, contado a partir de la fecha acordada de cierre del ejercicio fiscal del proyecto. La falta de presentación de los informes de auditoría externa requeridos da lugar a la suspensión de los desembolsos para el*

*transacción correspondiente, de acuerdo con los procedimientos del Banco.*

**Requisito 9: Prácticas Prohibidas.** *Las prácticas prohibidas incluyen prácticas corruptas, fraudulentas, coercitivas, colusorias y obstructivas, tal como se definen en los Procedimientos de Sanciones del Banco.*

**Requisito 10: Transparencia.** *El Banco está comprometido con la transparencia en todos los aspectos de sus operaciones y divulga documentos e información que produce o tiene en su poder que no están incluidos en la lista de excepciones a la Política de Acceso a la Información.*

#### **IV. RECOMENDACIONES Y ACCIONES**

Con base en lo anterior, es posible generar las siguientes recomendaciones y acciones a observar:

##### **A. Alinear los instrumentos contractuales sobre:**

1. **la obligación de conservar los documentos** . FIDA requiere custodia por diez (10) años después del último desembolso y BID requiere custodia por tres (3) años.
2. **realización de la RMT.** El FIDA se desempeña a la mitad del tiempo de ejecución y el BID se desempeña después del 50% del uso de los fondos .
3. **Periodo de cierre:** 4 meses para el BID y 6 meses para el FIDA . Cabe señalar que este alineamiento se refleja en la entrega del Informe de Auditoría Final y el Informe de Terminación del Proyecto.
4. **Financiamiento retroactivo** . El BID permite gastos incurridos hasta 18 meses antes de la aprobación de su Directorio Ejecutivo. FIDA permite la financiación retroactiva siempre que se refleje como tal en el Acuerdo Financiero desde el momento de la aprobación del diseño por parte de QAG.
5. **TdR de auditoría** . El FIDA normalmente requiere que los auditores visiten a los beneficiarios y las organizaciones de productores rurales que ejecutan fondos descentralizados.
6. **Sobre el idioma del acuerdo de financiación** . Normalmente, el BID adopta el convenio de financiamiento en portugués, que no es el idioma oficial del FIDA, como documento original.
7. Se recomienda que en los manuales de ejecución del Proyecto se incluyeb los medios de comunicación con los sectores del FIDA relacionados con ombudsman y anticorrupción.

##### **B. Acciones adicionales:**

1. **Se recomienda al FIDA que se abstenga de permitir gastos en el período de cierre.** Excepto gastos de auditoría y pago de gastos incurridos durante el período de ejecución del proyecto. Para ello no es necesario ningún ajuste contractual, prevaleciendo el recomendado por el BID.

**ANEXO 1 COMPARACIÓN DE LOS FORMATOS DE INFORMACIÓN FINANCIERA DE BID  
CON LOS INFORMES FINANCIEROS INTERMEDIOS FIDA**

# I Proyeccion Flujo de Caja

**Informe I: Proyeccion flujo de caja para los próximos 2 trimestres**  
 Período: **JULIO-SEPTIEMBRE 2023**  
 País: **BOLIVIA**  
 Número de instrumento financiero del FIDA: **200000784**  
 Nombre del Proyecto: **PRO-CAMELIDOS**  
 Expresado en la moneda de denominación de la cuenta designada: **\$.US.**

