Executive Board

# President's memorandum

# Proposed additional financing to

# United Republic of Tanzania

# Tanzania Food Systems Resilience Programme – Horticulture (TFSRP-H)

Project ID: 2000004073

Document: EB 2025/LOT/P.3

Date: 14 August 2025

Distribution: Public

Original: English

**FOR: APPROVAL**

**Action:** The Executive Board is invited to approve the recommendation for the proposed additional financing contained in paragraph 70.

**Technical questions:**

**Sara Mbago-Bhunu**
Regional Director
East and Southern Africa Division
e-mail: s.mbago-bhunu@ifad.org

**Meng Sakphouseth**
Country Director
East and Southern Africa Division
e-mail: m.sakphouseth@ifad.org

# Contents

**Financing summary** **ii**

**I. Background and programme description** **1**

A. Background 1
B. Original programme description 1

**II. Rationale for additional financing** **2**

A. Rationale 2
B. Description of geographical area and target groups 3
C. Components, outcomes and activities 4
D. Costs, benefits and financing 5

**III. Risk management** **10**

A. Risks and mitigation measures 10
B. Environment and social category 10
C. Climate risk classification 10

**IV. Implementation** **11**

A. Compliance with IFAD policies 11
B. Organizational framework 11
C. Monitoring and evaluation, learning, knowledge management and strategic communication 12
D. Proposed amendments to the financing agreement 12

**V. Legal instruments and authority** **12**

**VI. Recommendation** **13**

**Appendices**

I. Updated logical framework incorporating the additional financing
II. Updated summary of the economic and financial analysis

| **Programme delivery team** | |
|---|---|
| Regional Director: | Sara Mbago-Bhunu |
| Country Director: | Meng Sakphouseth |
| Technical Lead: | Putso Nyathi |
| Finance Officer: | Sengul James |
| Climate and Environment Specialist: | Claus Renier |
| Legal Officer: | Mavundla Mhlambi |

# Financing summary

| | |
|---|---|
| **Initiating institution:** | International Development Association (IDA) of the World Bank Group |
| **Borrower/recipient:** | United Republic of Tanzania |
| **Executing agency:** | Ministry of Agriculture |
| **Total programme cost:** | US$2,234.00 million |
| **Amount of original IFAD loan:** | US$21.50 million |
| **Terms of original IFAD financing:** | Highly concessional, with a maturity period of 40 years, including a grace period of 10 years, with a service charge of 0.75 per cent per annum in special drawing rights (adjustments for single-currency loans) |
| **Amount of additional IFAD loan 1 under the performance-based allocation system (PBAS):** | US$39.90 million |
| **Terms of additional IFAD loan 1 financing:** | Highly concessional, with a maturity period of 40 years, including a grace period of 10 years, with a service charge of 0.75 cent per annum in special drawing rights (adjustments for single-currency loans) |
| **Amount of additional IFAD loan 2 under the Borrowed Resource Access Mechanism (BRAM):** | US$10.00 million |
| **Terms of original IFAD loan 2:** | Ordinary, with a maturity period up to 35 years, including a grace period of up to 10 years, within an average repayment maturity of 20 years, subject to interest at a rate equal to the IFAD reference interest rate including a variable spread |
| **Cofinanciers:** | International Development Association (IDA) of the World Bank Group and Japan International Cooperation Agency (JICA) |
| **Amount of cofinancing:** | IDA: US$300.00 million<br>JICA: US$70.00 million |
| **Terms of cofinancing:** | Loan |
| **Contribution of borrower/recipient:** | US$1,793.00 million |
| **Amount of original IFAD climate finance:** | US$17.39 million |
| **Amount of additional IFAD climate finance:** | US$43.266 million (of which US$1.926 million is a climate top-up) |
| **Cooperating institution:** | International Development Association (IDA) of the World Bank Group |

# I. Background and programme description

## A. Background

1. The Tanzania Food Systems Resilience Programme – Horticulture (TFSRP-H) was approved by the IFAD Executive Board through lapse-of-time procedure on 6 November 2024. The financing agreement was countersigned by the Government of the United Republic of Tanzania and entered into force on 5 March 2025. The programme's completion and closing dates are 31 March 2029 and 30 September 2029 respectively.

2. The approved IFAD financing envelope for TFSRP-H consists of US$40 million split into US$21.5 million from the performance-based allocation system (PBAS) allocation for the Twelfth Replenishment of IFAD's Resources (IFAD12) and a financing gap of US$18.5 million, to be potentially financed from the IFAD13 PBAS allocation. As a results-based lending/programme-for-results (PforR) instrument, the IFAD financing contributes to the larger financing envelope of US$2.2 billion for the overall Tanzania Food Systems Resilience Programme, which consists of US$1.8 billion from the Government and US$300 million from the World Bank, in addition to the IFAD financing. The Japan International Cooperation Agency (JICA) is also providing financing of US$70 million. The World Bank administers the IFAD financing, and a letter of appointment has been countersigned to this effect.

3. Following the confirmation of the IFAD13 allocation, the Government requested US$49.9 million to fill the financing gap of US$18.5 million and additional financing (AF) of US$31.4 million in a letter dated 31 January 2025. A subsequent letter, dated 11 April 2025, confirmed interest in utilizing US$10 million from the IFAD13 Borrowed Resource Access Mechanism (BRAM) and US$39.9 million from the IFAD13 PBAS window. This is aligned with the country's allocation of US$10 million under the BRAM and US$64.071 million under the PBAS.

## B. Original programme description

4. As a PforR, TFSRP-H is supporting an existing government programme, the Agricultural Sector Development Programme II.

5. The programme's development objective is to support food systems resilience by strengthening agricultural service delivery, adopting climate-resilient technologies and fiscal performance in the agricultural sector, with an additional focus on youth in horticulture.

6. TFSRP-H will contribute to both strategic objectives (SOs) of the country strategic opportunities programme: SO1 – enhanced climate-resilient production systems for increased productivity of smallholder producers, and SO2 – improved smallholder producer access to markets and to micro, small and medium-sized enterprises.

7. The programme comprises three results areas (RAs) for the PforR portion, an investment project financing (IPF) window for the mainland and three components under IPF in Zanzibar. The original financing contributes to RA 1 and to all IPF components.

   - RA 1: Improving service delivery in research, extension and seed systems
   - RA 2: Developing resilient rural infrastructure
   - RA 3: Strengthening fiscal performance in priority investment areas
   - Component 1 (Zanzibar): Improving service delivery in research, extension and seed systems
   - Component 2 (Zanzibar): Rehabilitation of rural infrastructure to enhance climate resilience
   - Component 3 (Zanzibar): Programme implementation and supervision

- IPF component (mainland): Financing of relevant technical assistance and consultants

# II. Rationale for additional financing

## A. Rationale

8. The key rationale for the AF is that it provides IFAD with the opportunity to support applied research in the horticulture sector in the United Republic of Tanzania, improved production practices and access to water through better management of irrigation schemes.

9. The programme is performing well and is not classified as a potential or an actual problem programme. On the mainland, the disbursement-linked indicators (DLIs) and sub-DLIs planned for 2024/2025 fiscal year are on track for timely disbursement, pending verification. Impressively, for DLI 4.1, the Government submitted a verification report that exceeded expectations as it covered the operation, management and maintenance (OMM) of 14 irrigation schemes, surpassing the target of 10 schemes for the programme year.

10. The programme has fully achieved the DLIs planned for fiscal year 2023/2024, with verified disbursement-linked results totalling US$53.94 million. For example, the Tanzania Agricultural Research Institute (TARI) produced 1,291.11 tons of early generation seeds, comprising 16.85 tons of breeder seeds, 241.876 tons of pre-basic seeds, 806.314 tons of basic seeds and 224.07 tons of certified seeds. In Zanzibar, there has been remarkable progress in farmer training and strengthening research-extension linkages.

11. In parallel, the Ministry of Agriculture (MoA) is advancing M-Kilimo[1] digital integration and is incorporating user feedback to improve system functionalities. To promote the participation of young people and women in agriculture, 686 individuals received agribusiness training and were allocated 5- to 10-acre plots.

12. Importantly, the proposed AF does not necessitate an extension of the original completion or closing dates. The overall programme costs approved by the Executive Board exceed US$2 billion, and the AF does not surpass 20 per cent of the total original programme costs.

