
President's memorandum
Proposed additional financing
Republic of Benin
Market Gardening Development Support Project
(PADMAR)

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Action: The Executive Board is invited to approve the recommendation for the proposed additional financing contained in paragraph 53.

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Financing summary

Initiating institution:	Ministry of Economy and Finance
Borrower/recipient:	Republic of Benin
Executing agency:	Ministry of Agriculture, Livestock and Fisheries
Total project cost:	US\$91.4 million
Amount of original IFAD loan:	SDR 16.85 million (US\$23.5 million equivalent)
Terms of original IFAD financing:	Highly concessional
Amount of original IFAD grant	SDR 0.355 million (US\$0.5 million equivalent)
Amount of Borrowed Resource Access Mechanism (BRAM) additional loan:	US\$10.5 million
Terms of BRAM additional loan:	Category 1 loan on ordinary terms, with a maturity period and grace period at the choice of the borrower up to a ceiling of 35 years and 10 years, respectively, with a maximum average repayment maturity of 20 years. The interest rate consists of a market-based variable reference rate, a variable spread, and a maturity premium determined quarterly and applied over market-based rate.
Amount of performance-based allocation system (PBAS) additional loan:	US\$0.6 million
Terms of PBAS additional loan:	80 per cent super highly concessional and 20 per cent highly concessional
Amount of new financing gap:	US\$3.9 million
Cofinanciers:	OPEC Fund for International Development, Adaptation for Smallholder Agriculture Programme (ASAP), Norwegian Agency for Development Cooperation (NORAD)
Amount of cofinancing:	OPEC Fund: US\$12 million (initial cofinancing) OPEC Fund: US\$20 million (additional cofinancing) ASAP: US\$4.5 million NORAD: US\$0.4 million Private sector: US\$1.2 million (from additional financing)
Terms of cofinancing:	Parallel financing
Contribution of borrower/recipient:	US\$4.8 million (from seed funding) US\$3.7 million (from additional financing)
Contribution of beneficiaries:	US\$3.9 million (from seed funding) US\$1.9 million (from additional funding)

I. Background and project description

A. Background

1. The Market Gardening Development Support Project (PADMAR) was approved in December 2015 by the Executive Board. Total project costs amounted to US\$49.2 million, broken down as follows: an IFAD loan of US\$23.5 million, an IFAD grant of US\$0.5 million, US\$12 million from the OPEC Fund, US\$4.5 million from ASAP, US\$4.8 million from the Government and US\$3.9 million from the beneficiaries. PADMAR entered into force on 5 September 2016 for a period of seven years. The initial completion and closing dates were 31 December 2026 and 30 June 2027 respectively.¹
2. The project objective is to sustainably increase the income of market gardeners while strengthening their resilience to the effects of climate change. The original aim was to reach 20,000 direct beneficiary households (i.e. 120,000 household members), including 17,000 market gardeners; and to create 3,000 jobs in companies upstream and downstream of production, with at least 40 per cent women and 50 per cent young people among the direct beneficiaries.
3. On 3 June 2022, the Government of Benin sent a formal request to IFAD for additional financing of US\$15 million to scale up project activities, extend the completion date and expand the geographical area of the project. Through a similar request to the OPEC Fund, the Government intends to mobilize additional cofinancing of US\$20 million. As of 31 May 2022, the overall project disbursement rate was 57.1 per cent. At the end of the June 2022 supervision mission, the probability of PADMAR meeting its development objective was estimated at 79.5 per cent. IFAD responded affirmatively to the Government's request, and a joint mission to Benin was carried out in June 2022.
4. The total estimated cost of the additional financing and extension is US\$41.8 million, comprising the following contributions: (i) IFAD: US\$11.1 million; (ii) OPEC Fund: US\$20 million; (iii) Government: US\$3.7 million; (ii) beneficiaries: US\$1.9 million; and (iv) financial institutions: US\$1.2 million, with a financing gap of US\$3.9 million. The purpose of the Government's request is to optimize the investments, ensure their sustainability and then scale them up geographically.
5. PADMAR's development objective and components, as well as its implementation and financial arrangements, will remain unchanged. The extension will ultimately cover a period of 36 months.

B. Original project description

6. The project has two technical components: (i) value addition and marketing; (ii) improving market gardening productivity and production.
7. **Component 1** supports the establishment of market gardening platforms (TFM) to promote better governance of the market gardening sector. This component also includes: (i) a programme to build institutional capacity in professional organizations; (ii) support for pricing and market garden information systems; (iii) support for the development of services and trades upstream and downstream of production, especially for young people with initiatives in new trades that will help modernize the sector.
8. Component 2: Support for the development of resilient market gardening areas with, to the extent possible, the introduction of sprinkler irrigation systems or systems that run on solar energy and use very little water. This component promotes access to improved technologies and techniques through: (a) specialized local support and advice provided by market gardening technical specialists (TSM)

¹ <https://webapps.ifad.org/members/eb/116/docs/EB-2015-116-R-14.pdf?attach=1>.

and relay market gardeners; and (b) access to market gardening kits that include water-saving irrigation equipment and quality inputs.

II. Rationale for additional financing

A. Rationale

9. Before the midterm review (MTR) of November 2020, PADMAR was experiencing project management difficulties that affected its overall performance, in particular, its “productivity” component, where only 14 per cent of the planned market gardening areas (296 ha out of 2100 ha) were developed. Since the MTR, PADMAR’s achievements have grown, with the development of market gardening areas (1,490.6 ha as of 31 March 2022, out of the 1,681.5 ha planned). These developments are supported by efficient irrigation systems, innovative technologies and bottom-up organization of market gardening cooperatives and the strengthening of their national umbrella organization. The project made possible: (i) an increase in market gardening yields from 6 per cent to 100 per cent; (ii) a 50 per cent increase in pre-basic seed production capacity; and (iii) a 150 per cent increase in local variety seed production capacity.
10. This performance confirms the aptness of the guidance that the Government has issued in its new action programme 2021-2026, which includes market gardening among the priorities of the Ministry of Agriculture, Livestock and Fisheries (MAEP), making it an essential pillar of food and nutrition security, as well as a credible source of income and value added. Future government investments in market gardening will be driven by PADMAR’s results. Complementary financing and PADMAR’s extension have thus become a strategic option for the agricultural sector.
11. The additional financing will impact the project's achievements as follows:
 - PADMAR's intervention area will increase from 27 to 53 municipalities – i.e. 26 additional municipalities with approximately 2,500 ha of concentration perimeters. With this extension, PADMAR is now involved in the country’s seven agricultural development poles (ADPs);
 - The expansion into new areas will directly benefit 16,000² new households, impacting 96,000 additional people. With the 8,901 households supported by the project in its current phase, the ultimate objective is to reach 24,901 households, corresponding to 149,406 people, 40 per cent of whom will be women and 50 per cent will be young people;
 - The extension will make it possible to tailor the project approach to the cultivation areas. The objective is to promote vegetable polyculture in peri-urban areas and specialization in the principal rural market gardening basins for the main large-scale crops (peppers, onions, okra);
 - Market access will be significantly improved with approximately 220 storage, processing and marketing facilities. This access will also be facilitated by business promotion and support for contracting with market operators. The project now has a strong track record in terms of rapid implementation of infrastructure, which is beneficial for its extension.