Prestamo FIDA N° 2000000704							
	Ref.	POA 2023 aprobado	Gastos acumulados al final del trimestre actual (Q3)	Saldo POA	Flujo de caja estimado 2023 Q4 Trimestre	Flujo de caja estimado 2024 Q1 Trimestre	Flujo de caja estimado para los próximos dos trimestres
		A	B	C = A-B	D	E	F = D+E
<b>Categoría:</b>							
200012 DONACIONES SUBSIDIOS		3 419 641.40	759 757.90	2 659 883.50	1 353 818.42	595 000.00	1 938 818.42
200019 CAPACITACION		42 987.14	-	42 987.14	-	-	-
200008 CONSULTORIA		-	-	-	-	-	-
200021 VEHICULOS, EQUIPOS		315 455.88	65 254.81	250 201.07	80 167.77	85 000.00	165 167.77
200016 GASTOS OPERATIVOS		-	-	-	-	-	-
<b>Total</b>	<b>I</b>	<b>3 777 954.62</b>	<b>825 012.71</b>	<b>2 952 941.91</b>	<b>1 433 987.19</b>	<b>670 000.00</b>	<b>2 103 987.19</b>
<b>Componente:</b>							
1 BASE PRODUCTIVA PRIMARIA Y GESTION DE LOS RECURSOS NATURALES		2 746 390.67	736 970.08	2 009 420.59	951 778.42	295 000.00	1 236 778.42
2 TRANSFORMACION Y COMERCIALIZACION		514 577.26	22 787.82	491 789.44	220 000.00	200 000.00	420 000.00
3 ACCESOS A SERVICIOS FINANCIEROS		201 930.81	-	201 930.81	182 041.00	100 000.00	282 041.00
4 GESTION DEL PROGRAMA		315 455.88	65 254.81	250 201.07	80 167.77	85 000.00	165 167.77
<b>Total</b>	<b>II</b>	<b>3 777 954.62</b>	<b>825 012.71</b>	<b>2 952 941.91</b>	<b>1 433 987.19</b>	<b>670 000.00</b>	<b>2 103 987.19</b>
<b>Flujo de caja estimado</b>	<b>III</b>				<b>1 433 987.19</b>	<b>670 000.00</b>	<b>2 103 987.19</b>
<b>Menos: Pagos directos estimados</b>	<b>IV</b>						
<b>Menos: Saldo de fondos disponibles al fin el trimestre</b>	<b>V</b>						<b>1 458 987.19</b>
<b>Más: margen adicional, si corresponde y si aún no está incluido en el valor estimado</b>	<b>VI</b>						
<b>Desembolso estimado</b>	<b>VII-III-IV-V-VI</b>						<b>645 000.00</b>
<b>Saldo previsto de cierre</b>	<b>VIII = V-III-VII</b>						

# BID - Plan Financiera

**PREENCHIMENTO**

A frequência e o período de tempo a serem cobertos por um adiantamento serão determinados com base na programação da execução financeira do Projeto (em concordância com o PEP e POA)

Nº do Contrato de Empréstimo: \_\_\_\_\_  
 Nº da Solicitação: \_\_\_\_\_  
 Data: \_\_\_\_\_

**BID** Banco Interamericano de Desenvolvimento  
**PLANO** INCFIRO - (modo de operação)

Categorias de Investimento, conforme Anexo Único do Contrato de Empréstimo

Categoria de	Mês X (ex: janeiro)	Mês X + 1 (ex: fevereiro)	Mês X + 2 (ex: março)	Mês X + 3 (ex: abril)	Total BID	Contrapartida Local	Total do Projeto
<b>Categoria 1</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Atividade 1							
Atividade 2							
Atividade 3							
<b>Categoria 2</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Atividade 1							
Atividade 2							
Atividade 3							
<b>Categoria 3</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Atividade 1							
Atividade 2							
Atividade 3							
<b>Categoria 4</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Atividade 1							
Atividade 2							
Atividade 3							
<b>Total Recursos</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Requisitos</b>							
<b>Conciliação (Desembolsos)</b>							0.00
Menos: Desembolsos por Pagio Direto							DPS
Menos: Reembolsos ao OE							DPB
Menos: Outro tipo de desembolso							
Menos: Saldo disponível do Adiantamento Anterior (2)							
<b>Total do Adiantamento Requerido</b>							0.00

Pagamentos que não serão feitos com recursos do adiantamento que está sendo solicitado devem ser excluídos do cálculo

Este é o montante que deve ser solicitado na primeira página do Formulário de Pedido de Desembolso

*Nota 1: Indicar claramente o período (mês específicos) coberto pela solicitação de adiantamento;*  
*Nota 2: Deverá refletir o saldo remanescente (não utilizado) do adiantamento de recursos anterior.*



### III Estado de la cuenta Designada

#### Informe III: Estado de actividad cuenta designada

Período:	JULIO-SEPTIEMBRE 2023
País:	BOLIVIA
Número de instrumento financiero del FIDA:	200000784
Nombre del Proyecto:	PRO-CAMELDOS
Expresado en la moneda de denominación de la cuenta designada:	\$US.