13. In this context, the proposed AF will fund:

- The financing gap of US$18.5 million approved in the original design. The financing gap represents 47 per cent of the overall IFAD commitment to TFSRP-H and is split between US$15.9 million (86 per cent) allocated to the PforR portion, and US$2.6 million (14 per cent) allocated to the IPF. It covers the same activities as the original financing, which are RA 1 in the mainland, and components 1 and 2 in Zanzibar, in addition to the IPF component in the mainland.
- A further AF of US$31.4 million to: (i) increase the scope of DLI 1 by further strengthening the institutional capacity of the Horticultural Research and Training Institute in Tengeru (HORTI-Tengeru) as a horticulture centre of excellence in applied horticulture research, innovation, undergraduate training and advisory services, with support from the World Vegetable Center and the Tanzanian Agricultural Research Institute in Tengeru (TARI-Tengeru); and (ii) the scaling up of the DLI 4 performance-based OMM contracts that introduced and implemented improved water management practices for better horticulture production.

**Special aspects relating to IFAD's corporate mainstreaming priorities**

[1] "Mobile agriculture" in Swahili - a mobile application hosted by the Ministry of Agriculture that helps farmers provide crop information, crop prices, and their location, making it easier for buyers to reach them.

14. In line with current IFAD's mainstreaming commitments, with the AF, the programme remains validated as:

☒ Including climate finance

☒ Youth-sensitive

☒ Including adaptive capacity

15. **Climate finance and adaptive capacity.** The programme will promote: (i) greater production capacity, based on the continuous release, higher production and widespread adoption of improved climate-resilient (e.g. heat- and drought-tolerant) seed varieties; and (ii) the provision of digital advisory services in water resource management, as supported in the overall Tanzania Food Systems Resilience Programme.

16. **Youth-sensitive.** Young people experience challenges in accessing land and finance, exacerbating their exclusion in the agricultural sector. Since they are perceived as a high-risk group, investments targeting them are limited, particularly in agriculture. The programme will empower youth to participate in the targeted value chains as entrepreneurs or in the labour force through: (i) capacity-building; (ii) greater access to productive assets; and (iii) the creation of decent on- and off-farm jobs for young people. The AF will further improve access to irrigated land for young horticulture farmers.

17. **Nutrition.** TFSRP-H will contribute to the achievement of nutrition outcomes by promoting research and the dissemination of new seed varieties and practices that support the diversification of crop value chains and better post-harvest management, in order to increase the availability of nutritious foods.

18. **Gender.** The programme will create equal opportunities for young women and men. Specifically, it will: (i) further young women's economic empowerment by facilitating their access to and control of productive assets; and (ii) increase young women's participation in community organizations.

## B. Description of geographical area and target groups

19. The geographical area and target groups remain the same, and there is no change to the programme's development objective, which is to support food systems resilience by strengthening agricultural service delivery, adopting climate-resilient technologies and fiscal performance in the agricultural sector.

20. TFSRP-H is national in scope. The International Development Association (IDA) loan targets agriculture in general, and IFAD will focus on locations with a comparative advantage in horticulture.

21. District selection will be guided by criteria that include: (i) youthful population and population density; (ii) market potential; (iii) vulnerability to climate change; (iv) complementarity with other initiatives, projects and programmes, and cofinancing potential with the World Bank and other partners, and other IFAD projects.

22. The targeting strategy will inform the selection of different youth categories to offer tailored youth-sensitive packages.

23. **Target group.** The overall programme will now target 580,000 households, or approximately 2.16 million people, of whom 280,000 are young women and men (aged 18 to 40). This includes an additional 30,000 young individuals, who will be directly reached by this AF.

24. Young people directly benefitting from the programme will be selected from the following three socioeconomic groups: (i) rural poor and food-insecure youth with limited productive assets; (ii) moderately food-insecure young rural producers engaged in subsistence horticulture or participating in the value chain; (iii) youth

with economically active small and medium-sized enterprises with market potential but facing productivity and marketing constraints.

25. The targeting strategy will ensure that youth will be reached through: (i) self-targeting, with activities geared to the needs of rural food-insecure youth engaged in horticultural activities; (ii) direct targeting of vulnerable and/or marginalized youth; (iii) empowerment and capacity-building measures to ensure that targeted youth can receive project benefits through innovative approaches that appeal to young people; and (iv) an enabling environment and policy engagement to ensure a conducive environment for youth.

## C. Components, outcomes and activities

26. The AF will not change the existing programme's components, outcomes and activities, and will contribute to RA 1 (DLI 1) and RA 2 (DLI 4).

27. **RA 1: Improving service delivery in research, extension and seed systems** seeks to support the delivery of the Agricultural Sector Development Programme II; build resilience and increase the mainland's capacity to adapt to climate change by accelerating the ability of research institutions to develop and adapt technologies; expand the use of digital solutions to facilitate increased access to climate-smart technology; and improve the supply of high-quality climate-resilient seeds. There are three disbursement-linked indicators: DLI 1 – sustainable financing for the development and dissemination of climate-resilient technologies in agriculture; DLI 2 – extension outreach strengthened, including through information and communications technology (ICT) solutions for promoting climate-smart practices; and DLI 3 – improved functional linkages in the seed value chain.

28. The original financing contributes to all three DLIs of RA 1, while the AF will add sub-DLI 1.3 as it relates specifically to the physical and operational establishment of the centre of excellence. The sub-DLI 1.3 will be split into two payments of US$1,537,500 for two separate indicators, for a total of US$3.075 million. Indicator 1.3.1 will measure the establishment of the centre (rehabilitation or construction of new buildings on an existing site, purchase of equipment, and approval of a three-year operational plan, including a research and technology transfer plan, partnerships, a staffing plan, results framework and a budget). Indicator 1.3.2 will measure the operationalization of the centre, where IFAD will disburse a total of US$1,537,500 for the first 1,600 village-based advisors trained and certified by the centre of excellence. The operation of the HORTI-Tengeru Horticulture Centre of Excellence will be supported with expertise from the World Vegetable Center.

29. **RA 2: Developing resilient rural infrastructure** seeks to complement government capital investments in infrastructure critical to boosting productivity and strengthening resilience, including climate resilience. RA 2 is subdivided into DLI 4 – performance-based operations, management and maintenance contracts introduced and implemented, and DLI 5 – effective management of public warehouse facilities.

30. The AF will scale up DLI 4 by awarding the signature of an additional 11 OMM contracts by financial year 2026/2027, and of an additional 16,500 hectares operated under OMM contracts by 2027/2028, while using the same payment metrics as the IDA financing. As such, IFAD will pay US$1.3 million for each additional OMM contract signed, up to an amount of US$14.3 million, and US$580 for each hectare (ha) operated under these OMM contracts, up to an amount of US$14.025 million, for a total of US$28.325 million for DLI 4. The AF will thus incentivize the upgrade and rehabilitation of existing irrigation schemes, and the implementation of small-scale irrigation systems, including the MoA borehole master plan, to enhance horticultural productivity.

31. As per the programme operations manual, DLI 4 measures the formal establishment and the coverage area of contractual agreement between the National Irrigation Commission and irrigators' organizations for the operation, management and maintenance of targeted irrigation schemes. The DLI measures two sub-DLIs, namely: (i) DLI 4.1 – number of performance-based OMM contracts signed (disaggregated by region); and (ii) DLI 4.2 – area (ha) operated under performance-based OMM contracts.

32. **RA 3: Strengthening fiscal performance in priority investment areas** seeks to improve institutional performance. Improved agriculture budgeting and the repurposing of public support mechanisms will enable services to be delivered more effectively and impactfully, ensure better localized planning and increase investment in natural resource management. As a result, farmers, their professional organizations and other value chain actors will be less vulnerable to climate-related shocks. RA 3 includes DLI 6 – improved agricultural budget monitoring and predictability, and DLI 7 – scaling up soil health assessments and management.

33. **IPF component (mainland):** The IPF component in the mainland will finance three additional experts (a youth and targeting expert, a horticulture expert and a part-time digital agriculture expert) to be aggregated to the mainland programme management team (PMT). In addition, the financing will complement the IDA where necessary, in terms of technical assistance.