² These households are estimated to include more than 120,300 people, based on the following assumptions: potential area: 2030 ha; average area per producer: 1/8 ha => 16,280 households; household size ranging from 7.5 to 9.4 members.

Special aspects relating to IFAD's corporate mainstreaming priorities

12. In alignment with the mainstreaming commitments of the Twelfth Replenishment of IFAD's Resources (IFAD12), the project has been validated as:
- Nutrition-sensitive
 - Gender-sensitive
 - Youth-sensitive
 - Climate-sensitive
13. The additional financing is also intended to consolidate a theory of change based on scaling up productive investments to increase market gardening's contribution to food and nutrition security, as well as the incomes of rural poor people. It also responds to the need to take into account key ADPs, such as ADP 1, which is the national leader in specialty vegetable production.

B. Description of geographical area and target groups

14. **Geographical targeting.** PADMAR is being implemented in seven southern regions of Benin: Atlantique, Couffo, Littoral, Mono, Ouémé, Plateau and Zou. Selection of the departments and communes was based on the following criteria: (i) the existence of potential for or emerging profitable small-scale market gardening; (ii) the presence of hydro-agricultural potential that can be developed and used for small farms at a reasonable cost; (iii) proximity to major consumption centres, including the conurbations of Lagos, Ibadan, Lomé, Accra and Cotonou; and (iv) a high incidence of poverty, food insecurity and malnutrition, as well as high youth unemployment.
15. PADMAR's intervention area in the current phase covers 27 municipalities in four agricultural development poles³ in the southern part of the country. The requested geographical expansion will widen the current intervention area to 26 new municipalities, with priority given to the northern basins. The selection of communes in the ADPs is limited to two levels: (i) consolidation areas;⁴ and (ii) extension areas.⁵
16. **Beneficiaries.** Three levels of targeting are in place:
- Pre-production: seed companies (individual, private and cooperative), suppliers of organic/inorganic inputs.
 - Production: small-scale market gardeners working areas of 1/8 ha and, to a certain extent, those working areas of 1/4 ha.
 - Post-production: small and medium-sized processing units (individual private initiatives, cooperatives, economic interest groups, producers' organizations; processors' organizations).
17. Women and young people aged 18–35 will be the main targets, with at least 40 per cent women and 50 per cent young people among the direct beneficiaries.

³These are ADPs 4, 5, 6 and 7. Benin has seven agricultural development poles, defined by specific agroecological characteristics.

⁴Consolidation areas are selected based on the following criteria: (i) the degree of accessibility; (ii) the existence of market access infrastructure resulting from phase 1 of PADMAR; (iii) the existence of sites experiencing deficits in water mobilization and management, and the durability of solar pumping equipment; (iv) the degree of beneficiary organization; (v) the site's development status; and (vi) the existence of a group sales mechanism to facilitate venues devoted to market gardening products.

⁵Extension areas are selected based on the following criteria: (i) hydro-agricultural potential that enables small farms to access water at a reasonable cost; (ii) potential for or emerging profitable small-scale market gardening; (iii) the existence of strategic points for the mobilization of raw materials needed for processing; (iv) a high incidence of poverty, food insecurity, malnutrition and youth unemployment and underemployment; (v) complementarity with other interventions related to hydro-agricultural development that can be used for market gardening and with the Regional Market Integration Programme (PRIMA); and (vi) the degree of site accessibility.

Preference will be given to persons with disabilities, with the aim of reaching 5 per cent of beneficiaries from this category.

C. Components, outcomes and activities

18. PADMAR is structured around the following two components:

Component 1: Value addition and marketing. Expected outcome: The value of market gardening products and access to the market are improved

19. The activities foreseen under the additional financing (PADMAR+) will identify the level of demand and segment the market according to specific characteristics, disassociating the demand for fresh produce from market gardens from the demand for processed products. The strategic approach will be based on productive partnerships inspired by the experience of the Agricultural Development and Market Access Support Project (PADAAM), whose comparative advantage lies in the appetite for inclusive business, associating market operators with small producers in a win-win relationship. PADMAR+ will position itself as a facilitator with cutting-edge post-production expertise to create favourable conditions for mergers leading to business partnerships and, at the same time, facilitate access to financing (the National Fund for Agricultural Development [FNDA], the Financial Services Association [ASF-Benin] and other financial institutions).

Subcomponent 1.1 Partnership development and stakeholder professionalization. Expected outcome: Professional partnerships and the professionalization of stakeholders are developed and consolidated.

20. In the current intervention areas, the extension phase will focus on: (i) a shared market strategy with PRIMA on cross-border trading corridors; (ii) facilitation of market access by promoting productive partnerships; (iii) support for the institutional transformation of sector platforms into a structured interprofessional organization; (iv) financial literacy training, managerial strengthening and facilitation of access to financial services.
21. Activities will be carried out on two levels: (i) general agricultural guidance and capacity-building in management and financing business plans to implement market gardening entrepreneurship projects, and (ii) specific actions identified in ADP 1 (Karimama, Malanville) and ADP2 for the development of onion conservation technology, support for the development of a "chilli cluster" (in Kandi) and the revival of potato production in Péhunco.

Subcomponent 1.2. Market infrastructure and improving access. Expected outcome: Producers' access to resilient infrastructure that increases value added and facilitates access to markets is improved.