Prestamo N° 200000784

PARTE I (Avances y Gastos)	
1. Desembolsos acumulados del FIDA desde el inicio del Proyecto hasta el final del trimestre	16 395 483 03
2. Gastos acumulados justificados ante el FIDA desde el inicio del proyecto hasta el comienzo del trimestre del informe	14 720 108 46
3. Saldo del avance por justificar al inicio OX (1 - 2)	2 275 380 57
PARTE II (Movimientos Cuenta Designada)	
4. Saldo inicial de fondos disponibles al comienzo del trimestre	1 778 160 47
5a. Desembolsos por el FIDA durante el trimestre	505 813 43
5b. Ajustes acumulados, si procede	-
5c. Gastos incurridos durante el trimestre	825 012 71
6. Avance total por justificar (4+5+6)	1 458 987 19
7. Saldo de fondos disponibles al final del trimestre	1 525 097 60
8a. Saldo desembolsado pendiente de acreditación	-
8b. Saldo de la cuenta designada al fin del trimestre	1 458 987 19
8c. Saldo Cuentas/Operativa/s de proyecto al fin del trimestre	-
8d. Saldo Caja chica fin del trimestre	-
8. Saldo de fondos disponibles al fin del trimestre	1 458 987 19
9. Diferencia (7-8)	66 110 41
PARTE III (ESTIMACIÓN DE EFECTIVO Y REQUERIMIENTO PARA REPOSICIÓN)	
10. Saldo de fondos disponibles al fin del trimestre	1 458 987 19
11. Desembolso estimado 2 trimestre posteriores	2 103 987 19
12. Margén adicional, si corresponde y si aun no está incluido en el valor estimado	-
13. Recuperación del avance, si corresponde	-
14. Desembolso solicitado para este trimestre	645 000 00

Segun Informe II (Ref. I)  
Segun Informe VII Detalle desembolsos FIDA  
Segun Informe II (Ref. II)  
Importe Anexo II (Saldo Conformado)  
Saldo que aun no se reflejan en extracto bancario del prestatario  
ii e25  
Debe coincidir con la linea 7. Explicar diferencias en las notas abajo  
Tomado de linea 9.  
Segun Informe I (Ref III - IV incluye pagos directos  
Segun Informe I (Ref VI  
La recuperacion se procesará en los 6 meses anteriores a la finalización para los casos que mantengan cuenta de anticipos  
Monto coincide con informe I (Ref VII)

### BID Conciliacion de Recursos

**PREENCHIMENTO**

**BID** CONCIÊNCIAÇÃO DOS RECURSOS ANTECIPADOS PELO BANCO

Nome do Organismo Executor: \_\_\_\_\_  
 Nº do Contrato de Execução ou Contrato de Cooperação Técnica: \_\_\_\_\_  
 Nº da Solicitação: \_\_\_\_\_  
 Data: \_\_\_\_\_

Insere o nº do contrato de empréstimo ou do contrato de cooperação técnica

Confirme o contrato de empréstimo ou contrato de cooperação

**I SALDO DISPONÍVEL DE FUNDO ROTATIVO OU ADIANTAMENTO DE RECURSOS (2) (+/-)**  Somatório

Moeda da Operação: \_\_\_\_\_

Detalhe	Valor (Moeda Local)	Taxa de Câmbio	Valor na Moeda da Operação
Saldo Disponível em Conta na Moeda da Operação em ____/____/____ (*)			
Banco: _____			
Nº da Conta: _____			
Saldo Disponível em Conta na Moeda Local em ____/____/____			
Banco: _____			
Nº da Conta: _____			
Saldo Disponível em Conta Investimento em ____/____/____			
Banco: _____			
Nº da Conta: _____			

Saldo, comprovado por extrato bancário, na data do Relatório

No caso de rendimentos de aplicações financeiras, será utilizada a taxa de COEFICIA fornecida pelo Banco Central, da data do Relatório

**II GASTOS OU PAGAMENTOS PENDENTES DE APRESENTAÇÃO AO BID #3**  Somatório

Gastos ou Pagamentos Pendentes de Apresentação ao Banco, incluídos nesta Solicitação

Gastos ou Pagamentos Pendentes de Apresentação ao Banco, não incluídos nesta Solicitação, conf. registros contábeis do projeto