34. **Component 1 (Zanzibar): Improving service delivery in research, extension and seed systems.** This component focuses on strengthening different actors' capacity to undertake relevant research on agriculture technologies such as new varieties, to multiply and disseminate these technologies, and to provide the necessary extension services to promote their adoption.

35. **Component 2 (Zanzibar): Rehabilitation of rural infrastructure to enhance climate resilience.** Under this component, TFSRP-H will finance the rehabilitation of irrigation and drainage infrastructure, the drilling of boreholes and the rehabilitation of some farm roads. In addition, the World Bank will support the construction of government-owned farm-level stores and three drying areas in farmer service centres.

36. **Component 3 (Zanzibar): Programme implementation and supervision.** This component will finance three additional experts (a youth and targeting expert, a horticulture expert and a part-time digital agriculture expert) to be aggregated to the Zanzibar PMT. In addition, the financing will complement, where necessary, the World Bank loan with regards to specific technical assistance.

## D. Costs, benefits and financing

### Programme costs

37. The overall programme costs amount to US$2.234 billion, including contingencies, of which US$915.50 million (41 per cent) will finance RA 1, US$1,054 million (47 per cent) will finance RA 2 and US$238 million (11 per cent) will finance RA 3, and US$26.50 million (1 per cent) will go towards the IPF component. The total amount of additional IFAD climate finance for this additional financing proposal is estimated as US$43.266 million, of which US$1.926 million is a climate top-up.

38. Furthermore, while the financing gap will contribute to existing targets defined at design, the AF will increase outreach to an additional 30,000 young horticulture farmers, bringing the overall outreach of TFSRP-H to 2.16 million people from approximately 580,000 households. In addition, the financing gap will add to IFAD's target of approximately 16,500 hectares to be brought under improved water management practices. These targets will be added on to the overall TFSRP results framework.

Table 1
**Overall TFSRP results framework after additional financing**

| | *Targets for original IFAD financing (including financing gap)* | *Targets for IFAD additional financing* | *New targets for total IFAD financing* | *New targets for full project scope (all financiers)* |
|---|---|---|---|---|
| **1.a Persons receiving services promoted or supported by the project** | | | | |
| Males | 125 000 | 15 000 | 140 000 | 320 000 |
| Females | 125 000 | 15 000 | 140 000 | 260 000 |
| Youth | 250 000 | 30 000 | 280 000 | 280 000 |
| Total number of persons receiving services | 250 000 | 30 000 | 280 000 | 580 000 |
| **1.b Estimated corresponding total number of household members** | | | | |
| Household members | 330 000 | 30 000 | 360 000 | 2 160 000 |
| **Centre of excellence built and operational** | | | | |
| Centre of Excellence renovated and equipped | 0 | 1 | 1 | 1 |
| Number of village-based advisors trained | 0 | 1 600 | 1 600 | 1 600 |
| **DLI 4: Performance-based operations, management and maintenance (OMM) contracts introduced and implemented** | | | | |
| Number of performance-based OMM contracts signed | 0 | 11 | 11 | 34 |
| Hectares operated under performance-based OMM contracts | 0 | 16 500 | 16 500 | 53 500 |

Table 2
**Original and additional financing summary**
(Millions of United States dollars)

| *Financing source* | *Original financing* | *Additional financing* | *Total* |
|---|---|---|---|
| IFAD loan | 21.5 | 49.9 | 71.4 |
| JICA | | 70 | 70 |
| World Bank/IDA | 300 | - | 300 |
| Borrower/recipient | 1 793 | - | 1 793 |
| **Total** | **2 114.5** | **119.9** | **2 234.4** |

Table 3
**Additional financing: Programme costs by results area, DLI and financier**
(Millions of United States dollars)

| *Result area* | *Disbursement-linked indicators* | *IFAD13 (AF +)* | *IFAD loan 1 (PBAS)* | *IFAD loan 2 (BRAM)* |
|---|---|---|---|---|
| RA 1: Improving service delivery in research, extension and seeds systems | DL 1: Sustainable financing for the development and dissemination of climate-resilient technologies in agriculture | 8.650 | 8.650 | - |
| | DL 2: Extension outreach strengthened, including through ICT solutions for promoting climate-smart practices | 3.475 | 3.475 | - |
| | DL 3: Improved functional linkages in the seed value chain | 6.850 | 6.850 | - |
| **Total for RA 1** | | **18.975** | **18.975** | **-** |
| RA 2: Developing resilient rural infrastructure | DL 4: Performance-based operations, management and maintenance contracts introduced and implemented | 28.325 | 18.325 | 10.000 |
| | DL 5: Storage and commercialization | - | - | - |
| **Total for RA 2** | | **28.325** | **18.325** | **10.000** |
| RA 3: Strengthening fiscal performance in priority investment areas | DL 6: Improved agricultural budget monitoring and predictability | - | - | **-** |
| | DL 7: Scaling up soil health assessments and management | - | - | **-** |
| **Total for RA 3** | | **-** | **-** | **-** |
| **Total for PforR budget** | | **47.300** | **37.300** | **10.000** |
| *Components* | | *IFAD13 (AF +)* | *PBAS* | *BRAM* |
| Component 1 (Zanzibar): Improving service delivery in research, extension and seed systems | | 1.900 | 1.900 | - |
| Component 2 (Zanzibar): Rehabilitation of rural infrastructure to enhance climate resilience | | 0.200 | 0.200 | - |
| Component 3 (Zanzibar): Programme implementation and supervision | | - | - | - |
| IPF component (mainland): Capacity-building and technical assistance | | 0.500 | 0.500 | - |
| **Total IPF budget** | | **2.600** | **2.600** | **-** |
| **Total overall budget** | | **49.900** | **39.900** | **10.000** |

Table 4
**IFAD Programme costs by component and programme year**
(Millions of United States dollars)

| | *Disbursement-linked Indicator* | *Total expenditure* | *2024/2025* | *2025/2026* | *2026/2027* | *2027/2028* |
|---|---|---|---|---|---|---|
| DLI 1 | Sustainable financing for the development and dissemination of climate-resilient technologies in agriculture | 16.13 | 4.79 | 4.23 | 2.79 | 4.33 |
| DLI 2 | Extension outreach strengthened, including through ICT solutions for promoting climate-smart practices | 6.75 | - | | 6.49 | 0.26 |
| DLI 3 | Improved functional linkages in the seed value chain | 13.70 | 2.62 | 2.62 | 2.62 | 5.84 |
| DLI 4 | Performance-based operations, management and maintenance contracts introduced and implemented | 28.33 | | 7.80 | 14.15 | 6.38 |
| IPF component (mainland) | | **1.00** | **0.25** | **0.25** | **0.25** | **0.25** |
| **Total mainland** | | **65.90** | **7.66** | **14.90** | **26.30** | **17.05** |

| | *Component* | *Total expenditure* | *2024/2025* | *2025/2026* | *2026/2027* | *2027/2028* |
|---|---|---|---|---|---|---|
| Component 1 | Improving service delivery in research, extension and seed systems | 2.50 | 0.50 | 0.10 | 1.90 | - |
| Component 2 | Rehabilitation of rural infrastructure to enhance climate resilience | 2.50 | - | 2.25 | 0.25 | - |
| Component 3 | Programme implementation and supervision | 0.50 | 0.25 | | 0.25 | - |
| **Total Zanzibar** | | **5.50** | **0.75** | **2.35** | **2.40** | **-** |
| **Cumulative** | | **71.40** | **8.41** | **17.245** | **28.7** | **17.05** |

**Financing and cofinancing strategy and plan**

39. The programme financing sources are as follows: the Government, US$1.793 billion (80.25 per cent of total costs); IDA, US$300 million (13.42 per cent); JICA US$70 million (3.13 per cent and to be confirmed); and IFAD, US$71.4 million (3.20 per cent). The programme will be administered by the World Bank in accordance with its policy and guidelines, including financial management aspects. In alignment with the World Bank/IDA financing agreement, eligible expenditures financed by IFAD will be inclusive of taxes and duties.

40. Both the IDA and IFAD use a combination of PforR and IPF financing. The IDA financing consists of US$280 million (93 per cent) in PforR and US$20 million (7 per cent) in IPF. Total IFAD financing consists of US$64.9 million (91 per cent) in PforR and US$6.5 million (9 per cent) in IPF; these sums will be sourced from IFAD12 (US$21.5 million) and IFAD13 (US$49.9 million).