22. The activities will be implemented through delegation of contracting authority. The Directorate of Rural Engineering (DGR) and the MAEP Environment Unit will conduct/update the studies for the works and supervise their execution. The DGR will ensure compliance with norms and standards across the board throughout the process.
23. The project will give priority to the sustainability of achievements by contributing to the creation of an endogenous functional maintenance mechanism involving the beneficiaries, technical services and the municipalities (now responsible for the management of rural roads under the decentralization act).
24. **Interventions in the expansion areas.** The set-up of packaging, temporary storage and sales infrastructure, particularly for onions, which pose conservation challenges that are constraining the sector's development. Rehabilitation and maintenance of access roads will also be carried out.

Component 2. Improving market gardening productivity and production. Expected outcome: Agricultural productivity and production in the targeted value chains are improved through climate-smart agricultural practices.

25. Improving productivity and production will involve building stakeholders' capacity in the market gardening sector and facilitating their access to: (i) quality production factors such as: water, seeds and specific inputs; and (ii) financial services, through a partnership with the FNDA. PADMAR+ will rely on the second-generation national agricultural advisory strategy to offer market gardeners the various types of support they need.

Subcomponent 2.1. Resilient market gardening facilities. Expected outcome: Resilient market gardening facilities increase the productivity of targeted value chains.

26. The main objective of the market gardening works is to ensure full control of water supply. The activities will be implemented through the delegation of the contracting authority. The DGR and the MAEP Environment Unit will conduct studies for the works and supervise their execution. They will also ensure compliance with norms and standards across the board throughout the process.
27. **Activities in the expansion area will capitalize on:** (i) available studies of the areas that have been conducted by other projects and partners⁶ and their prior updating as a prerequisite; (ii) technologies and endogenous development practices; (iii) the presence of functional water mobilization structures (e.g. reservoirs in Badjoudè, Koussitè, Kadolassi and Kpakpalaré). Depending on the source of the water, various dewatering techniques (tube wells, surface pumping, etc.) will be used, based on the findings of the studies.

Subcomponent 2.2. Access to improved technologies and techniques. Expected outcome: Access to improved technologies and techniques and their use are increased.

28. Supporting peri-urban agriculture by promoting market gardening is essential for urban development and responds to the demand for quality agrifood products from cities. To this end, PADMAR+ will increase the supply of plant material (seed and other specialized inputs), promote research and specialized advisory support and contribute to improved nutrition in the targeted municipalities.

D. Costs, benefits and financing

PADMAR+ costs

29. The estimated cost of PADMAR+, including physical and financial contingencies, is US\$41.8 million over a period of four years (2023-2026). The breakdown of costs is as follows: component 1: US\$12.2 million (29.2 per cent); component 2: US\$24.9 million (59.5 per cent); and component 3: US\$4.7 million (11.2 per cent).

⁶ 330 ha in Kiramama by PSAAB (Food Security Project through the Development of Lowlands and the Strengthening of Storage Capacity), and about 10 ha in Badjoudè, Koussitè, etc. by other partners.

Table 1
Original and additional financing summary
 (Thousands of United States dollars)

	<i>Original financing</i>	<i>Additional financing</i>	<i>Total</i>
IFAD loan	23 500.0	11 079	34 579
IFAD grant	500.0	-	500.0
Other cofinanciers	16 900.0	21 214.7	38 114.7
Beneficiaries	3 853.1	1 858.6	5 711.7
Borrower/recipient	4 838.8	3 707.3	8 546.1
Financing gap		3 921	3 921
Total	49 591.9	41 780.5	91 372.4

Table 2
Additional financing: project costs by component (and subcomponent) and financier

<i>Components/subcomponents</i>	<i>Additional</i>										
	<i>Additional IFAD loan</i>		<i>Other cofinanciers</i>		<i>Beneficiaries</i>		<i>Borrower/recipient</i>		<i>Financing gap</i>		<i>Total</i>
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	
A. Value addition and marketing	2 796	23	6 694.6	56	761.4	6	834.6	7	953.8	8	12 040.4
Partnership development and stakeholder professionalization	2 796	53	990.6	19	382.3	7	161.1	3	953.8	18	5 283.9
Market infrastructure and improving access	-	0	5 704.0	84	379.1	6	673.5	10	-	0	6 756.5
B. Improving market gardening productivity and production	6 941	28	11 776.2	47	1 095.5	4	2 162.8	9	2 969.2	12	24 944.3
Resilient market gardening facilities	6 941	66	223.1	2	84.4	1	230.5	2	2 969.2	28	10 447.7
Access to improved technology and techniques	-	0	11 553.1	80	1 011.1	7	1 932.3	13	-	0	14 496.5
C. Coordination, M&E and knowledge management	1 342	28	2 743.8	57	-	0	709.9	15	-	0	4 795.8
Coordination and management	361	10	2 743.8	75	-	0	544.6	15	-	0	3 649.0
M&E and knowledge management	982	86	-	0	-	0	165.3	14	-	0	1 146.8
Total	11 079	27	21 214.7	51	1 856.9	4	3 707.3	9	3 923.0	9	41 780.5

Table 3
Additional financing: project costs by expenditure category and financier
(Thousands of United States dollars)

Expenditure category	Additional IFAD loan		Other cofinanciers		Additional Beneficiaries			Borrower/recipient			Financing gap		Total Amount
	Amount	%	Amount	%	Cash	In kind	%	Cash	In kind	%	Amount	%	
I. Investment Costs													
A. Rural/Civil works	47.3	0	11 702.7	76	1 380.9	9	2 363.6	15	-	0	15 494.5		
B. Subsidies and grants	8 003.2	69	1 585.8	14	413.8	4	-	0	1 614.3	14	11 617.2		
C. Vehicles	-	0	201.6	81	-	0	46.4	19	-	0	248.0		
D. Equipment and material	120.5	31	25.3	7	32.1	8	71.8	19	134.1	35	383.7		
E. Consultants	1 682.4	34	1 360.6	27	-	0	759.7	15	1 177.4	24	4 980.1		
F. Training and workshops	1 178.9	20	3 796.5	63	30.0	1	-	0	997.2	17	6 002.6		
G. Investment costs	-	0	452.5	85	-	0	81.5	15	-	0	534.0		
Total Investment Costs	11 032.4	28	19 125.0	49	1 856.9	5	3 322.8	8	3 923.0	10	39 260.1		
II. Recurrent Costs	-	0	-	0	-	0	-	0	-	0	-		
A. Operating costs	46.3	12	292.8	73	-	0	61.1	15	-	0	400.2		
B. Staff costs	-	0	1 796.8	85	-	0	323.4	15	-	0	2 120.2		
Total Recurrent Costs	46.3	2	2 089.6	83	-	0	384.5	15	-	0	2 520.5		
Total	11 078.7	27	21 214.7	51	1 856.9	4	3 707.3	9	3 923.0	9	41 780.5		