**III TOTAL DO FUNDO ROTATIVO OU DOS ADIANTAMENTOS DE RECURSOS, PENDENTE DE APRESENTAÇÃO AO BID(III)**  -

**IV SALDO DO FUNDO ROTATIVO OU ADIANTAMENTO DE RECURSOS CONFORME O BID (RELAÇÃO ODS-1)**  **#DIVIS!**

Presente justificado perante o Banco  **#DIVIS!**

Saldo total de recursos a justificar ao Banco, conforme LIS-1

**V DIFERENÇAS (IV-III) #**  -

**VI IDENTIFICAÇÃO DOS CONCEITOS CONTIDOS NA DIFERENÇA APURADA #**

Detalhamento da Diferença ( Por exemplo: )	Valor (Moeda Local)	Taxa de Câmbio	Equivalência na Moeda da Operação
Diferença decorrente de variação cambial (se aplicável)			
Diferença decorrente de rendimentos de aplicação financeira			
Outras diferenças (detalhar)			

O valor das diferenças encontradas devem ser justificadas. Por exemplo: rendimento de aplicações financeiras, conforme extrato bancário em anexo.

Certificamos que: a) os gastos especificados no item II foram realizados para os fins especificados no Contrato/Convênio; b) a documentação que respalda os gastos efetuados com os recursos provenientes do Fundo Rotativo ou Adiantamento de Recursos ainda não justificados está disponível para fins de inspeção do BID.



## IV Analisis Variacion de uso de Fondos

### Informe IV: Análisis de Variación de Uso de Fondos - FY

Periodo: JULIO-SEPTIEMBRE 2023  
 País: BOLIVIA  
 Número de instrumento financiero del FIDA: 200000784  
 Nombre del Proyecto: PRO-CAMELIDOS  
 Expresado en la moneda de denominación de la cuen \$US.

		Prestamo FIDA N°2000000784			
		POA Acumulado a 2023 Q3	Actual Acumulado 2023	Saldo	Variación* %
		A	B	C = A-B	D=C/A (%)
<b>Gastos por Categoría:</b>					
200012	DONACIONES SUBSIDIOS	1 685 573.4	1 683 890.60	1 682.76	0%
200019	CAPACITACION	-	-	-	-
200008	CONSULTORIA	-	-	-	-
200021	VEHICULOS, EQUIPOS	-	-	-	-
200016	GASTOS OPERATIVOS	210 286.3	192 953.99	17 332.31	8%
<b>TOTAL I</b>		<b>1 895 859.66</b>	<b>1 876 844.59</b>	<b>19 015.07</b>	<b>1%</b>
<b>Gastos por Componente:</b>					
1	BASE PRODUCTIVA PRIMARIA Y GESTION DE LOS RECURSOS NATURALES	1 616 389.25	1 614 711.92	1 677.33	0%
2	TRANSFORMACION Y COMERCIALIZACION	69 184.11	69 178.68	5.43	0%
3	ACCESOS A SERVICIOS FINANCIEROS	-	-	-	-
4	GESTION DEL PROGRAMA	210 286.30	192 953.99	17 332.31	8%
<b>TOTAL II</b>		<b>1 895 859.66</b>	<b>1 876 844.59</b>	<b>19 015.07</b>	<b>1%</b>

## BID

Tabla 1. Documentación de respaldo

Métodos	Documentación mínima requerida (adjunta al formulario de solicitud de transacciones financieras)	Ejemplos de documentación adicional
Anticipos (ANT)	1. El Plan Financiero (véase Anexo 2) <sup>8</sup>	1. Conciliación de los recursos del Banco 2. Detalle de compromisos 3. Informes de avance físico-financieros estimados del proyecto (ej.: PEP, POA, PMR) 4. Flujo de caja 5. Extractos bancarios

### Extract ROP

#### F. Reports

##### 1. Semi-annual Progress Report (RSP)

- 8.26 The purpose of this report is to present to the IDB and IFAD the results achieved by the Borrower in the execution of the AWPB and the PP, as well as the expenses incurred and the request for and release of funds.
- 8.27 The Progress Report for the second half of the calendar year should summarize the results achieved by Component and Subcomponent (partial and total, where applicable) and analyze the risks identified. It should also present a consolidated view of the difficulties and lessons learned, as well as conclusions and recommendations aimed at feeding back into the project. These reports will be drawn up in a format agreed with the Bank and must be submitted no later than 60 days after the end of the corresponding six-month period.