**Disbursement**

41. Disbursements from IFAD will follow IDA procedures via the World Bank's Client Connection, using existing bank accounts. The borrower has sufficient capacity and a chart of accounts to properly segregate funds by financing source and use.

42. PforR disbursements will be made on achievement of the DLIs. The Government will prefinance PforR activities and be reimbursed by the IDA and IFAD on the achievement of predetermined results. Advances may be provided on a provisional basis. Achievement of the DLIs will be verified by the Office of the Internal Auditor General and/or a third-party verification agency, as per the verification protocols. The World Bank will send disbursement instructions to IFAD with an official communication confirming the achievement of DLIs. On receipt of such notice, IFAD will disburse funds to the programme bank account opened in the Bank of Tanzania to receive IFAD funds.

43. Funds for IPF activities will be disbursed by IFAD to two separate designated bank accounts at the Bank of Tanzania (mainland and Zanzibar). Disbursements will be based on quarterly interim financial reports, which will be submitted to the World Bank within 45 days of the end of the quarter, and withdrawal applications will be submitted directly to the World Bank's Client Connection.

**Summary of benefits and economic analysis**

44. The original economic and financial analysis (EFA) undertaken by the World Bank used a cost-benefit model to assess the ex ante efficiency of TFSRP-H over the 2023–2040 period. Costs included the entire programme budget (US$2 billion), as all budget items are considered necessary to obtain the target impact. Incremental net benefits were estimated in terms of value of agricultural production for six major crops. They were calculated as the difference in benefits between a counterfactual scenario without the programme and a scenario with the programme. Climate change is accounted for in both scenarios. The programme's net present value is estimated at US$4.01 billion, with an internal rate of return of 14.7 per cent and a benefit-cost ratio of 2.1.

45. Given that the EFA was undertaken of the entire programme and that the additional financing of US$31.4 million represents less than 1.5 per cent of these programme costs, the results of a new EFA would not differ significantly from the original analysis.

**Exit strategy and sustainability**

46. Sustainability and an exit strategy are embedded in the nature of the PforR, which contributes directly to an existing government programme, as budget support helps improve efficiency and the predictability of funding. Furthermore, the programme strengthens institutions such as irrigation committees to ensure that infrastructure investments are sustainable. Involving the private sector in the development of horticulture seed systems will ensure the sustainability of the activities.

# III. Risk management

## A. Risks and mitigation measures

47. The overall inherent and residual risks for TFSRP-H are assessed as moderate. The higher risk ratings are found in the areas of environment and climate context, financial management and project procurement.

48. To mitigate these risks, the programme will develop clear implementation plans and improve monitoring and evaluation systems. Additionally, the World Bank will ensure close monitoring of the programme's financial and procurement procedures.

49. Environmental context risks will be mitigated by the introduction of climate-smart interventions, and the formulation of site-specific environmental and social climate management plans.

50. The overall fiduciary risk rating is substantial. The mitigation measures in the integrated project risk matrix are aimed at boosting the fiduciary system's capacity and performance to provide reasonable assurance that funds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency and accountability.

Table 5
**Overall risk summary**

| *Risk areas* | *Inherent risk rating* | *Residual risk rating* |
|---|---|---|
| Country context | Substantial | Substantial |
| Sector strategies and policies | Moderate | Moderate |
| Environment and climate context | Substantial | Substantial |
| Project scope | Moderate | Moderate |
| Institutional capacity for implementation and sustainability | Moderate | Moderate |
| Financial management | Substantial | Substantial |
| Project procurement | Substantial | Substantial |
| Environment, social and climate impact | Moderate | Moderate |
| Stakeholders | Moderate | Moderate |
| **Overall** | Moderate | Moderate |

## B. Environment and social category

51. The World Bank categorizes the **environmental and social risk rating** for TFSRP-H as moderate. Potential risks and adverse impacts are predictable and expected to be temporary and/or reversible. No major construction works are anticipated, and the project will have no impact on sensitive areas or result in the loss of natural habitats or biodiversity. Infrastructure investment will be limited largely to operations, maintenance and management, employing a limited number of workers. Activities will not take place in areas prone to geophysical hazards, and as such the risk is considered minimal. Subprogramme grantees will be required to prepare environmental and social management plans indicating the potential risks and opportunities associated with the proposed activities, including mitigation and/or enhancement measures.

## C. Climate risk classification

52. The preliminary **climate risk classification** for TFSRP-H is substantial due to the country's exposure to extreme weather events such as droughts, floods, high temperatures and dry spells, the greater frequency and intensity of heavy rains, hailstorms, strong winds and rising sea levels. The target beneficiaries' vulnerability to climate-related shocks will pose a risk to the achievement of programme objectives.

# IV. Implementation

## A. Compliance with IFAD policies

53. The proposed financing is fully compliant with IFAD policies, and all the eligibility criteria for additional financing to fill a financing gap – as outlined in the project design guidelines – have been met.

## B. Organizational framework

### Management and coordination

54. The implementation arrangements do not change, with the day-to-day management of the programme ensured by the existing mainland programme management team (PMT) under the MoA in the mainland, and by the Zanzibar PMT under the Ministry of Agriculture, Irrigation, Natural Resources and Livestock in Zanzibar.

55. Both PMTs consist of full-time staff, in addition to focal points from relevant ministries and departments who will be assigned to work with the teams. Procurement and financial management activities will be carried out by the relevant departments of implementing agencies. In addition, each PMT will be supported by a full-time youth and targeting specialist, a full-time horticulture expert and a part-time digital agriculture expert.

56. Various agencies will be involved in implementation. The MoA will be responsible for all activities to be implemented as described above. The Tanzania Agricultural Research Institute may be tasked with strengthening the capacity of extension agents. This arrangement will help forge a relationship between research and extension and thus improve functional linkages. Other implementing partners will be local government authorities, the Southern Agricultural Growth Corridor of Tanzania and the Tanzania Horticultural Association. Under the existing institutional arrangement, local government authorities are responsible for extension services. The National Irrigation Commission will be responsible for overseeing implementation of the irrigation interventions.

### Financial management, procurement and governance

57. The programme is administered by the World Bank in accordance with its financial management policy and guidelines. The fiduciary systems, including the institutional and implementation arrangements, fiduciary management capacity and implementation performance, are already assessed by the World Bank at all levels. IFAD will rely on the country public financial management systems for PforR.

58. PforR financial records will be kept using the integrated financial management system. The financial statements will be prepared in accordance with the accrual basis of accounting of the International Public Sector Accounting Standards.

59. Financial records of the IPF component will be kept as per International Public Sector Accounting Standards cash basis in Excel worksheets, as the ministry does not have accounting software.

60. PforR internal audits will be performed by MoA internal auditors as per their annual plan. Internal audits for the IPF component will be performed at least twice a year. The World Bank will share internal audit reports with IFAD.

61. External audit reports for the IPF component will be submitted to the World Bank within six months of the end of each financial year. PforR external audits will be performed by the supreme audit institution and submitted to the World Bank within nine months of the end of the financial year. With the approval of the original financing, the Executive Board granted an exemption under section 9.03(b) of the General Conditions for Agricultural Development Financing to submit annual audited financial statements nine months after each fiscal year-end for both the PforR and the IPF components.

62. The programme will comply with the World Bank's guidelines on preventing and combating fraud and corruption. Implementing agencies will also adopt appropriate measures to prevent fraud and corruption.

63. As per the procurement framework agreement of September 2023 between IFAD and the World Bank, the lead cofinancier's procurement policies, regulations, rules and instructions are applicable for the procurement of goods, works and services.

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

64. The programme's monitoring and evaluation (M&E) framework relies mostly on the MoA's Agriculture Routine Data System. This data system will be upgraded during the first year of implementation. Some indicators will be derived from other government databases, while others will be monitored through established management information systems. Use of government systems will ensure that M&E arrangements are aligned with the MoA's overall M&E framework and consistent with the M&E platforms created for the Agricultural Sector Development Programme II.

65. Knowledge management (KM) will be part of programme implementation and conducted through the M&E system. A KM strategy will be developed at the beginning of the programme. The PMT will document and share lessons periodically during supervision missions, at midterm review and at programme completion. The World Bank is currently working on upgrading its M&E systems, and KM is one of the areas it intends to improve, in order to capture lessons on actual programme implementation and financing arrangements. This will include capturing lessons of particular value to IFAD, focusing on the programme-for-results modality.