Table 4
Project costs by component and project year (PY)
(Thousands of United States dollars)

Component/subcomponent	PY1		PY2		PY3		PY4		Total
	Amount	%	Amount	%	Amount	%	Amount	%	Amount
A. Value addition and marketing									
Partnership development and stakeholder professionalization	3 306.5	63	1 572.0	30	69.3	1	336.1	6	5 283.9
Market infrastructure and improving access	473.6	7	3 313.3	49	1 781.4	26	1 188.2	18	6 756.5
Subtotal	3 780.1	31	4 885.3	41	1 850.8	15	1 524.3	13	12 040.4
B. Improving market gardening productivity and production									
Resilient market gardening facilities	5 728.2	40	8 143.3	56	625.0	4	-	0	14 496.5
Access to improved technology and techniques	3 363.0	32	5 990.7	57	1 030.6	10	63.5	1	10 447.7
Subtotal	9 091.2	36	14 134.0	57	1 655.6	7	63.5	0	24 944.3
C. Coordination, M&E and knowledge management									
Coordination and management	1 195.7	33	878.7	24	803.9	22	770.7	21	3 649.0
M&E and knowledge management	210.6	18	257.9	22	262.2	23	416.1	36	1 146.8
Subtotal	1 406.3	29	1 136.6	24	1 066.1	22	1 186.8	25	4 795.8
Total	14 277.6	34	20 155.9	48	4 572.5	11	2 774.5	7	41 780.5

Financing and cofinancing strategy and plan

30. The estimated cost of the additional financing activities and extension is US\$41.8 million, comprising the following contributions: (i) IFAD: US\$11.1 million (26.5 per cent); (ii) OPEC Fund: US\$20 million (47.9 per cent); (iii) Government: US\$3.7 million (8.9 per cent); (iv) beneficiaries: US\$1.9 million (4.4 per cent); financial institutions: US\$1.2 million (2.9 per cent); with a new financing gap of US\$3.9 million (9.3 per cent). This gap may be filled through subsequent cycles of the PBAS and/or the BRAM (under financing terms to be determined and subject to internal procedures and subsequent Executive Board approval) or through cofinancing identified during implementation.

Disbursement

31. The update of the accounting software will allow for separate accounting of the additional financing. Once the additional financing enters into force, designated accounts (one per donor) will be opened at the Central Bank of West African States to receive funds from the various financing windows. These accounts will be handled exclusively by authorized trustees in keeping with the provisions of the financing agreements.

Summary of benefits and economic analysis.

32. The results of the economic analysis show that PADMAR+ is profitable. Based on the economic profitability determined after aggregation by component, the internal rate of return (IRR) for the two components is 21.0 per cent and 55.3 per cent, respectively, and the net present value is approximately US\$15.07 million for component 1 and close to US\$99 million for component 2. In sum, PADMAR+ has an IRR of 44.1 per cent and is expected to generate an additional net profit in excess of US\$114.06 million over the next 20 years.

Exit strategy and sustainability

33. Implementation of PADMAR+ will give market gardening cooperatives and their federations (FENOMA) greater responsibility in managing facilities and business agreements with market operators to ensure sustainable management of production infrastructure and improve small-scale producers' access to the market. The institutional partnership with the territorial agricultural development agencies (ATDA) and the involvement of decentralized local authorities will contribute to sustainable promotion of the sector by: (i) strengthening guidance on operations and technical monitoring of infrastructure; and (ii) integrating market gardening into local economic development strategies.

III. Risk management

A. Risks and mitigation measures

34. The overall risk level, after mitigation measures, is rated as moderate. The main risks relate to: (i) project management capacity – in particular for the construction of more than 2,000 ha of market gardening areas; (ii) the persistence of poor quality of work in the facilities; (iii) delays in the construction of production and processing infrastructure; (iv) a preponderance of production to the detriment of processing and marketing, with a high risk of post-harvest loss; and (v) perishability, exacerbated by the effects of climate change. Measures to mitigate these risks include: (i) delegation of project management for planning and operating the facilities; (ii) collaboration with the DGR for local technical monitoring and assessment of developments; (iii) prioritization of sites with technical studies, the construction of tube wells and raised beds in relation to boreholes; (iv) early completion of preparatory studies during PADMAR's current cycle; (v) mobilization of post-production expertise for the preparation and implementation of a development and marketing strategy; and (vi) promotion of climate-resilient technologies, techniques and practices.

35. Additional risks are as follows: (i) the impact of the COVID-19 pandemic on mobility and access to inputs; (ii) the war in Ukraine, affecting access to inputs and increasing the price of goods (fuel, etc.), resulting in inflation; and (iii) other factors such as climate change.

B. Environment and social category

36. The project's risk level is categorized as **moderate**. The potential negative environmental and social impacts of this extension phase will depend on the extent of infrastructure development (construction of wells and boreholes, development of market gardening sites, rural roads) envisaged for the consolidation activities and new targeted areas. The works could cause the degradation of soil and plant cover, water and soil pollution, the proliferation of crop pests, and social problems related to conflicts between market gardeners and herders.
37. The challenge will be to scale up the achievements of the PADMAR while ensuring that "greener" alternatives enable stakeholders to meet their production and sustainability objectives. The updated Social, Environmental and Climate Assessment Procedures (SECAP) note defines the environmental and climate context and challenges of the extended intervention area and makes appropriate recommendations.

C. Climate risk classification

38. The climate risk classification is moderate. Impact from climate change may occur, especially in the northern areas, but will be manageable thanks to the agricultural techniques introduced. Some of the risks identified are: floods, water shortage due to drought, extremely high temperatures, bush fires, and increased intensity and frequency of natural phenomena.

IV. Implementation

A. Compliance with IFAD policies

39. The proposed additional financing is in line with relevant IFAD policies, including: the Strategic Framework 2016-2025; the Targeting Policy; the Policy on Rural Enterprise; the Private Sector Engagement Strategy 2019-2024; the Inclusive Rural Finance Policy; the Policy on Gender Equality and Women's Empowerment; and the SECAP.