## V Analisis Variacion de uso de Fondos - acumulado

**Informe V: Analisis de Variación de Uso de Fondos - Acumulado**

Periodo: JULIO-SEPTIEMBRE 2023  
 País: BOLIVIA  
 Número de instrumento financiero del FIDA: 200000784  
 Nombre del Proyecto: PRO-CAMELIDOS  
 Especificado en la moneda de denominación de la cuenta designada: SUS.

Prestamo FIDA N°2000000784				
Aprobado según diseño Instrumento FIDA	Gastos desde el inicio del Proyecto a 2023 G3	Saldo	Variación* %	
A	B	C = A-B	D=C/A (%)	
<b>Gastos por Categorías:</b>				
200012 DONACIONES SUBSIDIOS	3 704 664.80	10 547 060.42	-642 375.62	-3%
200019 CAPACITACION	1 333 513.49	1 262 368.08	678 545.41	35%
200008 CONSULTORIA	1535 863.07	634 460.38	901 388.69	59%
200021 VEHICULOS, EQUIPOS	616 445.67	245 206.43	371 239.24	60%
200016 GASTOS OPERATIVOS	4 094 632.71	2 948 786.06	1 247 846.65	30%
<b>TOTAL I</b>	<b>17 891 145.74</b>	<b>15 536 501.37</b>	<b>2 354 644.37</b>	<b>13%</b>
<b>Gastos por Componentes:</b>				
1 BASE PRODUCTIVA PRIMARIA Y GESTION DE LOS RECURSOS NATURALES	10 473 911.82	10 705 878.30	-231 966.48	-2%
2 TRANSFORMACION Y COMERCIALIZACION	1375 600.40	1473 251.94	502 348.46	25%
3 ACCESOS A SERVICIOS FINANCIEROS	404 941.03	55 538.99	349 402.10	86%
4 GESTION DEL PROGRAMA	5 036 692.42	3 301 832.14	1 734 860.28	34%
<b>TOTAL II</b>	<b>17 891 145.74</b>	<b>15 536 501.37</b>	<b>2 354 644.37</b>	<b>13%</b>

\* Más % de variación indica mayor consumo de recursos.

## BID - Estado de ejecucion del Proyecto

**PREENCHIMIENTO**

**BID** Banco Interamericano de Desarrollo

**ESTADO DE EXECUÇÃO DO PROJETO**  
(Modelo sugerido)

**NOME DO ORGANISMO EXECUTOR:** \_\_\_\_\_  
**Nº do Contrato de Empréstimo ou Convênio de Cooperação T:** \_\_\_\_\_  
**Nº da Solicitação:** \_\_\_\_\_  
**Data:** \_\_\_\_\_

Deve ser o mesmo do informado no Formulário de Pedido de Desembolso

Inserir o nº do contrato de empréstimo ou do convênio de cooperação técnica

Devem ser os mesmos valores da Coluna "Desembolso Acumulado por Categorias e Subcategorias de Investimento" do Pedido anterior.

Após processamento do Pedido de Desembolso, o campo BID deve ser checado com o LMS-1

Categorias e Subcategorias de Investimento conforme Contrato/Convênio	Orçamento Vigente		Desembolso Acumulado por Categoria e Subcategoria de Investimento até a Solicitação Anterior		Desembolso por Categoria e Subcategoria de Investimentos nesta Solicitação		Desembolso Acumulado por Categorias e Subcategorias de Investimento		Saldo Disponível por Categorias e Subcategorias de Investimento			
			BID	Aporte Local	BID	Aporte Local	BID	Aporte Local	BID	Aporte Local		
	(LMS1)	BID (LMS 1)	(1)	(2)	(3)	(4)	(5)	(6)	(8)+(3)+(5)	(9)+(4)+(6)	(10) = (1) - (8)	(11) = (2) - (9)
Categoria 1					0,00	0,00	-	-	-	-	-	-
Categoria 2					0,00	0,00	-	-	-	-	-	-
Categoria 3					0,00	0,00	-	-	-	-	-	-
Categoria 4					0,00	0,00	-	-	-	-	-	-
<b>A. SUBTOTAL POR FONTE</b>			0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
<b>B. ADIANTAMENTO DE RECURSOS</b>								0,00				
<b>C. TOTAL BID / APORTE LOCAL</b>			0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
<b>D. PARI-PASSU</b>			#CIV#	#DIV#	#CIV#	#DIV#	#CIV#	#DIV#	#CIV#	#DIV#	#CIV#	#DIV#