## D. Proposed amendments to the financing agreement

66. The financing agreement will be revised in terms of the amount IFAD will be contributing, as per cost table 3. Schedule 1 will be revised to include a description of the additional indicators for DLI 1 and the addition of DLI 4.

# V. Legal instruments and authority

67. A financing agreement between the United Republic of Tanzania and IFAD will constitute the legal instrument for extending the proposed financing to the borrower. The signed financing agreement will be amended following approval of the additional financing.

68. The United Republic of Tanzania is empowered under its laws to receive financing from IFAD.

69. I am satisfied that the proposed additional financing will comply with the Agreement Establishing IFAD and the Policies and Criteria for IFAD Financing.

# VI. Recommendation

70. I recommend that the Executive Board approve additional financing in terms of the following resolution:

RESOLVED: that the Fund shall provide a loan on highly concessional terms to the United Republic of Tanzania in an amount of thirty-nine million nine hundred thousand United States dollars (US$39,900,000) 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 ordinary terms to the United Republic of Tanzania in an amount of ten million United States dollars (US$10,000,000) and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Alvaro Lario
President

# Updated logical framework incorporating the additional financing

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| **Outreach** | **1 Persons receiving services promoted or supported by the project** | | | | MIS, Digital Systems (M-Kilimo) | Annually | Ministry of Agriculture | "There is availability and willingness of the targeted youth to participate in the project and contribute to household livelihoods.<br><br>The Government of Tanzania has put in place systems to reach the targeted youth and has capacity to provide the services as provided in the project design. "<br><br>There is availability and willingness of the targeted youth to participate in the project and contribute to household livelihoods.<br>The Government of Tanzania has put in place systems to reach the targeted youth and has capacity to provide the services as provided in the project design. |
| | Males - Males | 0 | 128000 | 320000 | | | | |
| | Females - Females | 0 | 104000 | 260000 | | | | |
| | Young - Young people | 0 | 112000 | 280000 | | | | |
| | Total number of persons receiving services - Number of people | 0 | 232000 | 580000 | | | | |
| | **1.b Estimated corresponding total number of households members** | | | | MIS, Digital Systems (M-Kilimo) | Annually | Ministry of Agriculture | |
| | Household members - Number of people | | 880000 | 2160000 | | | | |
| | **1.a Corresponding number of households reached** | | | | MIS, Digital Systems (M-Kilimo) | Annually | Ministry of Agriculture | |
| | Households - Households | | 232000 | 580000 | | | | |
| **Development Objective**<br>To support food systems resilience by strengthening agricultural service | **2.2.1 Persons with new jobs/employment opportunities** | | | | COI Surveys | Midline, end line surveys | External M&E service provider | There is willingness and capacity by the targeted youth to adopt and sustain the climate resilient technologies in their horticulture enterprises. |
| | Males - Males | | 10000 | 25000 | | | | |
| | Females - Females | | 10000 | 25000 | | | | |
| | Young - Young people | | 20000 | 50000 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| delivery, the adoption of climate resilient technologies and fiscal performance in the agricultural sector | Total number of persons with new jobs/employment opportunities - Number of people | | 20000 | 50000 | | | | The Government extension services have capability to deliver and reach the targeted youth with the climate resilient technologies. The youth horticulture enterprises are sustainable and have potential to create new jobs/employment opportunities for other people.<br>The government is willing to support the growth of youth horticulture enterprises with all the necessary resources that grow and sustain them. |
| | **People reporting enhanced resilience to climate risks (Number)** | | | | Project surveys and reports | Mid-line and endline | PMU | |
| | Males - Number | 0 | 1500000 | 2250000 | | | | |
| | Females - Number | 0 | 1500000 | 2250000 | | | | |
| | Young - Number | 0 | 750000 | 750000 | | | | |
| | **Percent increase in score of Women's Empowerment Metric for National Statistical Systems (WEMNS) (Percentage)** | | | | end line survey | Completion | | |
| | **Tanzania's CAADP BR score on "Intra-African Trade in Agriculture Commodities and services"** | | | | CAADP BR report | Endline evaluation | MoA | |
| | BR Score - Number | 4.21 | 4.21 | 8.5 | | | | |
| | **Policy products adopted with project support related to agriculture, natural resource management, and food/nutrition security** | | | | Progress reports | Mid-line and endline | MoA | |
| | Number of policies - Number | 0 | 0 | 6 | | | | |
| **Outcome**<br>Results Area 1: Improving service delivery in research, extension, and seed Mainland | **3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices** | | | | COI Surveys | Midline, end line surveys | External M&E service provider | |
| | Total number of household members - Number of people | | 510000 | 1050000 | | | | |
| | Households - Percentage (%) | | 18 | 45 | | | | |
| | Households - Households | | 170000 | 380000 | | | | |
| **Output**<br>DLI 1. Sustainable financing for the development and dissemination of climate resilient | **3.1.2 Persons provided with climate information services** | | | | MIS, Digital Systems (M-Kilimo) | Annually | Ministry of Agriculture | There is willingness and capacity from government to improve the service delivery in research, extension, and seed systems. |
| | Males - Males | 0 | 35000 | 70000 | | | | |
| | Females - Females | 0 | 15000 | 30000 | | | | |
| | Young - Young people | 0 | 50000 | 100000 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| technologies in agriculture; P4R RDLIs- Mainland | Persons provided with climate information services - Number of people | 0 | 50000 | 100000 | | | | The government is willing has the capacity to make the initial investment to achieve these deliverables to trigger the disbursement of funds on time. |
| | **TARI Strategic Plan 2025-30 approved to include horticulture investment plan, including Mid-term Expenditure Framework (this a deliverable for year 2025)** | | | | TARI records, surveys of farmers and agricultural experts | | Type of component supported. | |
| | Horticulture investment plan approved (including Mid-term Expenditure Framework) by type of component supported - Number | 0 | 0 | 1 | | | | |
| | TARI research strategic plan 2025-2030 approved, including mid-term expenditure framework (Yes/No) – Number | 0 | 0 | 1 | | | | |
| | **TARI's annual budget outturn for research** | | | | Audited reports | Annually | TALI | |
| | Ratio of TARI's budget received to budget committed in its medium-term expenditure framework (in %) (Percentage) - Percentage (%) | 30 | 60 | 75 | | | | |
| | Increased budget for research institutions (% of budget allocated to horticulture) - Percentage (%) - Percentage (%) | 30 | 60 | 65 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | **Horti Tengeru Center of Excellence for Horticulture established and operational** | | | | | | | |
| | Center of Excellence for Horticulture rehabilitated and 3-year operational plan in place - Number | 0 | 0 | 1 | | | | |
| | Number of Village Based Advisors trained in the centre of excellence - Number | 0 | 800 | 1600 | | | | |
| | Males - Number | 0 | 400 | 800 | | | | |
| | Females - Number | 0 | 400 | 800 | | | | |
| | **Number of climate smart varieties released** | | | | Progress reports | Annual | TARI | |
| | Number of new climate-resilient seed horticulture varieties released - Number | 0 | 10 | 20 | | | | |
| | Number of climate resilient crop varieties released (total since 2022) - Number | 0 | 15 | 25 | | | | |
| | Amount of pre-basic seed distributed by TARI - Tons | 200 | 260 | 300 | | | | |
| | **Number of technologies developed, transferred to and absorbed by extension services since 2022** | | | | | Annual | TARI | |
| | Number of technologies developed, - Number | 0 | 30 | 50 | | | | |
| | Of which gender-sensitive technologies (Number) - Number | 0 | 6 | 10 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | Of which biofortified varieties (e.g., orange flesh sweet potato, beans) (Number) - Number | 0 | 3 | 5 | | | | |
| **Output**<br>DLI 2. Extension outreach strengthened, including through ICT solutions for promoting climate smart practices; P4R RDLIs- Mainland | **1.1.3 Rural producers accessing production inputs and/or technological packages** | | | | MIS, Digital Systems (M-Kilimo) | Annually | Ministry of Agriculture | There is willingness by extension services to to participate in trainings related to climate smart practices and deployment of e-agriculture solutions.<br>There is willing to utilise e-agric solutions within government.<br><br>There is technical support for the relevant staff to fully utilise the e-agric solutions.<br>The e-agric solutions are user friendly to both government staff and the targeted youth.<br>There is supportive infrastructure in the geographic areas to support the functionality of the e-agric solutions.<br>The youth are willing to participate in financial literacy trainings and get registered on the E-Platform. |
| | Males - Males | | | | | | | |
| | Females - Females | | | | | | | |
| | Young - Young people | | | | | | | |
| | Total rural producers - Number of people | | | | | | | |
| | **Farmers reached with (horticulture) extension services** | | | | | | | |
| | Males - Number | 0 | 272 | 680 | | | | |
| | Females - Number | 0 | 272 | 680 | | | | |
| | Young - Number | 0 | 544 | 1360 | | | | |
| | **1.1.4 Persons trained in production practices and/or technologies** | | | | | | | |