B. Organizational framework Management and coordination

40. MAEP supervision remains unchanged, as does the architecture of institutional management of the IFAD Framework Programme in Benin (ProCAR). Territorial anchoring in the ADPs and operational management through the ATDAs will have to absorb the regional support unions (URA) with distribution of functions according to clearly defined methods.⁷ This will include relying on the ATDAs to: (i) mobilize and supervise agricultural advisory skills; (ii) support the development of a structured interprofessional organization; (iii) contribute to the monitoring of developments and infrastructure.
41. The use of delegated project management (maîtrise d'ouvrage déléguée [MOD]) will be maintained with adjustments, if necessary, based on the results of the technical and institutional audit. Independently of the control exercised through the MOD package, quality control expertise may be mobilized via the ATDAs (in collaboration with the DGR).
42. At the ProCaR level, the PADMAR+ technical team will include: (i) a project manager responsible for planning and supervising implementation support partners; (ii) a post-production expert; (iii) an agro-environmentalist in charge of

⁷ The project's financial management functions could not be absorbed by the ATDAs.

production and climate resilience; (iv) a specialist in rural organizations and institutions; (v) a development and infrastructure specialist; (v) a monitoring and evaluation officer, who also manages the interface with the ATDAs and MAEP. The extension phase will be built on the mobilization of current skills, and, if necessary, adjustments will be made for better performance.

43. In the extension areas (poles 1, 2 and 4), the ATDAs will be responsible for implementation under terms to be defined. Financial tasks will be performed by accounting secretaries recruited for this purpose.

Financial management, procurement and governance

44. The activities to be financed with the additional financing will be implemented as stipulated in the project's implementation manual and administrative, financial and accounting procedures. As part of the project extension in ADPs 1, 2 and 4, the fiduciary team will be supplemented with accounting secretaries (one per pole), who will deal exclusively with field operations within the poles. Overall programme functions remain financial management, oversight of compliance with memorandums of understanding with ATDAs and the justification of advances.⁸ For these entities to meet minimum financial management standards, operational sub-accounts will be opened to cover expenditures at the regional level.
45. ProCaR already has the necessary resources and capacity to implement the relevant processes and procedures. A procurement officer and an assistant with several years of experience in donor-financed public procurement manage all procurement-related activities. Ad hoc consultants and an archivist may be hired on a temporary basis in order to strengthen the team if needed. An upgrade of the procurement plan will be needed when the mechanisms for the project extension are implemented.

C. Monitoring and evaluation, learning, knowledge management and strategic communication

46. **Monitoring and evaluation.** The M&E system is well integrated with that of ProCaR. Monitoring will be based on the mechanism already in place. The following improvements are needed: (i) a greater role for ATDAs in reporting information and measuring yields, monitoring agricultural advisory service providers in keeping with the national strategy on advisory services; (ii) operationalization of the system for monitoring site developments; and (iii) setting up an online partnership monitoring tool.
47. The M&E system includes: (i) participatory self-evaluation involving beneficiaries and other stakeholders; (ii) joint supervision and implementation support missions by the Government and IFAD; and (iii) periodic external evaluations.
48. **Strategic communication, learning and knowledge management.** The ProCaR website will continue to be the main vehicle for sharing information on achievements, experiences and lessons learned. Annual reports, semi-annual newsletters, documentaries and other communication products will be produced to report on project interventions and their impacts. Communication among stakeholders to share best practices and knowledge will take place through thematic exchange groups, learning visits, and national and regional workshops, as well as community radio and social media.

D. Proposed amendments to the financing agreement

49. The financing agreement will be amended to include the additional US\$11.079 million from IFAD, specifying the new loan terms and conditions that will be negotiated to reflect the expansion of the geographical area, as well as the extension of the completion date.

⁸ Cheques are issued in the name of individuals rather than entities.

V. Legal instruments and authority

50. An amendment to the financing agreement between the Republic of Benin and IFAD will constitute the legal instrument to extend the proposed additional financing to the borrower. The financing agreement will be amended after approval of the additional financing.
51. The Republic of Benin is empowered under its laws to receive financing from IFAD.
52. I am confident that the proposed additional financing will be in accordance with the Agreement Establishing IFAD and IFAD's Financing Policies and Criteria.

VI. Recommendation

53. The Executive Board is invited to approve the proposed financing in terms of the following resolution:

RESOLVED: That the Fund shall provide a loan on ordinary terms to the Republic of Benin in an amount of ten million five hundred thousand (US\$10,500,000) United States dollars and upon such terms as shall be substantially in accordance with the terms and conditions presented herein.

RESOLVED FURTHER: That the Fund shall provide a loan on super highly concessional terms to the Republic of Benin in an amount of four hundred sixty-three thousand seven hundred sixty-eight (US\$463,768) United States dollars and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

RESOLVED FURTHER: That the Fund shall provide a loan on highly concessional terms to the Republic of Benin in an amount of one hundred fifteen thousand nine hundred forty-two (US\$115,942) United States dollars and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Alvaro Lario
President