Incluir as Categorias de acordo com o Anexo Único do Contrato de Empréstimo

Registrar os valores do Orçamento de acordo com Anexo Único do Contrato de Empréstimo ou alterações posteriores aprovadas

Registrar os montantes acumulados por categoria até o Pedido anterior. Manter conciliado com os registros do LMS-1

Os valores totais por Categoria são transportados do formulário Demonstrativo de Custos ou Pagamentos e devem estar conciliados com os valores demonstrados no Pedido de Desembolso

Só podem ser assinados pelos Representantes legais autorizados

Assinatura(s) Autorizada(s)

Nome(s) e Cargo(s)

A linha B, Adiantamento de Recursos é utilizada para o controle dos recursos desembolsados a título de

Total acumulado dos saldos pendentes de justificativa até a solicitação anterior

Uma vez que o Pedido seja processado pelo Banco, verificar se os valores aqui registrados foram aceitos pelo Banco. Em caso de diferença, verificar a sua procedência e realizar as correções necessárias no formulário Demonstrativo de Execução do Projeto.

Total acumulado dos saldos pendentes de justificativa

## **Brazil**

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### **Paraiba Rural Sustainable Development Project**

### **Design Report**

### **Annex: 29 Procurement Plan**

Mission Dates: 20-28/05/2024

Document Date: 05/09/2024

Project No. 2000004620

Report No. 6938-BR

Latin America and the Caribbean  
Programme Management Department



# NATIONAL SYSTEMS

## National System Acquisition Method

General information			Financing				Phases				Acquisition					
Proc. ID	Process Name*	Description	Estimated Value (USD)*	Real Value (USD)	% BID Cost	% Local Counterpart	% Co-financing*	Component*	Product*	Start		I finish		Type of Selection*	Acquisition Method*	Type of Supervision*
										Estimated date*	Actual Date	Estimated date*	Actual Date			
1	Purchasing computers	Purchase of 32 laptop-type computers	650 000.00		66.9	23.8	9.5		3.1 3.1.1	06/30/2025		07/30/2025		Assets		National Systems
2	Printer rental	Rental of 10 laser printers	34 000.00		66.9	23.8	9.5		3.1 3.1.1	06/30/2025		07/30/2025		Different consultancy services		National Systems
3	SUV Car Rental	Rental of 7 SUV cars	300 000.00		66.9	23.8	9.5		3.1 3.1.1	08/15/2025		09/15/2025		Different consultancy services		National Systems
4	Sedan car rental	Rental of 16 sedan cars	425 000.00		66.9	23.8	9.5		3.1 3.1.1	08/15/2025		09/15/2025		Different consultancy services		National Systems
5	Hiring ATER for the preparation and implementation of PIR 1*		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.2	08/15/2025		11/15/2025		Different consultancy services		National Systems
6	Hiring ATER for the preparation and implementation of PIR 2		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.3	08/15/2025		11/15/2025		Different consultancy services		National Systems
7	Hiring ATER for the preparation and implementation of PIR 3		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.4	08/15/2025		11/15/2025		Different consultancy services		National Systems
8	Hiring ATER for the preparation and implementation of PIR 4		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.5	08/15/2025		11/15/2025		Different consultancy services		National Systems
9	Hiring ATER for the preparation and implementation of PIR 5		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.6	08/15/2025		11/15/2025		Different consultancy services		National Systems
10	Hiring ATER for the preparation and implementation of PIR 6		3 150 000.00		66.7	23.8	9.5		1.1 1.1.1 and 1.1.7	08/15/2025		11/15/2025		Different consultancy services		National Systems

\* These processes will be carried out based on: Law n° 12,188/10 and regulatory decree n° 7,215/10