| | Total number of persons trained by the project - Number of people | | | | | | | |
| | Males trained at least once by the project - Males | | | | | | | |
| | Females trained at least once by the project - Females | | | | | | | |
| | **Number of extension staff trained on hortiuclture climate smart practices and e-agric. Solutions** | | | | Ministry of Agriculture training records | Annually | Ministry of Agriculture | |
| | Male - Number | 0 | 272 | 680 | | | | |
| | Female - Number | 0 | 272 | 680 | | | | |
| | Young People - Number | 0 | 544 | 1360 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | **Number of extension officers trained on CSA, e-solutionn and SHEP Approach (JICA)** | | | | | | | |
| | Total number of people - Number of people | 0 | 0 | 1000 | | | | |
| **Output** DLI 3. Improved functional linkages in the Seed value chain; P4R RDLIs- Mainland | **Number of TOSCI Authorized Seed Inspectors (non-horticulture)** | | | | ASA records | Annually | TOSCI | There is expertise and infrastructure to support the production of certified seeds. There is limited red tape in getting the seed certified to get into mainstream seed market systems. |
| | Males - Number | 80 | 120 | 150 | | | | |
| | Females - Number | 10 | 30 | 37 | | | | |
| | **Number of TOSCI Authorized Horticulture Seed Inspectors/2** | | | | TOSCI records | Annually | TOSCI | |
| | Male - Number | 0 | 6 | 9 | | | | |
| | Female - Number | 0 | 6 | 9 | | | | |
| | Young People - Number | 0 | 12 | 18 | | | | |
| | **Amount of certified seeds and seedlings produce** | | | | | | | |
| | Tons of certified seeds (non-horticulture) produced - Tons | 3000 | 12000 | 20000 | | | | |
| | Tons of certified horticulture seeds produced - Tons | 0.26 | 0.75 | 1.25 | | | | |
| | Number of horticulture seedlings produce - Number | 0 | 2000 | 4000 | | | | |
| **Outcome** RA2. Developing resilient rural Infrastructure | **1.2.1 Households reporting improved access to land, forests, water or water bodies for production purposes** | | | | | | | |
| | Women-headed households - Households | | | | | | | |
| | Households reporting improved access to water - Percentage (%) | | | | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | **2.2.6 Households reporting improved physical access to markets, processing and storage facilities** | | | | | | | |
| | Households reporting improved physical access to storage facilities - Percentage (%) | | | | | | | |
| | Size of households - Number of people | | | | | | | |
| | Women-headed households - Households | | | | | | | |
| | Households reporting improved physical access to storage facilities - Households | | | | | | | |
| **Output** DLI 4: Performance-Based Operations, Management and Maintenance (OMM) Contracts Introduced and Implemented - including irrigation schemes under MOA Borehole masterplan | **1.1.2 Farmland under water-related infrastructure constructed/rehabilitated** | | | | | | | There is willingness and capacity from government to improve the service delivery in research, extension, and seed systems. The government is willing has the capacity to make the initial investment to achieve these deliverables to trigger the disbursement of funds on time. |
| | Hectares of land - Area (ha) | | | | | | | |
| | **Performance based OMM contracts** | | | | (i). Table with area operated under performance-based OMM contracts (disaggregated by region and scheme) (ii). Scheme lay-out plans included in the agreements defining the total irrigation area operated under the signed OMM contracts (iii). 6 | Annually | NiRC | |
| | Number of performance-based OMM contracts signed - Number | 0 | 17 | 34 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | | | | | monthly reports prepared by the OMM contracting parties to the NiRC for each scheme that is included in the measurement of DLI (incl. IO payment statement for bulk water supplied by NiRC); (iv). Any performance monitoring reports that were agreed in the OMM contract | | | |
| **Output** DLI 5. Effective management of public warehouse facilities | **Warehouses leased by the private sector, operated by cooperatives and SOEs/NFRA in compliance with guidelines (for new management model) (Number)** | | | | | | | |
| | Number of warehouses leased - Facilities | 0 | 44 | 79 | | | | |
| | Total annual turnover of commodities stored in warehouses managed using new management model - Money (USD' 000) | 0 | 35000 | 56000 | | | | |
| **Outcome:** RA3. Strengthening fiscal performance to enable delivery on priority investment areas | | | | | | | | |
| **Output** DLI 6. Improved agricultural budget monitoring and predictability | **Budget outturn of MoA and its line agencies (Percentage)** | | | | | | | The MoA and MoF are willing to increase budget allocations for agriculture programmes. MoA and its line agencies have capacity spend the budget on the allocated programmes/activities. |
| | % change in budget outturn of MoA and its line agencies (Percentage) - Percentage (%) | 0 | 70 | 80 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | Name | Baseline | Mid-Term | End Target | Source | Frequency | Responsibility | |
| **Output**<br>DLI 7. Scaling up soil health assessment and management framework | **Number of scale up farmers reached with actionable advice and inputs for localized integrated soil fertility management interventions (Number)** | | | | | | | The MoA has capacity and is well equiped to establish and publish a soil map. The MoA has need for establishing the soil map.<br><br>The farmers are aware of soil testing and correction services and are demanding it. |
| | Males - Number | 0 | 12000 | 24000 | | | | |
| | Females - Number | 0 | 8000 | 16000 | | | | |
| | **Number of pilot farmers reached with actionable advice and inputs for localized integrated soil fertility management interventions (Number)** | | | | | | | |
| | Males - Number | 0 | 13000 | 39000 | | | | |
| | Females - Number | 0 | 2000 | 6000 | | | | |
| **Outcome:** IPF Component: Project Activities in ZanzibarZanzibar | | | | | | | | |
| **Output**<br>IPF Component 1: ZanzibarSupport to Zanzibar | **Number of ZARI Lab equipped with facilities (soil, tissue culture and entomology etc.)** | | | | ZARI records | Annually | ZARI | There is willingness by the government to rehabilitate ZARI Labs.<br>There is availability of staff or students willing to pursue postgraduate studies in areas of need within ZARI.<br>There is expertise and infrastructure to support the production of certified seeds.<br>There is limited red tape in getting the seed certified to get into mainstream seed market systems.<br>There is willingness by extension services to to participate in trainings related to climate smart practices and deployment of e-agriculture solutions.<br>There is willingness and capacity by the targeted youth to be trained, adopt and sustain the climate |
| | Labs equipped with facilities - Number | | 0 | 4 | | | | |
| | **Number of additional professional staff with a post-graduate degree (master's and PhD) at ZARI** | | | | ZARI records | Annually | ZARI | |
| | Male - Number | | 0 | 5 | | | | |
| | Female - Number | | 0 | 5 | | | | |
| | Young people - Number | | 0 | 2 | | | | |
| | **Number of climate resilience enhancing technologies developed and released in Zanzibar** | | | | ZARI records | Annually | ZARI | |
| | Climate resilience - Number | | 6 | 7 | | | | |
| | **Seed certification system established** | | | | ZARI records | Annually | ZARI | |
| | System established - Number | | 0 | 1 | | | | |
| | **Number of extension staff trained on climate smart practices and e-agric solutions** | | | | Ministry of Agriculture (Zanzibar) records, surveys of extension staff | Annually | Ministry of Agriculture | |
| | Male - Number | | 87 | 88 | | | | |
| | Female - Number | | 87 | 88 | | | | |
| | Young people - Number | | 4 | 6 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | **Number of farmers that completed a farmer field school program supported by the project** | | | | Ministry of Agriculture (Zanzibar) records, surveys of extension staff | Annually | Ministry of Agriculture | resilient technologies in their horticulture enterprises. |
| | Male - Number | | 2000 | 3500 | | | | |
| | Female - Number | | 1400 | 2500 | | | | |
| | Young People - Number | | 400 | 1000 | | | | |
| **Output** IPF Component 2: ZanzibarRehabilitation of rural infrastructure to enhance climate resilience | **Number of Farmer's Service Centers rehabilitated (incl. drying area)** | | | | Ministry of Agriculture (Zanzibar) records | Annually | Ministry of Agriculture | The Ministry of Agriculture supports the rehabilitation of the Farmer Service Centers. The Farmer Service Centers are available and accessible for rehabilitation. |
| | Service centers rehabilitated - Number | 0 | 0 | 5 | | | | |
| | **Area provided with new/improved irrigation or drainage services (hectare)** | | | | | | | |
| | Number of hectares under new/improved irrigation or drainage services - Area (ha) | 0 | 0 | 800 | | | | |
| | **Number of boreholes for irrigation rehabilitated** | | | | | | | |
| | number of boreholes - Number | 0 | 8 | 8 | | | | |
| | **Farm roads rehabilitated within irrigation schemes (in km) (Number)** | | | | | | | |
| | Km rehabilitated - Km | 0 | 10 | 10 | | | | |
| **Output** IPF Component 3: ZanzibarImproved access to markets | **Number of youths certified on food safety standards** | | | | Ministry of Agriculture (Zanzibar) records | Annually | Ministry of Agriculture | There is willingness and capacity by the targeted youth to participate in food safety certification programmes, adopt and sustain these in their horticulture enterprises |
| | Male - Number | | 200 | 500 | | | | |
| | Female - Number | | 200 | 200 | | | | |
| | Young people - Number | | 400 | 1000 | | | | |
| | **Number of youths supplying local markets with horticulture produce** | | | | Ministry of Agriculture (Zanzibar) records | Annually | Ministry of Agriculture | |
| | Male - Number | | 200 | 500 | | | | |
| | Female - Number | | 200 | 500 | | | | |
| | Young People - Number | | 400 | 1000 | | | | |