Logical framework for additional financing

Hierarchy of results	Key indicators				Means of verification			Hypotheses
	Last name	Ref.	Midterm	End	Source	Frequency	Responsibility	
SCOPE	1. Number of people receiving services promoted or supported by the project (BI 1)		7,500	16,000	Project HSE	Half-yearly	ProCAR (CSR/CSE)	
	Number of women		3,000	6,400				
	Number of young people		3,750	8,000				
	Number of people living with disabilities		375	800				
	2. Number of households receiving program support (IB 1.a)		7,500	16,000				
	3. Number of people reached within supported households (IB 1.b)		45,000	96,000				
	Number of women		18,000	38,400				
	Number of young people		22,500	48,000				
Number of people living with disabilities		2,250	4,800					
MAIN OBJECTIVE								
Contribute to the sustainable improvement of food and nutritional security and the reduction of rural and peri-urban poverty in the project area	4. Number of people benefiting from economic mobility		7,688	12,813	Reference, Mid-term, End of project	Year 1, 2 and 3	ProCAR (CSR/CSE)	
	5. Beneficiary women (Percentage) reporting minimum dietary diversity (MDD-W) (BI 1.2.8)		45	75	IBRE survey	Year 1, 2 and 3		
	6. Households (Percentage) having improved their knowledge, attitudes and practices (KAP) related to nutrition (BI 1.2.9)		45	75	IBRE survey	Year 1, 2 and 3		
DEVELOPMENT OBJECTIVE								
Sustainably increase the income of vegetable farms, while improving their resilience to climate change	7. Increase in % of the amount in FCFA of the annual income of market gardeners							
	Increase in the annual income of market gardeners		30	50				
	8. Percentage of households declaring an increase in production (BI 1.2.4)		45	75	IBRE survey	Annual		
	9. Percentage of households satisfied with the services provided by the project (IB SF 2.1)		45	75	Satisfaction survey	Annual		
Effects & Products								
<i>Effect 1. The valuation of market gardening products and access to the market are improved</i>	23. Number of rural enterprises (Processors) supported reporting increased profits (BI 2.2.2)		15	30	IBRE survey (Baseline, Mid-term, End of project)	Annual from year 2	ProCAR	
	24. Number of rural producer organizations that have entered into formal partnerships, agreements or contracts with public or private entities (BI 2.2.3)		5	10				
	25. Households (percentage) reporting better physical access to marketing, processing and storage facilities (BI 2.2.6)		45	75				
<u>Product 1.1.</u> Professional partnerships and the professionalization of	26. Number of apexes having benefited from support		3	5	HSE Activity reports	Annual	ProCAR	
	27. Number of rural enterprises with access to business development services (BI 2.1.1)		15	30	IBRE survey	Annual		

Hierarchy of results	Key indicators				Means of verification			Hypotheses
	Last name	Ref.	Midterm	End	Source	Frequency	Responsibility	
actors are developed and consolidated	28. Percentage of supported rural producers who belong to a producer organization		45	75	HSE Activity reports	Annual	ProCAR	
	30. Number of business opportunities created by project actions		6	8	HSE Activity reports	Annual	ProCAR	
<u>Product 1.2.</u> Producers' access to resilient infrastructure that increases value addition and facilitates access to markets is improved	31. Number of marketing, processing or storage facilities constructed or rehabilitated (BI 2.1.6)		149	227	HSE	Annual	ProCAR (CSR/CSE) / ATDA / DGR	
	Marketing facilities constructed or rehabilitated		27	54				
	Processing facilities constructed		24	30				
	Storage facilities constructed		98	143				
	32. Number of stakeholder groups strengthened for market infrastructure management		98	143	HSE Activity reports	Annual	ProCAR / Municipality	
33. Number of farm road maintenance committees supported		15	25	HSE Activity reports	Annual	ProCAR / Municipality		
<u>Outcome 2.</u> <i>Agricultural productivity and production in targeted value chains are improved in accordance with climate-smart agricultural practices</i>	10 . Households reporting reduced water scarcity compared to production needs (BI 1.2.3)				IBRE survey (Baseline, Mid-term, End of project)	Annual		
	11. % Households declaring an increase in production (BI 1.2.4)		45	75	IBRE survey (Baseline, Mid-term, End of project)	Annual		
	12. % Households reporting having adopted new or improved technologies, practices or inputs (BI 1.2.2)		45	75	IBRE survey (Baseline, Mid-term, End of project)	Annual		
	13. Percentage of people with improved empowerment (IE 2.1)		50	75	IBRE survey (Baseline, Mid-term, End of project)	Annual from year 2		
<u>Product 2.1.</u> Resilient market gardening schemes improve the productivity of targeted value chains	15. Agricultural land (Number of hectares) with newly constructed or rehabilitated water infrastructure (BI 1.1.2)		2,501.36	2,501.36	HSE	Half-yearly	ProCAR (CSR/CSE) & ATDA	
	16. Number of beneficiaries with access to resilient market gardening facilities		9,130	15,216	HSE	Half-yearly	ProCAR (CSR/CSE)	
<u>Product 2.2.</u> Access to and use of improved technologies and techniques are increased	17. Rural producers with access to production inputs or technological modules (IB 1.1.3)		9,562	15,937	HSE Activity reports	Half-yearly	ATDA / ProCAR	
	18. Number of people trained in production practices or technologies (BI 1.1.4)		9,130	15,216	HSE Activity reports	Half-yearly	ATDA / ProCAR / Agricultural advisory service providers	
	19. Number of households having received targeted support to improve their nutrition (BI 1.1.8)		7,172	11,953	HSE Activity reports	Half-yearly	ProCAR	
	20. Number of rural producer organizations (seed companies, biopesticide cooperatives, organic fertilizer cooperatives, FeNOMA, umbrella organizations) having received support (BI 2.1.3)	0	20	35	HSE Activity reports	Half-yearly	ProCAR	
	21. Number of varieties of vegetable products developed locally (including seed potatoes)		3	5	HSE Activity reports	Annual	ProCAR / INRAB /	

Hierarchy of results	Key indicators				Means of verification			Hypotheses
	Last name	Ref.	Midterm	End	Source	Frequency	Responsibility	
							WorldVeg / DPV	