| Results Hierarchy | Indicators | | | | Means of Verification | | | Assumptions |
|---|---|---|---|---|---|---|---|---|
| | **Name** | **Baseline** | **Mid-Term** | **End Target** | **Source** | **Frequency** | **Responsibility** | |
| | **Number of women vegetable producing/marketing groups established or strengthened** | | | | | | | |
| | Number of women vegetable producing/marketing groups established or strengthened - Groups | 0 | 30 | 30 | | | | |

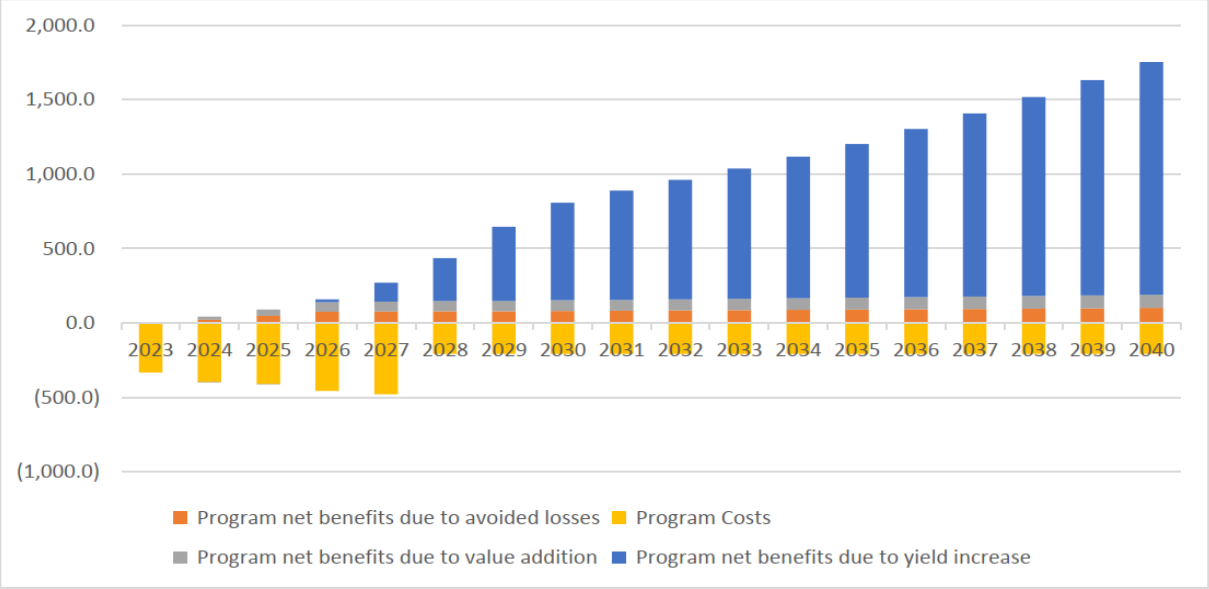
# Updated summary of the economic and financial analysis

Economic Analysis. A cost benefit model is used to assess the ex-ante efficiency of TFSRP over the 2023-2040 period. Costs include the entire Program costs, as all budget items are considered necessary to obtain the target impact. Incremental net benefits are estimated in terms of value of agricultural production for six major crops. They are calculated as the difference in benefits between a counterfactual scenario without Program, and a scenario with Program. Climate change is accounted for in both scenarios**. The Program's Net Present Value is estimated at $4.01 billion with an Internal Rate of Return (IRR) of 14.7% and a Benefit Cost Ratio of 2.1. The payback period is 6 years.** The World Bank recommended discount rate of 5% has been used to calculate costs and benefits indicators.

**Costs** include the entire Program costs (as per TFSRP boundaries), as all budget items are considered necessary to obtain the target impact. Over 2023-2028, costs thus amount to $ 2,093 M (including Government funds and IDA funds). Over 2029-2040 (19-year period), the assumption is made that the Government will maintain public agricultural expenditures at its 2022/23 level. Hence, costs post-TFSRP amount to $ 2,691 (before application of the discount rate). This is a conservative assumption as TFSRP is expected to have a transformative effect on agricultural public spending. However, 2022/23 was already a year of high public investment compared to the previous decade, and using it as a baseline for future public expenditures better isolate the effect of TFSRP per se. The total Program costs are thus estimated at $4,8 billion over 2023-2040 (before application of the discount rate).

**Incremental net benefits** are estimated as the difference in benefits between two scenarios: a counterfactual without-Program (WO/P) and a scenario with TFSRP implementation (with Program, W/P). Benefits are assessed in terms of value of agricultural production. Climate change is accounted for in both scenarios, as a major expected benefit of the Program consists in supporting Tanzania's adaptation to it.

*Summarizes costs and benefits modelled in this economic analysis*




**The counterfactual (WO/P) is modelled based on projected yields, production, acreage adjustments and prices based on historical patterns adjusted for projected climate change impacts.** The model encompasses six major agricultural commodities (maize, rice, sorghum, cassava, banana and beans) and excludes livestock, as TFSRP focuses on crops. Projected yields and cultivated acreages come from CIAT and World Bank (2017) and are based on historical patterns in Tanzania adjusted for expected

climate change impact in the country. They have been estimated with a global partial equilibrium model for the food and agriculture sector (IMPACT - the International Model for Policy Analysis of Agricultural Commodities and Trade, Robinson et al. 2015). Projected price data come from Sulser et al. (2021) and allow to estimate the projected value of the different products over the period.

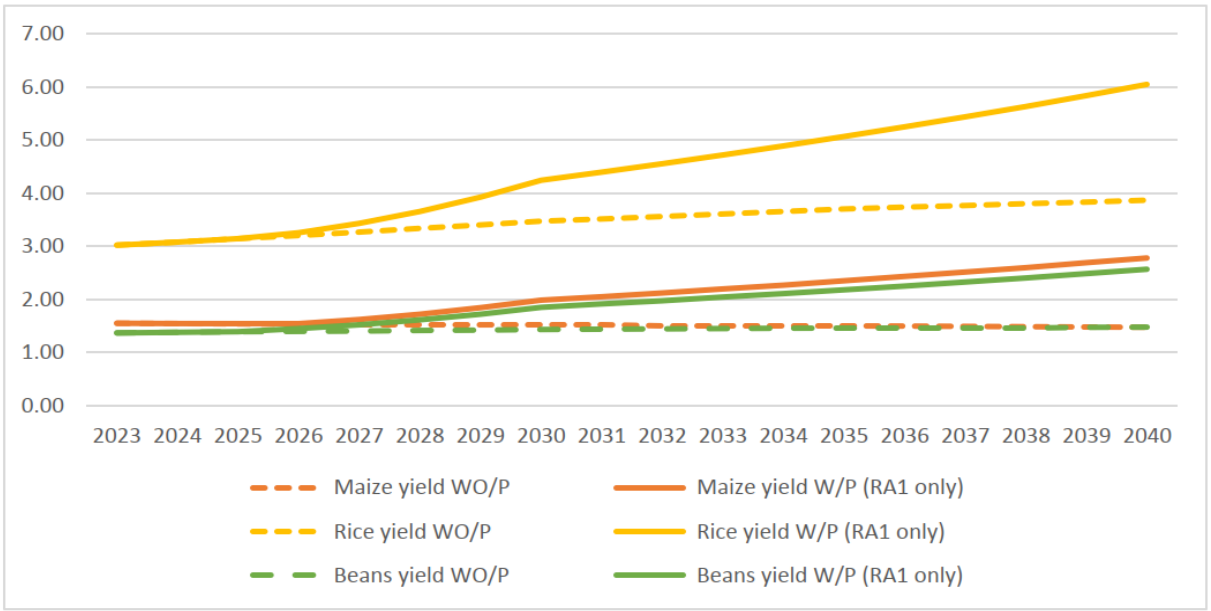
The benefits of TFRSP have been modelled and quantified (see summary Table 1 and Table 2) the key assumptions are as follows:

**Development, dissemination, and adoption of climate-smart agriculture innovations (including improved seeds) that increase agricultural productivity despite climate change.**

TFSRP is expected to build resilience and increase the capacity to adapt to climate change by accelerating the ability of research institutions to develop and adapt technologies (DLI 1), expand the use of digital solutions to enable increased access to climate-smart technology, strengthen extension services outreach for promoting climate smart practices (DLI 2), and improve the supply to high-quality climate resilient seeds (DLI 3). These activities correspond to TFSRP Result Area 1 (Improving service delivery in research, extension, and seeds). Related benefits are assessed based on Sulser et al. (2021). These authors estimated yields adjustments under different policy scenarios within a climate change baseline, also using the IMPACT model. They consider five alternative investment scenarios, among which a scenario on increased research and development combined with faster and more efficient adoption of new technologies and improved seeds. The estimations of TFSRP benefits are extrapolated from these results.

Figure 1 provides an example for maize, rice and cassava of how the Program's Result Area 1 is expected to increase yields. Assumptions on the diffusion and adoption of innovations among farmers are summarized in table 1. A 3-year lag between investment in innovation and adoption at the field level is assumed.

*Figure 1: Projected yields evolution for Maize, Rice and Beans in Tanzania with (W/P) and without (WO/P) TFSRP*




**Development of water-efficient irrigation schemes that reduce the negative impacts of climate change on agricultural production:**

DLI 4 is expected to establish systems that ensure all irrigation systems are used as effectively and efficiently as possible. Benefits of the development of water-efficient irrigation are assessed by adapting Sulser et al. (2021)'s results on their scenario of investment on expansion of irrigated area coupled with increased water use efficiency.

Assumptions on the percentage of cultivated area that benefits from water-efficient irrigation are summarized in table 1. A 2-year lag between investment in improved irrigation management system and adoption at the field level is assumed.

**Adoption by farmers of soil health management practices that reduce the negative impacts of soil degradation on agricultural production:**

DLI 8 is expected to support Tanzania in adopting a holistic soil health policy framework that will increase productivity and long-term resilience of the sector and pave the way for future carbon financing opportunities. Benefits of improved agricultural soil health management are assessed by adapting Sulser et al. (2021)'s results on their scenario of improved soil water-holding capacity. Assumptions on the percentage of cultivated area that benefits from improved soil health management practices are summarized in table 1. A 3-year lag between investment in soil management practices and yield impact is assumed.

**Improvement in warehouses management that reduces agricultural losses along the value chains**

DLI 5 is expected to incentivize the development of an energy efficient warehouse management model that will increase the use of the existing storage capacity. The benefits are assessed by making the assumptions that TFSRP will improved storage efficiency for an increasing percentage of the agricultural production starting in 2024. Improved storage is assumed to reduce agricultural losses by 30 percent. Increase in value addition at the warehouse level thanks to increased public-private partnerships:

The warehouse management model promoted by DLI 5 will also use a private sector operation model that fosters value addition at the warehouse level (e.g., first-step processing of agricultural commodities). DLI 5 is thus also expected to add value on an increasing percentage of national agricultural production (see Table 1). It is assumed that processing adds 30 percent to the value of the commodity.

These benefits correspond directly to DLI 1 (research), DLI 2 (extension services), DLI 3 (seeds), DLI 4 (irrigation), DLI 5 (storage) and DLI 7 (soil health). DLI 6 (fiscal performance) is considered as enabler of the afore mention DLIs, in the sense that DLI 1-5 and 7 could not yield their benefits without the investments unlocked by DLI 6.

**TFRSP is expected to yield the following additional benefits that have not been quantified:**

The social value of impact on GHG emissions: The Program is expected to reduce agricultural GHG emission per unit of agricultural product because of (i) an increase in carbon sequestration in agricultural soils with improved soil health management practices; (ii) reduction in agricultural losses with improved warehouses systems; (iii) reduction in agriculture-linked deforestation due to increased productivity on farmland.

- Improved capacity and skill-level in public institutions: TFSRP encompasses significant technical assistance that had not been assessed in this analysis.

- Reduction in gender agricultural productivity gap: The gender gap in agricultural productivity in Tanzania is estimated at 20-30 percent. The Program aims at bridging it by creating training opportunities for women, giving a special focus on outreach to women farmer access to technologies, increasing access to improved seed varieties for women and creating opportunities for women to participate in commercialization.

- Diversified livelihoods and improved employment opportunities: It is expected that TFSRP generates additional employment up and downstream, such as in agricultural research, in input and service provision for agriculture sector, post-harvest services such as storage and processing facilities, transport services; ICT tools.

- positive externalities from reduced soil degradation (including improved ecosystem services provision, reduced costs of sediment build-up in downstream irrigation; etc.)

- Improved food security and nutrition: benefits resulting from improved food security and nutrition have not been assessed beyond the value of agricultural production. However, one of the major expected benefits of the Program is to improve access to a more diversified, nutritious, and stable food supply for Tanzania and the Region. Indirect benefits include (among others) increased productivity in other sectors and reduced costs in the health sector.

*Table 1: Key assumptions on Program benefit diffusion at the farm level*

| | Share of farm area reached with CSA innovation developed (RA1) | Share of farm area reached with irrigation improvement | Share of production benefiting from improved storage | Share of farm area reached with soil improvement |
|---|---|---|---|---|
| **2023** | 0% | 0% | 0% | 0% |
| **2024** | 0% | 1% | 1% | 1% |
| **2025** | 0% | 1% | 2% | 2% |
| **2026** | 5% | 1% | 3% | 4% |
| **2027** | 10% | 2% | 3% | 5% |
| **2028** | 12% | 3% | 3% | 5% |
| **2029** | 15% | 3% | 3% | 5% |
| **2030** | 15% | 4% | 3% | 5% |
| **2031-2040** | 15% | 4% | 3% | 5% |

*Table 2: Elasticities of yield increase (%) per $1M invested*

| | CSA innovation development and dissemination | Irrigation improvement | Soil improvement |
|---|---|---|---|
| maize | 3.62E-04 | 4.20E-04 | 5.74E-03 |
| rice | 3.80E-04 | 1.66E-04 | 4.11E-03 |
| cassava | 3.79E-04 | 0.00E+00 | 5.70E-03 |
| sorghum | 3.87E-04 | 0.00E+00 | 9.78E-04 |
| beans | 3.50E-04 | 6.86E-05 | 9.78E-04 |
| bananas | 1.77E-04 | 1.77E-04 | 6.19E-03 |