Updated summary of the economic and financial analysis

Table A
Financial cash flow models

Modèle 1 : Unité de transformation d'une taille moyenne de 25 à 50 tonnes pour produire de la tomate en purée et la poudre du piment											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu		30,72	42,56	52,80	64,00	72,00	76,00	76,00	80,00	80,00	80,00
Couts		19,89	23,70	28,38	33,70	39,20	39,41	39,41	41,31	43,01	41,31
marge brute		10,83	18,86	24,42	30,30	32,80	36,59	36,59	38,69	36,99	38,69
Marge brute additionnelle		10,83	18,86	24,42	30,30	32,80	36,59	36,59	38,69	36,99	38,69
TRI (%)	62,0%										
VAN (6%; million FCFA)	320,00										
Modèle 2: Unité paysanne de stockage de l'oignon (20 t)											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	-	4,80	5,60	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00
Couts	-	4,63	4,63	4,63	4,63	4,63	4,63	4,63	4,63	4,63	4,63
marge brute	-	0,17	0,97	1,37	1,37	1,37	1,37	1,37	1,37	1,37	1,37
Marge brute additionnelle	-	0,17	0,97	1,37	1,37	1,37	1,37	1,37	1,37	1,37	1,37
TRI (%)	13,7%										
VAN (6%; million FCFA)	6,03										
Modèle 3: Unité de stockage de l'oignon de capacité petite à moyenne (200 t)											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	-	54,08	58,24	62,40	62,40	62,40	62,40	62,40	62,40	62,40	62,40
Couts	-	53,20	53,20	53,20	53,20	53,20	53,20	53,20	53,20	53,20	53,20
marge brute	-	0,88	5,04	9,20	9,20	9,20	9,20	9,20	9,20	9,20	9,20
Marge brute additionnelle	-	0,88	5,04	9,20	9,20	9,20	9,20	9,20	9,20	9,20	9,20
TRI (%)	29,6%										
VAN (6%; million FCFA)	67,90										
Modèle 4: Unité de stockage de l'oignon de grande capacité (1 200 t)											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	-	316,80	316,80	345,60	374,40	403,20	403,20	403,20	403,20	403,20	403,20
Couts	-	307,20	307,20	312,96	318,72	324,48	324,48	324,48	324,48	324,48	324,48
marge brute	-	9,60	9,60	32,64	55,68	78,72	78,72	78,72	78,72	78,72	78,72
Marge brute additionnelle	-	9,60	9,60	32,64	55,68	78,72	78,72	78,72	78,72	78,72	78,72
TRI (%)	54,6%										
VAN (6%; million FCFA)	627,59										
Modèle 5: Puits tubés dans le PDA 1: Tomate, oignon et piment - 8 par ha											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	5,0	6,22	9,51	9,51	9,51	9,51	9,51	9,51	9,51	9,51	9,51
Couts	3,9	4,72	4,50	4,50	4,72	4,50	4,50	4,72	4,50	4,50	4,72
marge brute	1,1	1,49	5,00	5,00	4,78	5,00	5,00	4,78	5,00	5,00	4,78
Marge brute additionnelle	-	0,37	3,88	3,88	3,66	3,88	3,88	3,66	3,88	3,88	3,66
TRI (%)	52,7%										
VAN (6%; million FCFA)	33,45										
Modèle 6: Puits tubés dans le PDA 1: Pomme de terre et oignon -4 par ha											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	5,8	6,67	7,90	7,90	7,90	7,90	7,90	7,90	7,90	7,90	7,90
Couts	5,1	5,68	5,48	5,48	5,68	5,48	5,48	5,68	5,48	5,48	5,68
marge brute	0,7	0,99	2,43	2,43	2,23	2,43	2,43	2,23	2,43	2,43	2,23
Marge brute additionnelle	-	0,28	1,71	1,71	1,51	1,71	1,71	1,51	1,71	1,71	1,51
TRI (%)	39,7%										
VAN (6%; million FCFA)	13,65										
Modèle 7: Puits tubés dans le PDA 4: Tomate, piment et gombo - 8 par ha											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	4,7	5,78	9,15	9,15	9,15	9,15	9,15	9,15	9,15	9,15	9,15
Couts	3,1	3,87	3,67	3,67	3,87	3,67	3,67	3,87	3,67	3,67	3,87
marge brute	1,5	1,92	5,48	5,48	5,29	5,48	5,48	5,29	5,48	5,48	5,29
Marge brute additionnelle	-	0,38	3,94	3,94	3,75	3,94	3,94	3,75	3,94	3,94	3,75
TRI (%)	74,8%										
VAN (6%; million FCFA)	35,86										
Modèle 8: Aménagements pour les eaux de surface dans le PDA 4: Tomate, piment et gombo - 8 par ha											
	Sans projet	Années - Avec Projet									
		An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20

Revenu	4,7	5,78	9,15	9,15	9,15	9,15	9,15	9,15	9,15	9,15	9,15
Couts	3,1	3,52	3,33	3,33	3,52	3,33	3,33	3,52	3,33	3,33	3,52
marge brute	1,5	2,26	5,83	5,83	5,64	5,83	5,83	5,64	5,83	5,83	5,64
Marge brute additionnelle	-	0,72	4,29	4,29	4,10	4,29	4,29	4,10	4,29	4,29	4,10
TRI (%)	65,6%										
VAN (6%; million FCFA)	33,12										
Modèle 9: Forage dans le PDA 5: Tomate, piment et crin crin											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	5,4	6,50	9,91	9,91	9,91	9,91	9,91	9,91	9,91	9,91	9,91
Couts	3,1	4,01	3,81	3,81	4,01	3,81	3,81	4,01	3,81	3,81	4,01
marge brute	2,3	2,49	6,09	6,09	5,90	6,09	6,09	5,90	6,09	6,09	5,90
Marge brute additionnelle	-	0,17	3,78	3,78	3,59	3,78	3,78	3,59	3,78	3,78	3,59
TRI (%)	21,0%										
VAN (6%; million FCFA)	23,53										
Modèle 10: Forage artésien dans le PDA 5:Tomate, piment et crin crin											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	5,4	6,50	9,91	9,91	9,91	9,91	9,91	9,91	9,91	9,91	9,91
Couts	3,1	4,01	3,81	3,81	4,01	3,81	3,81	4,01	3,81	3,81	4,01
marge brute	2,3	2,49	6,09	6,09	5,90	6,09	6,09	5,90	6,09	6,09	5,90
Marge brute additionnelle	-	0,17	3,78	3,78	3,59	3,78	3,78	3,59	3,78	3,78	3,59
TRI (%)	87,0%										
VAN (6%; million FCFA)	34,85										
Modèle 11: Puits tubés dans le PDA 7: Tomate, carotte et piment											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	7,5	8,50	12,84	12,90	12,96	12,96	12,96	12,96	12,96	12,96	12,96
Couts	4,3	5,06	4,86	4,86	5,06	4,86	4,86	5,06	4,86	4,86	5,06
marge brute	3,2	3,45	7,97	8,03	7,90	8,09	8,09	7,90	8,09	8,09	7,90
Marge brute additionnelle	-	0,23	4,76	4,82	4,68	4,88	4,88	4,68	4,88	4,88	4,68
TRI (%)	84,3%										
VAN (6%; million FCFA)	44,86										
Modèle 12: Forage dans le PDA 7: Tomate, carotte et piment											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	7,5	8,50	12,84	12,90	12,96	12,96	12,96	12,96	12,96	12,96	12,96
Couts	4,3	5,06	4,86	4,86	5,06	4,86	4,86	5,06	4,86	4,86	5,06
marge brute	3,2	3,45	7,97	8,03	7,90	8,09	8,09	7,90	8,09	8,09	7,90
Marge brute additionnelle	-	0,23	4,76	4,82	4,68	4,88	4,88	4,68	4,88	4,88	4,68
TRI (%)	26,3%										
VAN (6%; million FCFA)	34,30										
Modèle 13: Planches surélevées dans le PDA 7: Tomate, carotte et piment											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	7,5	8,50	12,84	12,90	12,96	12,96	12,96	12,96	12,96	12,96	12,96
Couts	4,3	5,06	4,86	4,86	5,06	4,86	4,86	5,06	4,86	4,86	5,06
marge brute	3,2	3,45	7,97	8,03	7,90	8,09	8,09	7,90	8,09	8,09	7,90
Marge brute additionnelle	-	0,23	4,76	4,82	4,68	4,88	4,88	4,68	4,88	4,88	4,68
TRI (%)	76,0%										
VAN (6%; million FCFA)	44,39										
Modèle 14: Forage artésien dans le PDA 7: Tomate, carotte et piment											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	7,5	8,50	12,84	12,90	12,96	12,96	12,96	12,96	12,96	12,96	12,96
Couts	4,3	5,06	4,86	4,86	5,06	4,86	4,86	5,06	4,86	4,86	5,06
marge brute	3,2	3,45	7,97	8,03	7,90	8,09	8,09	7,90	8,09	8,09	7,90
Marge brute additionnelle	-	0,23	4,76	4,82	4,68	4,88	4,88	4,68	4,88	4,88	4,68
TRI (%)	102,9%										
VAN (6%; million FCFA)	45,62										
Modèle 15: Production de tomate sous serres (4 cycles/an)											
	Sans projet	An 1	An 2	An 3	An 4	An 5	An 6	An 7	An 8	An 9	Ans 10 à 20
Revenu	0,3	7,73	12,88	12,86	12,86	12,86	12,86	12,86	12,86	12,86	12,86
Couts	0,3	1,45	1,39	1,39	1,45	1,39	1,39	1,45	1,39	1,39	1,45
marge brute	0,0	6,28	11,48	11,47	11,42	11,47	11,47	11,42	11,47	11,47	11,42
Marge brute additionnelle	-	6,26	11,47	11,45	11,40	11,45	11,45	11,40	11,45	11,45	11,40
TRI (%)	71,4%										
VAN (6%; million FCFA)	60,56										

Table B
Project costs and logframe targets

Coûts du projet (FIDA, OPEP, IFL)	Bénéficiaires PADMAR+			
	Couts (\$ millier)	Catégories de bénéficiaires	Nombre de bénéficiaire	Cout par bénéficiaire (\$)
Sous composante				
SC 1.1. Partenariats et professionnalisation	4,738.7	Acteurs de la filière	16.000	296.2
SC 1.2. Infrastructures et d'accès au marché	5,704.0	Acteurs de la filière	16.000	356.5
SC 2.1. Aménagements maraîchers résilients	11,553.1	Maraîchers	15.937	724.9
SC 2.1 Accès aux Technologies et Techniques Améliorées	10,132.8	Maraîchers	15.216	665.9
Total	41,780.5	Acteurs de la filière	16.000	2,611.3

Table C
Main assumptions and shadow prices

Les hypothèses suivantes ont été émises pour l'analyse économique et financière qui concerne l'unité productive (ferme, unité de transformation ou de stockage...) :

- Un horizon d'analyse du projet sur 20 ans, qui représente la durée de vie économique des investissements et aménagements majeurs du projet ;
- Adoption des prix constants ;
- Un taux d'actualisation de 6 per cent (suivant la même hypothèse que le projet parent et d'un projet récent : PADAAM⁹) ;
- Le Projet s'investit dans plusieurs activités touchant la filière maraîchère qui génèrent des avantages économiques conséquents mais la disponibilité des données ainsi que la nature de certaines activités limitent l'exercice de quantification des bénéfices potentiels générés. Pour cette raison, quelques modèles clés ont été identifiés (voir ci-dessous) ;
- Taux de change officiel est de 1 USD = 656 FCFA
- Taux de change d'ombre est de 1 USD = 662.5 FCFA
- Taux de conversion pour les produits importés est de 0.96
- Taux de conversion pour les intrants importés est de 1.74
- Le salaire journalier est de 1 818 FCFA

Niveaux de rendement (kg/ha) et de perte post-récolte (%)

	Sans projet		PADMAR+	
	Rendement (kg/ha)	Perte post-récolte (%)	Rendement (kg/ha)	Perte post-récolte (%)
Tomate	9 000	25%	16 000	12%
Piment	8 000	10%	12 000	7%
Gombo	5 000	20%	7 000	10%
Crincrin	7 500	15%	9 500	7%
Carotte	15 000	10%	20 000	5%
Oignon	12 000	20%	15 600	10%
Pomme de terre	8 500	20%	10 000	10%

Table D
Beneficiary adoption rates and phasing

Composante	Modèles	Unité	2023	2024	2025	2026
C1: Valorisation et mise en marché	M1	unité	23	7		
	M2	unité	20	50	30	
	M3	unité		10	15	
	M4	unité		6		
C2: Amélioration de la productivité et de la production	M5	ha	250	300		
	M6	ha		1 000		
	M7	ha	50			
	M8	ha	150			
	M9	ha	23			
	M10	ha	50			
	M11	ha	300	100		
	M12	ha	27			
	M13	ha	50	50		
	M14	ha	50	100		
	M15	unité		12		

Table E
Economic cash flow

(en milliard FCFA)	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20
Bénéfices additionnels	0,47	4,86	8,82	8,99	9,24	9,85	9,56	9,55	9,90	9,62	9,56	9,94	9,59	9,55	9,94	9,63	9,53	9,93	9,63	9,56
Coûts économiques	8,66	11,82	2,69	1,59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bénéfices additionnels nets	8,19	-6,97	6,13	7,40	9,24	9,85	9,56	9,55	9,90	9,62	9,56	9,94	9,59	9,55	9,94	9,63	9,53	9,93	9,63	9,56
TRE (%)	43%																			
VAN (6%; milliards FCFA)	74,32																			

Table F
Sensitivity analysis

		TRE	VAN 6%; million USD)	VAN (6 per cent ; million FCFA)
Base	-	43%	113.3	74 322
Costs increase	20%	43%	96.8	63 533
	30%	36%	85	55 556
	40%	30%	72.5	47 578
Benefits decrease	20%	39%	72.6	47 636
	30%	28%	48.3	31 709
	40%	18%	24.1	15 783